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Literature List
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K.C. Kwon, M.J. Kim, **Shake-Induced Temporary Ion-Pairing Between Lecithin and Glycolic Acid for Enhanced Exfoliation in a Novel Biphasic Serum: Comparative Ex Vivo and in Vivo Randomised Studies**, Skin Research and Technology , 2026; 32:e70349

Background: Chemical exfoliation efficacy is significantly limited by pH-dependent permeability reduction above the pKa of glycolic acid (3.83), constraining consumer product development. Objective: To develop and evaluate a biphasic serum utilizing temporary lecithin-glycolate ion-pairing to enhance stratum corneum permeation while maintaining safety at pH 3.9. Methods: A biphasic formulation containing 10 wt% (weight percent) glycolic acid and 0.1 wt% lecithin was developed. Temporary ion-pairing was characterized by FT-IR spectroscopy. Ex vivo permeation and exfoliation were evaluated using porcine skin models. A 2-week double-blind, split-face clinical study (n = 37) assessed efficacy using instrumental probes (Visioscan, Corneofix, VISIA- CR, and ANTERA 3D) for exfoliation-related parameters and sensitive skin compatibility. Results: FT-IR analysis confirmed lecithin-glycolate bonding via red-shifted C = O peaks, with spectral comparisons before and after shaking demonstrating the reversible nature of the change. The biphasic serum achieved 4.19-fold higher epidermal glycolic acid delivery compared to conventional formulations with minimal deep penetration. Clinical evaluation demonstrated superior exfoliation (45.52% improvement, $p < 0.001$), enhanced skin brightness, texture, and hydration. Redness and transepidermal water loss, assessed for sensitive skin suitability, showed significant improvements. Conclusion: The biphasic system successfully overcomes pH-dependent limitations of glycolic acid through temporary ion-pairing, providing enhanced exfoliation efficacy with a superior safety profile for consumer applications.

M.L. Wyganowska, F. Tyliszczak, M. Marzec, S. Klewin-Steinböck, I. Nowak, **Instrumental In Vivo Assessment of Cosmetic Emulsions Containing Platelet-Rich Fibrin (PRF) or Recombinant Epidermal Growth Factor (EGF): A Pilot Compatibility Study**, Pharmaceuticals 2026, 19, 394

Background: This study evaluates short-term skin compatibility and biophysical changes in new cosmetic preparations containing PRF and EGF, conducted through in vivo studies. Material and Methods: The study involved 20 healthy volunteers (aged 20–40) who received three identically packaged creams to be applied for a period of four weeks to specific facial areas: formulation 1: base formulation (control); formulation 2: base formulation human epidermal growth factor (EGF) loaded; and formulation 3: base formulation platelet-rich fibrin (PRF) loaded. Skin assessments were conducted at baseline (week 0) and at weeks 1, 2, and 4. Transepidermal water loss (TEWL), skin hydration using corneometry to determine the moisture content of the stratum corneum, skin elasticity using a cutometer to measure the skin's ability to return to its original state after deformation, and dermal bioavailability were measured. EGF concentration in the stratum corneum will be measured using the tape-stripping method followed by HPLC (high-performance liquid chromatography) analysis. Results: A significant decrease in TEWL was observed for all tested formulations (24%, 37%, and 34%, for formulations 1, 2, and 3, respectively), indicating improved skin barrier function. Formulation 3 showed the highest increase in skin hydration (by 95%), followed by formulation 2. Both formulations 2 and 3 demonstrated improvements in skin elasticity, with formulation 3 showing the greatest enhancement. EGF concentration in the stratum corneum increased over the four-week period, reaching equilibrium with the product concentration by week four. Conclusions: The in vivo instrumental compatibility studies confirmed that the new cosmetic formulations were well tolerated and associated with short-term improvement in selected skin parameters.

M.N. Takuathung, K. Yaja, J. Aisara, P. Klinjan, P. Anek, R. Inpan, T. Kantasa, J. Chitphan, K. Yeerong, S. Teekachunhatean, N. Koonrungsesomboon, **A Randomized Controlled Trial of the Genistein Plus Bakuchiol and Vitamins (GEN+) Product for Male Facial Skin: Effects on Skin Appearance and Properties**, Skin Research and Technology, Volume 32, Issue 1, January 2026

Background: With increasing life expectancy, the aging population, particularly in Asia, is expanding rapidly. Combined with intense year-round ultraviolet exposure, this accelerates skin aging.

Male skin also exhibits distinct aging characteristics. This study aims to evaluate the efficacy and safety of the Genistein Plus Bakuchiol and Vitamins (GEN+) product on male facial skin. Materials and Methods: A randomized, double-blind, placebo-controlled trial was conducted in men aged 45–65 years. Participants were assigned to receive either the GEN+ or placebo (PLA) product in a 1:1 ratio and applied the product twice daily for 12 weeks. Facial skin assessments were performed at baseline and at weeks 4, 8, and 12. Evaluated parameters included skin color and consistency, spots, pigmentation, redness, acne, elasticity, hydration, barrier function, and wrinkles. Compliance and satisfaction were also monitored. Results: Eighty male participants were enrolled (GEN+ : n = 40; PLA: n = 40). After 12 weeks, the GEN+ group demonstrated significant improvements in cheek skin lightening (MD = 0.55, 95% CI: 0.03 to 1.08, p = 0.04) and color consistency (MD = –0.56, 95% CI: –1.06 to –0.06, p = 0.03), along with a reduction in forehead spots (MD = –0.60, 95% CI: –1.15 to –0.06, p = 0.03). No significant differences were observed in melanin-, erythema-, or acne-related parameters. Skin property parameters did not differ significantly between groups, except for skin roughness. Adverse events were mild and self-resolving. While satisfaction scores did not differ significantly, the GEN+ group reported higher scores across most domains. Conclusion: The GEN+ product demonstrated promising improvements in male facial skin appearance, including skin lightening, color consistency, and spot reduction. The product was well-tolerated and offered a safe, targeted skincare solution for men.

J. Wang, L. Cheng, J. Zhang, Y. Qin, Q. Fu, X. Bai, F. Qi, F. Wu, J. Yang, Y. Pan, **Comprehensive Evaluation of Body Lotion in Alleviat-ing Xerosis: A Multi-Omics Approach to Lipid Metabolism and Microbial Community Modulation**, Journal of Cosmetic Dermatology, 2026; 25:e70711

Background: Xerosis, marked by a compromised skin barrier and disrupted lipid metabolism, leads to dryness, scaling, and itching. Ceramide and natural oil-based moisturizers can improve skin hydration and barrier repair, but their effects on lipid networks and microbiome interactions have not been well understood. Methods: A multicenter, randomized, self-controlled study was conducted to assess the efficacy of a body lotion formulated with ceramides and natural oils in the management of xerosis. The lotion was applied daily to one leg for 4 weeks, with the other leg as a control. Skin radiance, skin scaliness, skin smoothness, stratum corneum hydration, transepidermal water loss, and pH were measured at various intervals. Lipidomics and microbiomics analyses evaluated changes in lipid metabolism and microbial structure. Results: The body lotion enhanced skin hydration, radiance, and smoothness, while decreasing TEWL and scaling. Lipidomics showed higher levels of essential lipids in the treatment group. Microbiome analysis revealed increased diversity, with more Firmicutes and Cutibacterium and less Proteobacteria, indicating improved skin barrier and microbial balance. Conclusion: This body lotion effectively alleviates dryness, significantly improving skin hydration, barrier function, and texture. It achieves these benefits by restoring the skin's lipid balance and optimizing the microbial community, with lipidmicrobiome crosstalk identified as a key mechanism. This multi-omics insight provides a foundation for the targeted management of dry skin.

M.N. Patel, N. Patel, A. Merja, S. Patnaik, S. Maulekhi, **Synergistic Effects of the ThriveCo Bumps Eraser Kit: Exfoliating Scrub and Lotion in Reducing Skin Bumps and Enhancing Hydration With Spirulina, Al-pha-Hydroxy Acid, Madhuca indica Oil, Allantoin, and Hydroxyethyl Urea**, Cureus 17(9): e92758

Introduction: Keratosis pilaris, commonly referred to as "strawberry legs" or "chicken skin," is a benign yet cosmetically concerning condition characterized by dry, rough, and bumpy skin, predominantly affecting females. It often causes discomfort, such as itchiness and irritation, due to impaired skin texture and hydration. The ThriveCo Bumps Eraser Kit (Beaucience India Private Limited, Faridabad, India), comprising an exfoliating scrub and smoothing body lotion, offers a comprehensive solution. The scrub enhances texture through gentle exfoliation, while the lotion hydrates and soothes irritation. This dual-action approach addresses key symptoms and promotes smoother, healthier skin. Methods: This interventional, prospective clinical study evaluated the safety and efficacy of the Bumps Eraser Kit. Ethical approval was obtained, and informed consent was collected. Skin hydration was assessed by Corneometer® CM 825 (Courage + Khazaka Electronic GmbH, Cologne, Germany), pigmentation by Mexameter® MX 18 (Courage + Khazaka Electronic GmbH), and surface texture by Visioscan® VC20 Plus (Courage + Khazaka Electronic GmbH), along with Visual Analogue Scale and digital photographs taken on Days 01, 21 (+2), and 45 (+2). Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 29 (Released 2021; IBM Corp., Armonk, New York, United States) and Microsoft® Excel 2019 (Microsoft® Corp., Redmond, WA, USA), with significance set at 5%. Results: The study showed significant improvements. Skin hydration increased by 131.75% ($p < 0.0001$), redness reduced by 69.30%, pigmentation decreased by 35.77%, and itchiness dropped by 92.63%. Smoothness improved by 55.00%, roughness reduced by 148.54%, and scaliness decreased by 87.09% (all $p < 0.0001$). No adverse effects were reported. Conclusion: The ThriveCo Bumps Eraser Kit improves skin texture and hydration. The scrub exfoliates and offers antioxidant benefits, while the

lotion nourishes with ingredients like spirulina, alpha-hydroxy acids (AHAs), Madhuca indica oil, allantoin, and hydroxyethyl urea. Together, they reduce redness, pigmentation, and irritation, making it an effective addition to daily skincare for smoother, healthier-looking skin.

L. Kakuda; L.N. Favaro, P.M.B.G. Maia Campos, **Benefits of formulation with Pequi Oil for the skin: a clinical study by instrumental measurements and sensorial perception**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023 and Cosmetics 2025, 12, 283

Pequi (Caryocar brasiliense) oil is a lipid-rich natural ingredient with potential cosmetic applications, but its time-dependent clinical effects on skin remain underexplored. This study aimed to characterize pequi oil using GC-MS, develop a minimalist serum formulation containing the oil, and evaluate its immediate, short-term, and long-term clinical efficacy, as well as perceived efficacy. A serum with 3% pequi oil (SPO) and a vehicle control (SV) were developed and tested in twenty healthy female participants (22–30 years). Stratum corneum water content, transepidermal water loss (TEWL), and sebum content were measured on the malar region at baseline (t0) and after 2 h (t2h), 7 days (t7d), and 28 days (t28d) of application. Porphyrin count and sebaceous gland activity were assessed at t7d and t28d and skin microrelief at t28d. GC-MS revealed oleic acid (55.89%) and palmitic acid (34.90%) as the oil's main constituents. SPO reduced TEWL and increased skin hydration at t2h and t28d compared to baseline values ($p < 0.05$). At t28d, SPO significantly reduced oily spots and porphyrin scores and improved skin microrelief. Long-term perceived efficacy indicated better hydration, oil control, and skin feel compared with SV. These findings suggest that pequi oil reduced sebum content and sebaceous gland activity, thereby enhancing skin barrier function, hydration, microrelief, and hydrolipidic balance, supporting its potential as an effective cosmetic ingredient.

Y. Yu, Q. Jia, S. Li, S. Ding, **The triple-fermentation essence empowers the journey of skin micro-ecological nourishment**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

With the continuous upgrading of the cosmetics market, the development of biotechnology, and consumers' increasing concern for the quality, safety, and environmental protection of cosmetics, the era of biological skincare is gradually approaching. The use of microbial technology, fermentation technology, biomimetic technology, etc. in cosmetics research and development has become mainstream. Fermentation technology and microbial technology are usually complementary.Active substances derived from fermentation have multiple effects on the human body and are commonly used in the field of cosmetics, such as antioxidant, anti-inflammatory, antibacterial, moisturizing, whitening, anti-aging, etc.

Y. Sheng, J. Chen, H. Wang, P. Han, J. Xu, **Comprehensive evaluation of an essence formulated with a complex enzyme ingredient in the management of closed comedones**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

Closed comedones, commonly known as whiteheads, are a prevalent form of non-inflammatory acne characterized by keratin and sebum accumulation within the pilosebaceous canal. These lesions predominantly appear in areas with high sebaceous gland activity, such as the forehead, chin, and cheeks, and are often associated with excessive sebum production. While excessive sebum secretion is widely recognized as a key factor in the formation of closed comedones, excessive keratin accumulation, along with abnormal proliferation and differentiation of keratinocytes at the follicular orifice, also play a crucial role in their pathogenesis.

L. Sun, Y. Ye, M. Sang, C. Xu, P. Sun, X. Chang, Y. Li, **A New Serum for Pore Management: Efficacy Evaluation and the Application of a Precise Pore Grading Atlas**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

Introduction: Since enlarged pores represent a prevalent skin concern in contemporary society, a daily pore-care routine is a fundamental strategy for maintaining pore health and tightness. This study developed a pore-improving serum containing retinol, tocopheryl retinoate, succinic acid, azelaic acid and azelamide MEA, and investigated its tolerability and efficacy. The acidic ingredients are used for oil control, exfoliation, and acne treatment, while retinoids provide anti-wrinkle and firming benefits. A novel precise pore grading atlas ranging from 0 to 7 grades was utilized to evaluate pre- and post-product pore improvement. Methods: In vitro tests were conducted to validate the efficacy of the active ingredients. Patch tests were conducted to ensure the product's safety. In the clinical study, 30 female volunteers with facial enlarged pores (pore grade ≥2) and an average age of 32 were recruited and advised to apply the serum once every evening for a 6-week period. The pore-refining efficacy was assessed by non-invasive instruments, subject self-assessments, and dermatologist evaluations. Results: The efficacy of the active ingredients and their corresponding indicators were proved in vitro. The serum passed the 24-hour human patch test. After 6 weeks of use, the clinical trial revealed

significant improvements in facial enlarged pores, as well as in other related parameters such as sebum production, skin elasticity, acne incidence, skin smoothness, and luminosity. Specifically, dermatologists observed an overall 22.0% improvement in pore appearance based on the grading maps (average pore grade decreased from 3.78 to 2.95). Conclusion: This study comprehensively demonstrated that the serum is gentle and highly effective for daily use. It achieves a tightened pore appearance through multiple mechanisms, including reducing sebum production, exfoliating the stratum corneum, inhibiting acne formation, and enhancing skin firmness. The pore grading chart used in this study has subtle differences between adjacent levels, making it suitable for assessing populations with smaller pores, such as the Chinese population.

J. Yi, J. Dai, G. Du, Y. Zhang, N. Liu, F. Zeng, L. Zeng, **A brand-new natural plant oils complex with the "Golden-Triangle Concept" of anti-aging effects in multiple dimensions**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

Plant oils, as natural multi-functional ingredients, have been widely utilized in food, cosmetics, and pharmaceutical products around the world. Whether in nutritional supplementation, wellness preservation, or skincare, these oils are highly valued for their widespread availability, cost-effectiveness, abundance of natural bioactive compounds, and safety. Their role in maintaining skin homeostasis is now increasingly recognized. With advancing age, the skin undergoes progressive degenerative changes, including thinning, roughness, wrinkle for-mation, dryness, and impaired barrier function. Natural plant oils can exert synergistic anti-aging effects by strengthening the skin barrier, mitigating inflammatory responses, and reducing transepidermal water loss (TEWL), thereby effectively delaying skin aging.

S.A. Zainun Faqiha, D. Meutiah, N. Sapitri, N. Nazhifah, W. Annajiah, C. Young Kwan, K. Ki Baek, P.S. Rom, C.M. Kyoung, **A Novel Efficacy Evaluation Method for Lip Treatment Products in Improving Lip Hydration in Human Subjects with Dry Lips**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

The lips represent a unique and critical region of the face, both in terms of function and aesthetic appeal. The anatomical structure of the lips is distinct from other areas of the skin, as they are characterized by a thinner stratum corneum (SC), limited sebaceous and sweat glands, and a low melanin content, all of which contribute to their heightened susceptibility to environ-mental stressors. Due to these characteristics, the lips have a compromised barrier func-tion and reduced capacity to retain moisture, making them prone to conditions such as dryness, chapping, and peeling, particularly in response to external factors like cold weather, air pollu-tion, and ultraviolet (UV) radiation exposure. Moreover, prolonged exposure to ultraviolet (UV) radiation often led to lip conditions including dryness, chapping, inflammation, and des-quamation.

Z. Zhang, Y. Wang, H. Zhang, C. Huang, J. Zhou, Z. Ma, T. Zhang, **Based on network pharmacology and molecular docking to explore the anti-aging and anti-inflammatory mechanism of Terminalia Chebula extract at AKT1 target**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

The occurrence of sensitive skin is a complex process involving skin barrier, neurovascular response, innate immune inflammation. In the meanwhile, there is lack of comprehensive study on sensitive skin aging with unclear potential pathways. We used network pharmacology and molecular docking to find these potential gene targets: AKT1 and then verified them through efficacy experiments and clinical trials, and found that Terminalia Chebula is a novel effective raw material for the treatment of sensitive skin aging through AKT1 pathway. The gene target of Terminalia Chebula extract (TCE) in the skin was studied by network pharmacology and molecular docking, and the target pathway of AKT1 was locked. The model established by AKT1 on macrophages was validated through experiments, and the effects of NRF2, TRPV1, TNF-α and other inflammatory factors were verified. The main chemical components of TCE were detected and analyzed by high performance liquid. Its immediate and long-lasting soothing and anti-aging effects have been verified in humans.

Y. Zheng, L. Wang, C. Wang, Y. Wu, P. Sun, Y. Li, J. Wang, **Efficacy and Safety of a Functional Repair Product Containing Multi-effect Repair Materials after 1565 nm Non-ablative Fractional Laser for Facial Rejuvenation in Asia**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

The rising prevalence of nonsurgical cosmetic procedures has intensified the need for effective post-treatment skincare, with limited clinical data. Ablative fractional laser (AFL) has long been regarded as the "gold standard" for skin rejuvenation and anti-aging in Caucasian populations in Europe and America. However, due to its poorer wound-healing capacity and higher risk of post-inflammatory hyperpigmentation (PIH) in yellow race, it is rarely used for full-face ablative rejuvenation in Asian

countries. The non-ablative fractional laser (NAFL) has been widely used for skin rejuvenation based on "destruction-rebuild", induce collagen remodeling to improve rhytides and skin texture. The treatment has limited effectiveness and often requires repeated treatment. Meanwhile, NAFL generates microthermal zones (MTZs) that compromise the dermal-epidermal junction (DEJ) and cell viability, triggers transient erythema, edema, dry, and PIH, reducing patient acceptance despite its non-ablative nature. These limitations underscore the necessity for adjuvant therapies to enhance efficacy and mitigate side effects. Meanwhile, combination strategies also leveraging laser-induced microchannels for delivery active ingredient from care products.

Y. Yu, Z. Li, S. Li, S. Ding, **Explore the optimal solution for skin color: nicotinamide combined with traditional plant active essence to create a good complexion in all dimensions**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

In today's era of pursuing beauty, whitening cosmetics have attracted much attention. It can not only satisfy people's yearning for fair skin, but also improve problems such as uneven skin tone and dullness, and enhance confidence. The main pigments in the skin are carotene, heme and melanin, among which melanin determines the depth of the skin. Melanin is produced within melanocytes. The synthetic pathway is that tyrosine is first converted into dopa under the action of tyrosinase, and then dopaquinone is generated. Dopaquinone is then synthesized into melanin and eumelanin through different pathways. Nicotinamide, as the most widely used chemical whitening agent, has an inhibitory effect of 35% to 68% on the melanin transport system and can also accelerate the renewal rate of keratinocytes, thereby accelerating melanin metabolism.

K. Hyojung, L. Haeyoung, P. Haewoong, L. Haekwang, **Novel Natural Peeling System Containing Lactobacillus Exosome for Anti-Aging**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

A novel peeling system was formulated through saponification from olive oil rich in oleic acid and coconut oil rich in lauric acid and lactic acid bacteria (LAB) isolated from Kimchi, and Sauerkraut selected among 104 LAB strains. The 16S rRNA gene sequences of the strains were identified through biochemical and gram staining methods. The LAB strains were cultured at 30 degree for 24 h in glucose and yeast extract as plant media. The LABs isolated from Kimchi, and Sauerkraut in this study may be used as probiotics, with isolate Lactobacillus spp. as the most promising novel probiotics for anti-aging applications based on its excellent cell activity.

P.M.B.G. Maia Campos, L. Kakuda, G.I. Licco, **Long-term clinical efficacy of a cosmetic formulation containing Brazilian berry extract in reducing signs of skin photoaging**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

The skin is the primary barrier between the body and the external environment, constantly exposed to physical, chemical, and biological aggressors. Among these, ultraviolet (UV) radiation is considered one of the most detrimental factors in the skin aging process, promoting oxidative stress, inflammation, and structural degradation of dermal components. Chronic sun exposure—especially in areas such as the face and forearms—leads to photoaging, characterized by rough texture, hyperpigmentation, loss of elasticity, and deep wrinkles. As a result, increasing attention has been given to topical strategies that can reduce the effects of photodamage. In this context, plant-based bioactives have gained significant relevance in modern dermatological science due to their multifunctionality and safety.

N. Istiqomah, J. Arwafa Cita, S. Noor Mulya, Fransisca, Solehati, D. Utami, **Evaluating the Influence of Application Techniques on the Efficacy and Safety of Chemical Peeling Serum: A Study of Leave-On and Rinse-Off Methods**, Proceedings of the 35th IFSCC Congress in Cannes, France, September 2025

Regular epidermal skin cell turnover is essential to maintaining healthy skin. Skin cell proliferation, differentiation, and shedding are typically in a state of homeostasis. However, factors like aging and exposome—such as pollution, UV radiation, and individual lifestyle—can disrupt this cycle, causing the stratum corneum to become thicker. The buildup of dead skin ells can lead to a dull skin appearance, clogged pores, and rough skin texture. Cosmetics exfoliation serum could be used to address this issue.

M.N. Patel, N. Patel, A. Merja, **A Non-invasive Imaging Approach to Evaluating the Immediate Mattifying Effects of Topical Skin Care Products: Method Standardization and Validation**, Cureus 17(9): e91752

Immediate mattifying effects and pore-minimizing claims are common in facial cosmetics; however, objective and standardized assessment methods remain underreported. This in-house

exploratory evaluation aimed to standardize methodology for assessing the reduction in facial pores by using instrumental assessment and image analysis. A split-face design was conducted on 20 healthy female volunteers. A cosmetic leave-on face cream was applied to the right side (treated), while the left side served as an untreated control. Skin roughness, smoothness, and pore size were assessed using the VISIOSCAN VC 20 Plus (Courage+Khazaka electronic GmbH, Cologne, Germany). Pore size and pore area were further evaluated using Image-Pro® 10.0 (Media Cybernetics, Inc., Rockville, Maryland, United States), at baseline and 15 minutes post-application. Application of the test product at the treated site resulted in a measurable reduction in both skin pore size and skin pore area, accompanied by significant improvements in skin surface roughness and smoothness within 15 minutes post application. In contrast, the control site (water-rinse) did not exhibit any notable changes across these parameters. These differences highlight the sensitivity of the analytical approach in detecting early, product-induced skin surface improvements. This in-house exploratory evaluation primarily served to assess the feasibility and robustness of a standardized methodology for evaluating the immediate effects of cosmetic leave-on formulations. By combining high-resolution photographic image analysis with VISIOSCAN VC 20 Plus instrumentation, the study established a reproducible, quantifiable approach for assessing short-term changes in skin surface attributes such as pore size, roughness, and smoothness.

Z. Draelos, F.G. Hougeir, T.Q. Nguyen, S. Garimella, C. Emesiani, A. Qureshi, A. Mantilla, M. Meckfessel, **Study of Adjuvant Sensitive-Skin Cleansing and Moisturizing Regimen in Plaque Psoriasis**, J Drugs Dermatol., 2025 Aug 1;24(8):739-743

Background: Epidermal barrier dysfunction is a key feature of plaque psoriasis. Skincare improves epidermal barrier function and is an increasingly recommended part of psoriasis management. Methods: This multicenter, blinded study of adults (N=46) with psoriasis evaluated the use of a gentle skincare regimen (cleanser, moisturizer, and optional moisturizer with SPF 35) as an adjunct to medical therapy during an 8-week period. Efficacy was assessed via clinical grading of body surface area (BSA), target lesion severity score (TLSS), physician global assessment (PGA), and bioinstrumentation for skin hydration and texture. Standard safety and tolerability assessments were performed, and subjects completed satisfaction and the Dermatology Life Quality Index (DLQI) questionnaires. Results: There was a statistically significant decrease in BSA by week 8 from 9.3 to 5.1 (P<0.05). Significant improvements in TLSS (10.9 to 3.5, P<0.05) and PGA (2.7 to 1.4, P<0.05) occurred by week 8, with improvements noted at each study time point (P<0.05 vs baseline). Bioinstrumentation showed reduced scaling and improved skin smoothness (P<0.05 at all timepoints vs baseline). DLQI results improved from 9.2 at baseline (a moderate effect of disease) to 2.9 at week 8 (small effect, P<0.05). There was a significant reduction in dryness, itching, and burning/stinging throughout the study (P<0.05 at all timepoints). Four adverse events occurred in 4 subjects (itching and burning/stinging) and resolved by the end of the study. Conclusions: This study highlighted the benefit of skincare in conjunction with prescription products for plaque psoriasis. The skincare regimen supported the skin barrier and improved patient outcomes.

H. Kim, J.Y. Seo, S. Leem, S.W. You, Y. Kim, N.G. Kang, **Image based quantification method reveals differential patterns of lip desquamation associated with age and sex**, Scientific Reports | (2025) 15:11927

The rough surface of lip skin is a dermatological and aesthetic issue that affects facial appearance. While several studies have addressed this common problem, none of them have exclusively utilized image analysis techniques. In this study, we aimed to quantify lip desquamation from facial images in a total of 55 participants and compare the results to those obtained from the tape-stripping method. The central region of the lower lip was extracted from each facial image, and global thresholding was applied using the threshold value T, which is defined as Mean + 2.5 SD. In this equation, Mean and SD represent the average and standard deviation of each grayscale values within the image, respectively. The desquamation rate was calculated as the proportion of pixels corresponding to desquamated flakes within the analyzed region. We found that our approach accurately represented the lip surface states, with a strong correlation with visual assessment (VA) scores ($r = 0.715$, $p < 0.001$). To investigate the relationship between lip desquamation and age, we further analyzed the facial images of 1,000 individuals. A gradual decline in lip desquamation with age was observed in males ($r = -0.151$, $p < 0.001$) and females over 38 years ($r = -0.133$, $p < 0.05$). In contrast, the variation of lip desquamation among females under the age of 38 showed an increasing trend ($r = 0.234$, $p < 0.01$). It is notable that the most pronounced differences between sexes were only observed in individuals in their 20s ($p < 0.001$). Such results imply that the characteristics of epithelial layer of lip can be segmented based on chronological age and sex. These notable changes in lip desquamation were discovered for the first time in this study. Given the current ease of acquiring image data, our image-based method has the potential to advance the lip skin research.

A. Rubio-Santoyo, R. Sanabria-de la Torre, T. Montero-Vílchez, M. Sierra Girón-Prieto, A. Gómez-Farto, S. Arias-Santiago, **Effects of Extra Virgin Olive Oil and Petrolatum on Skin Barrier Function and Microtopography**, J. Clin. Med. 2025, 14, 4675

Background/Objectives: Natural oils are widely promoted and used around the world as part of skincare. Among them, extra virgin olive oil (EVOO) stands out for its broad range of organic compositions and well-known moisturizing properties. This study aimed to evaluate the effects of topically applied EVOO compared to petrolatum on skin barrier function (SBF) and microtopography. Methods: A within-person randomized clinical trial was conducted in healthy adult volunteers. EVOO and petrolatum were applied to defined areas on the volar forearm. Parameters related to the SBF, including stratum corneum hydration (SCH), transepidermal water loss (TEWL), temperature, and erythema, were assessed. The skin microtopography was evaluated through two approaches: (1) topographic parameters—surface roughness, desquamation, smoothness, and wrinkles; and (2) stratum corneum (SC) composition—corneocytes subtypes and the desquamation index (DI). The participants completed a tolerability questionnaire for each product. Results: A total of 54 participants (50% female; mean age: 28.57 ± 11.02 years) completed the study. Both EVOO and petrolatum signifcantly improved the SBF by increasing SCH and reducing erythema and skin temperature. Petrolatum additionally reduced TEWL. Regarding the skin microtopography, both products decreased the desquamation index and reduced the prevalence of mature corneocyte types (types 2–5). These effects were more pronounced with petrolatum. Notably, EVOO signifcantly increased the proportion of early-stage corneocytes (type 1). Conclusions: Both EVOO and petrolatum effectively enhanced the SBF and improved the microtopographic features of the skin. While petrolatum exerted a stronger occlusive effect by reducing TEWL and desquamation, EVOO uniquely promoted epidermal renewal by increasing epidermal turnover.

Y. Baek, N.H. Nguyen, Y.I. Lee. M.J. Jung, I.A. Kim, S.J. Lee, H.M. Kim, J.H. Lee, **Hibiscus Collagen Alternative (VC-H1) as an Oral Skin Rejuvenating Agent: A 12-Week Pilot Study**, Int. J. Mol. Sci. 2025, 26, 7291

Skin aging causes reduced hydration, elasticity, and increased wrinkles. Recent safety and compliance concerns over oral collagen supplements have increased interest in plant-based alternatives like Hibiscus sabdariffa with antioxidant and anti-aging properties. However, clinical evidence regarding its efficacy remains limited. We aimed to evaluate the effects of this plant-based collagen alternative (VC-H1, Hibiscus Enzyme Extract) supplement on skin hydration, transepidermal water loss (TEWL), desquamation, elasticity, and wrinkle reduction in photoaged individuals. A randomized, double-blind, placebo-controlled clinical trial was conducted with 98 participants (aged 35–60 years) presenting with dry skin and periorbital wrinkles. Participants randomly received 1.5 g/day of VC-H1 or placebo for 12 weeks. Skin hydration, TEWL, deep moisture, keratin index, elasticity, and wrinkle parameters were assessed at baseline, 6 weeks, and 12 weeks. VC-H1 supplementation significantly increased skin hydration, reduced the TEWL and keratin index, and improved deep moisture content for those receiving it compared with the controls. Wrinkle depth significantly decreased, and skin elasticity also improved. Those in the VC-H1 group showed greater overall improvement than those in the control group. Oral VC-H1 supplementation significantly improved skin hydration, elasticity, and wrinkle reduction, suggesting its potential as a plant-based alternative to traditional collagen supplements for skin rejuvenation.

R. Pârvănescu, C. Trandafirescu, A.M. Musuc, E.A. Ozon, D.C. Culita, R.-A. Mitran, C.-I. Stănciulescu, C. Soica, **Comparative Physicochemical and Pharmacotechnical Evaluation of Three Topical Gel-Cream Formulations**, Gels 2025, 11, 532

In the context of modern dermocosmetic development, multifunctional topical gel-creamformulations must be efficient for both therapeutic efficacy and cosmetic applications. This study presents a comparative physicochemical and pharmacotechnical analysis of three topical gel-cream formulations developed by Brand ChanandR: Acne Control Cleanser (ACC), Acne Face Cream (AFC), and Gentle Cream Cleanser Serum Control, Regenerating, Hydrating, Calming (IRC). Each formulation is enriched with a specific blend of bioactive compounds, including botanical oils, vitamins, and proteins, designed to treat acne, to support skin regeneration, and to maintain the skin barrier. A multidisciplinary approach was used, including Fourier Transform Infrared Spectroscopy with Attenuated Total Reflectance (FTIR-ATR), differential scanning calorimetry (DSC), rheological evaluation, pH and density determination, spreadability analysis, and oxidative stability testing to evaluate the products. Antioxidant capacity was assessed through multiple in vitro assays. The results demonstrated that all three gel-cream formulations exhibit pseudoplastic rheological behaviour, suitable for topical application. AFC showed the highest oxidative stability and antioxidant activity, while IRC presented superior spreadability and cosmetic efficacy, likely due to its complex composition. ACC displayed faster absorption and was

ideal for targeted use on oily or acne-prone skin. The differences observed in the stability and performance suggest that the ingredient synergy, base composition, and solubility profiles show notable variations in dermato-cosmetic formulations. These findings highlight the formulation–performance relationship in topical gel-cream formulations and support the development of new cosmetic products tailored for sensitive and acne-prone skin.

Y. Xia, Y. Lyu, J. Yang, X. He, Y. Yi, J. Liu, Z. Zhu, Z. Du, Y. Chen, Y. Ai, **Effects of a Ceramide-Containing Glycinate-Based Cleanser on the Condition of Oily Skin and Skin Post-IPL Treatments**, Journal of Cosmetic Dermatology, 2025; 24:e70350

Background: Currently, many studies are exploring the effects of cleansers containing petrolatum and fatty acids on skin condition, but no research has yet investigated the impact of cleansers containing ceramides on skin condition. Aims: Therefore, this study aims to explore whether a ceramide-containing glycinate-based cleanser can improve the skin conditions of oily skin and skin post–intense pulsed light (IPL) treatments, with a particular focus on the skin barrier. Methods: In this study, 88 volunteers were recruited and divided into two groups. Group 1 (n = 44, oily skin) used ceramide-containing cleansers for 28 days, with subsequent assessment of skin hydration, TEWL (transepidermal water loss), sebum content, and pore count. Group 2 (n = 44) received IPL treatment prior to using the same cleansers, followed by evaluation of redness and self-reported symptoms. Results: The experimental results demonstrated that in Group 1, after 28 days of product application, skin hydration increased by 47.37%, TEWL decreased by 13.42%, pore number was reduced by 6.92%, and sebum content showed a 79.18% reduction. For Group 2, comparative analysis revealed that following the use of ceramide-containing cleansers after IPL treatment, skin redness significantly decreased by 14.62% compared to post-IPL measurements, with concurrent notable improvements in all self-reported symptoms, including itching and tightness. Conclusions: Overall, a ceramide-containing glycinate-based cleanser can effectively control sebum secretion, reduce pore size, and repair the skin barrier in oily skin. Additionally, it can help reduce redness in IPL-treated skin. For dermatologists and consumers, this formulation represents a promising option for people undergoing IPL procedures, combining cleansing with barrier repair to minimize post-treatment downtime.

D. Wilborn, A. Franz, G. Engelhardt, T. Tomova-Simitchieva, A.C. Ruhul Amina, K. Hillmann, J. Kottner, G. Zhou, U. Blume-Peytavi, **Relationships between Skin Structure and Skin Function of Pregnant Women and Their Infants: A Prospective Cohort Study**, Skin Pharmacol Physiol, June 2025

Introduction: In women during pregnancy and in infants during the frst months after birth, skin health is challenged. However, evidence about the structural and functional changes of the skin during and after pregnancy is largely lacking. Methods: The first prospective cohort study was conducted, following women from pregnancy through the postpartum period and their infants until 6 months of age, with skin structure and function measured at different time points. Due to the explorative character of the study, descriptive statistics were used. Results: Over the study period, transepidermal water loss, epidermal thickness, and skin roughness in women increased. Pregnancy and postpartum period affected skin parameters such as skin roughness, epidermal thickness, and transepidermal water loss, whereas stratum corneum hydration, pH, skin stiffness, and skin elasticity were not affected in women. Infants' skin barrier function matched literature values for healthy skin, with roughness and dryness decreasing through 6 months of age. Infants' skin barrier function characteristics matched literature values for healthy skin, with skin roughness and dryness decreasing by 6 months of age. Conclusion: Based on the fndings of this observational cohort study, we found no statistically signifcant correlation between maternal health and skin characteristics and skin characteristics of infants except for women's skin roughness and infants' skin stiffness and skin elasticity and women's skin stiffness and skin elasticity and infants' skin elasticity. Therefore, based on our fndings it may be justifed to consider using skin care for maintaining barrier quality and function: (a) in pregnant women with a positive effect on skin roughness and transepidermal water loss and (b) in infants improving dry skin and skin roughness.

H. Ren, T. Di, H. Meng, P. Zha, **Supramolecular Assembly of Dendrobium officinale-Polysaccharides-Hyaluronic Acid and Its Moisturizing Properties**, Skin Research and Technology, Volume 31, Issue 6, Jun 2025

Background: Supramolecular technology has been widely applied in cosmetics due to its ability to enhance the stability of active substances and reduce their irritation potential. The synergistic interaction between polysaccharides can produce new products with characteristics and rheological properties that make them suitable for various applications. Objective: The supramolecularly assembly of Dendrobium officinale polysaccharide (DOP) and hyaluronic acid (HA) was produced, and its moisturizing effect was verified to provide a basis for the application of supramolecular technology in cosmetic functional raw materials. Methods: The supramolecular structure of polysaccharide assembly samples was verified through scanning electron microscopic observation. Moisture absorption and the

ability of samples to resist cell drying damage before and after supramolecular assembly were evaluated by moisture absorption experiments and a cell drying damage model, respectively. Furthermore, this study validated the moisturizing effect of the supramolecular compositions during their application in cosmetics through tests of skin moisture content in extremely dry environments (during the winter season of Beijing, China), skin roughness and scale index, and trans epidermal water loss. Results: The supramolecular composition appeared as a large sheet-like structure under a scanning electron microscope. Further, the supramolecular composition had significantly improved moisture absorption performance and could effectively resist cell drying damage. In an extremely dry environment, the composition showed excellent moisturizing performance and effectively improved skin scale and roughness. Conclusions: The supramolecular assembly of DOP and HA has a synergistic moisturizing effect; thus, it can be expected to have a good moisturizing effect when applied to cosmetics.

G. Imokawa, **Strategies for stratum corneum dysfunction**, PERSONAL CARE MAGAZINE, Volume 26, issue 6, June 2025

Atopic dermatitis (AD) is a chronic, relapsing inflammatory skin disorder. Even after visible inflammation subsides, patients exhibit non-lesional ‘atopic dry skin’with impaired stratum corneum (SC) barrier and waterretention functions. These deficiencies heighten vulnerability to pruritus, irritants, and allergens, leading to frequent relapse. AD is thus regarded as a treatment-resistant, relapsing skin disease.

A. Tomlinson, X. Qin, **Biobased elastomer gel: a new generation**, PERSONAL CARE MAGAZINE, June 2025, p. 83-86

Momentive Performance Materials introduces a patent-pending elastomer gel technology enabling the next generation of high-performance colour cosmetics and skin care products. Harmonie NatuVel gel, a new 100% naturally derived elastomer gel has been engineered to exceed the performance of silicone elastomer gels whilst being compatible with natural and naturally derived lipids, UV filters and other polar materials. Designed with natural formulations and the needs of the clean beauty market in mind, the translucent gel is derived from100% renewable, plantbased raw materials and developed with the guidance of the Twelve Principles of Green Chemistry. Its unique 3D polyester network provides soft focus and blurring effects, offers luxurious sensory aesthetics, reduces the oily sensation of many cosmetic ingredients and mattifies the skin. In addition, it delivers many practical benefits to the formulator, this article will discuss its performance and formulation aspects too.

H. Ren, T. Di, H. Meng, P. Zha, **Supramolecular Assembly of Dendrobium officinale-Polysaccharides-Hyaluronic Acid and Its Moisturizing Properties**, Skin Research and Technology, Volume 31, Issue 6, Jun 2025

Background: Supramolecular technology has been widely applied in cosmetics due to its ability to enhance the stability of active substances and reduce their irritation potential. The synergistic interaction between polysaccharides can produce new products with characteristics and rheological properties that make them suitable for various applications. Objective: The supramolecularly assembly of Dendrobium officinale polysaccharide (DOP) and hyaluronic acid (HA) was produced, and its moisturizing effect was verified to provide a basis for the application of supramolecular technology in cosmetic functional raw materials. Methods: The supramolecular structure of polysaccharide assembly samples was verified through scanning electron microscopic observation. Moisture absorption and the ability of samples to resist cell drying damage before and after supramolecular assembly were evaluated by moisture absorption experiments and a cell drying damage model, respectively. Furthermore, this study validated the moisturizing effect of the supramolecular compositions during their application in cosmetics through tests of skin moisture content in extremely dry environments (during the winter season of Beijing, China), skin roughness and scale index, and trans epidermal water loss. Results: The supramolecular composition appeared as a large sheet-like structure under a scanning electron microscope. Further, the supramolecular composition had significantly improved moisture absorption performance and could effectively resist cell drying damage. In an extremely dry environment, the composition showed excellent moisturizing performance and effectively improved skin scale and roughness. Conclusions: The supramolecular assembly of DOP and HA has a synergistic moisturizing effect; thus, it can be expected to have a good moisturizing effect when applied to cosmetics.

C. Uhl, D. Khazaka, A. Pouladi, **Testing Trending Hair Care and Skinification Claims**, Cosmetics & Toiletries, June 2025

Hair styles, shapes, growth patterns and colors are diverse and prominent features we can use to express ourselves to the world around us, including on social media. The promotion of different hair styles and grooming techniques by influencers and celebrities has also led to a more competitive hair care market, with some niche brands reaching cult status.

L. Guihua, J. Wencai, D. Shan, J. Yanzhu, D. Baek, Y.H. Lee, T. Yimei, **A Study on the Difference in Aging Characteristics of Sensitive and Non-Sensitive Skin**, Skin Research and Technology, Volume 31, Issue 2-5, February-May 2025

Background: According to Euromonitor and T Mall data statistics from 2017 to 2022, the Chinese market for sensitive skin (SS) skincare is growing by 20% every year, and anti-aging concept cosmetics for sensitive skin are becoming popular. There are few studies on the difference in aging between sensitive and non-sensitive skin. Objectives: This study is to determine whether sensitive skin ages faster than non-sensitive skin. Method: Eighty subjects aged 25–50 years each from sensitive and non-sensitive skin participated in this clinical trial. trans-epidermal water loss (TEWL), CIE-L* a*b* values, gloss, hydration, sebum content, dermis density, elasticity, wrinkles, smoothness, artificial intelligence (AI)-estimated skin age, and pores were evaluated in subjects with sensitive and non-sensitive skin. Results: In the 25- to 29-year-old group, the pore score and nasolabial fold count of non-sensitive skin were significantly lower than those of sensitive skin ($p < 0.05$), but the transparency was significantly higher than that of sensitive skin ($p < 0.05$). There was a significant difference between groups in the MAE value between AI skin age and chronological age, and the AI-estimated skin age of sensitive skin is significantly older than that of non-sensitive skin ($p < 0.05$). There were no significant differences between sensitive and non-sensitive skin in other parameters ($p > 0.05$). In the 30- to 34-year-old group, the TEWL value and a* value of non-sensitive skin are significantly lower than those of sensitive skin, but the L* value and glossiness are significantly higher than those of sensitive skin ($p < 0.05$). There is no statistical difference in other parameters between sensitive and non-sensitive skin ($p > 0.05$). In the 35- to 50-year-old group, sensitive skin demonstrated better performance only in crow's feet compared to non-sensitive skin, with no significant differences observed in other parameters between the groups. ($p > 0.05$). Conclusion: The phenomenon of premature aging in sensitive skin is more obvious, but as age increases, the difference in aging is not obvious. Early anti-aging care for sensitive skin is necessary.

W. Preedalikit, C. Chittasupho, P. Leelapornpisid, S. Qi, K. Kiattisin, **Development and Evaluation of Anti-Pollution Film-Forming Facial Spray Containing Coffee Cherry Pulp Extract**, Pharmaceutics 2025, 17, 360

Background/Objectives: This study aimed to develop and evaluate an antipollution film-forming spray (FFS) containing coffee cherry pulp extract (FFS-CCS). The formulation was designed to create a protective skin barrier, improving skin health while defending against environmental pollutants. Its physical properties, dust resistance, stability, skin penetration, and clinical effectiveness were assessed to ensure optimal performance and safety. Methods: Various polymers and a ternary solvent system were used to enhance the stability and solubility of bioactive compounds from the coffee cherry pulp extract. The formulations were characterized based on appearance, film formation, viscosity, pH, spray uniformity, spray pattern, angle, flm thickness, and particle adhesion. Stability testing was conducted under different storage conditions. Skin penetration was assessed using Franz diffusion cells with Strat-M® membranes to simulate human skin. A single-blind, placebo-controlled trial with 42 participants was conducted over 60 days to evaluate the effects of FFS-CCS on skin hydration, tone, and wrinkle reduction. Clinical assessments were performed using a Corneometer, Mexameter, and Skin Visioscan. Results: The FFS1-CCS formulation, incorporating PVP K90 and a ternary solvent system, signifcantly improved the solubility, stability, and bioavailability of key bioactive compounds (chlorogenic acid, caffeine, and theophylline). Physical characterization confrmed uniform, transparent films with optimal viscosity and sprayability. Stability testing showed minimal degradation. Skin penetration and retention studies revealed enhanced retention of bioactive compounds with minimal systemic absorption. PVP K90, along with ethanol and propylene glycol, extended the compounds' residence time on the skin, ensuring localized delivery. Clinically, FFS1-CCS signifcantly improved skin hydration, reduced roughness, lightened skin tone, and decreased erythema. Conclusions: The FFS1-CCS formulation utilizing PVP K90 signifcantly enhanced the stability, bioavailability, and skin retention of coffee cherry pulp extract, resulting in improved skin hydration, wrinkle reduction, and skin tone enhancement. These fndings highlight the potential of coffee cherry pulp extract as a multifunctional, sustainable cosmeceutical ingredient, offering both anti-aging and environmental protection benefts, making it a promising solution for skincare applications.

Y. Cai, Z. Jia, J. Gu, B. Kang, W. Li, W. Zhang, **Autologous Cell-Free Fat Extract: A Novel Approach for Infraorbital Rejuvenation—A Pilot Study**, Journal of Cosmetic Dermatology, 2025; 24:e16682

Background and Objective: CEFFE (Cell-free fat extract) treatment for periocular fine lines requires thorough clinical evaluation to determine its efficacy and safety in enhancing skin quality. The research enrolled 10 healthy female participants aged 31–58, focusing on skin texture, elasticity, and

barrier function. Methods and Results: CEFFE treatment demonstrated significant benefits, with notable improvements observed as early as 3 months posttreatment, which continued throughout the 12-month follow-up period. Objective assessments revealed reductions in SEr% and SEw%, indicative of reduced skin roughness and wrinkles, particularly pronounced after the third month of treatment. Enhanced skin elasticity, as indicated by improvements in R2%, R5%, and R7%, was observed, with the most significant enhancements noted at the 6-month follow-up. Furthermore, TEWL decreased consistently, highlighting CEFFE's potential in maintaining the skin's barrier function and moisture retention. High patient satisfaction levels, with 70% expressing satisfaction ranging from satisfied to very satisfied, underscored CEFFE's clinical significance. Conclusions: CEFFE demonstrates potential as an effective and safe intervention for addressing periocular fine lines, providing a solution for fine lines while ensuring skin health (ChiCTR1900024329).

X. Zhang, M. Ning, M. Lin, Q. Tang, Y. Liang, F. Wang, X. Xu, **Continuous Skin Rejuvenation by Combining Nonablative Fractional Laser With Daily Application of a Multibeneficial Composition Formulation: A Blinded Randomized Clinical Trial Study**, Health Science Reports, 2025; 8:e70423

Background and Aims: Skin aging is a common concern among individuals, and laser treatments are recognized as one of the most effective approaches to mitigate the aging process. The study aims to compare a multibeneficial formula serum versus a blank formulation in achieving maximum efficacy following a single treatment of nonablative fractional laser for facial skin rejuvenation. Methods: This study was a double-blind, split-face, monocentric, randomized clinical trial in China (September 24, 2023–March 07, 2024), and 37 patients seeking the Fotona 4D laser treatment for aging-related facial changes were enrolled. After one full-face laser treatment, each patient applied the test serum to one side and the blank formulation to the other, randomly, twice daily for 28 days. Two dermatologists assessed facial skin quality and aging signs at baseline and Day 0 (D0, immediately after the laser treatment), D3, D7, D14, and D28. Noninvasive measurement and self-assessment questionnaires were also administered at each visit. According to the types of variables, appropriate statistical tests, including the Friedman test, ANOVA test, and Wilcoxon signed-rank test, were used to examine the within-groups or between-groups differences. Results: Thirty-three women, aged 35–49 years, completed the study. After 28 days of the test serum application, the visual clinical scores rated by investigators showed more significantly beneficial changes on the test side than those on the control. More significant improvements in index parameters for the test sides were also found both in wrinkles with a 21.14% decrease of SEw value from the baseline and in elasticity with a 14.99% decrease of R2 value, while the corresponding reductions were 3.83% for SEw and 4.10% for R2 found on the control sides. The reduction of the nasolabial folds area proportion, analyzed by Primos, was 10.61% on the test sides and 3.39% on the control. No adverse events were reported. Conclusion: The serum with a multi-beneficial composition can contribute to achieving a more significant and sustainable efficacy after the Fotona 4D treatment in skin rejuvenation improvement.

G. Suwiński, I. Nowak, **Innovative Honey-Based Product and Its Benefcial Effects Measured by Modern Biophysical and Imaging Skin Techniques**, Pharmaceuticals 2024, 17, 1709

Background: Honey is widely recognized for its potential benefts in skincare, yet its incorporation into formulations is challenging due to its stickiness. This study aimed to evaluate the effects of hand creams with varying concentrations of multifloral honey (0%, 5%, 10%, and 15% w/w) on skin parameters and to assess their application characteristics. Methods: A total of 24 volunteers were divided into two groups, each receiving a blinded pair of creams (0%/10% or 5%/15% honey) to apply on their left and right hands. Instrumental methods (Corneometer®, Tewameter®, Cutometer®, Visioscan®, and Visioline®) were used to measure skin parameters at the baseline, 15 min after the frst application, and after 4 weeks of regular use. Sensory characteristics were evaluated through participant questionnaires. Results: After 4 weeks, honey-infused creams showed notable improvements in skin moisturization (up to 29.7%), smoothness (up to 21.3%), wrinkle area reduction (up to 21.4%), and mean wrinkle depth reduction (up to 11.7%). Among these, the increases in moisturization and reductions in wrinkle depth were statistically signifcant compared to the placebo. The sensory evaluations revealed no signifcant differences between formulations, highlighting the vehicle’s effectiveness in minimizing the stickiness typically associated with honey. Conclusions: This study highlights the effcacy of honey-enriched hand creams in enhancing skin parameters over time while maintaining favorable sensory characteristics. These fndings support the use of honey in dermatological formulations and provide insights into overcoming its formulation challenges.

V.C. Albarici, J. Rodrigues Pinto, G. Vannucci Nogueira, A.L. Tabarini Alves Pinheiro, J. Rampazo de Godoi, C.M. Bueno Custódio, C. Mariano. M.M. Ferreira, R. dos Anjos Neves, Gavioli dos Santos, N. Alves Ribeiro, A. da Silva Pinheiro, **Relation Between Tryptopan Intensity, Desquamation and Skin**

Smoothness in the Process of Cellular Proliferation, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Epidermal proliferation is a natural process that can be accelerated by skin injury. This study aimed to assess the epidermal proliferation induced by glycolic acid, correlating results obtained by fluorescence spectroscopy and micro-image analysis of the skin. Subjects were instructed to apply 5% glycolic acid (GA5%) to their forearms for 21 alternate days. The increase in cell proliferation induced by GA5% was assessed using the 295 nm excitation band (tryptophan). Intensity of desquamation and skin smoothness were assessed using Visioscan®. After 7, 14 and 21 days, the intensity of tryptophan fluorescence from untreated skin remained unchanged, whereas the fluorescence intensity measured from sites treated with GA5% increased. After 3, 7, 14 and 21 days, a trend towards reduced skin smoothness was observed, while desquamation showed a significant increase after 7 days of application of GA5%. Both parameters reached the highest distinction after 7 days. A correlation was observed between intensity of tryptophan fluorescence, desquamation, and skin smoothness. The combination of the three techniques - spectroscopy, desquamation, and smoothness analysis – has proven to be an effective tool for understanding the action mechanism of products designed for cutaneous exfoliation and cell turnover.

M. Vilaça, R. Pinheiro, J. Amado, F. Chaves, **Assessment of the efficacy of a charcoal detox gel in the reduction in sebaceous secretion and cellular and cellular cohesion through images with Sebufix® Corneofix® and Visioscan®**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Skin oiliness and cellular cohesion are attributes assessed to better understand the effects of continuous application of cosmetic products. Cleansing gels have an important role in this matter, since it is necessary to clean without drying the skin, and it is mandatory to make sure the product will not cause any damage to the skin barrier. Besides that, the application of activated charcoal is widely used for skin detoxification, absorbing oil, and toxins, deeply cleansing the skin. The main objectives of this research were to assess the sebaceous secretion and cellular cohesion throughout measurements performed with Sebufix® SF 16, Corneofix® CF 20 and Visioscan® VC 20plus device in subjects presenting oily skin applying the Charcoal Detox Gel cosmeticproduct daily. Results showed a significant reduction on sebaceous glands' activity and a reduction on sebaceous secretion were observed after 28 days of investigational product use. In addition, a significant reduction was observed for desquamation after 28 days of investigational product use, indicating a higher cellular cohesion. Therefore, it could be concluded that the Charcoal Detox Gel was able to control the oiliness and stimulate skin renewal process, resulting in a healthier skin barrier with more cohesiveness among the cells.

M.B. Berlim, C.R.A. Malafaia, S. Fanan, N.C.C.Silva, D.W. Barreto, **Retionol-Like Activity of Selected Macroalgae Extract**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Ocean sustainable farms are more environmentally conscious compared to land-based agriculture because cultivation of seaweeds requires no fresh water and chemical fertilizer. Thus, the aim of this study is to explore the potential activity of natural extract macroalgae as a cosmetic ingredient with retinol-like benefits using gene expression mapping of activated keratinocytes and fibroblasts, along with several clinical tests. The clinical trials presented a reduction of wrinkles/fine lines visibility and size, improvement in skin homogeneity and higher skin density after 28 and 56 days of use. All parameters analyzed during the clinical trial demonstrated a similar efficacy to the mixture of algae extract and retinol, indicating that the mixture of algae extract exhibited comparable effectiveness. The activated keratinocytes also release cohesion proteins such as filaggrins, generating a better-structured stratum corneum. A measurement of skin clinical and physiological parameters was also carried out, showing significant correlations with the anti-inflammatory response and skin integrity, as well as barrier formation in vitro assays. The results indicate the remarkable activity of this specific combination of Hypnea musciformis and Sargassum filipendula aqueous extract in improving wrinkles, as supported by image analysis, self-assessment and in enhancing dermal density.

Q. Wu, Q. Song, Q. Liu, M. Li, X.i Lin, J. Zhou, Z. Li, X. Chen, Y. Wang, P. Shu, **Facil self-assembly of visualized micro-beads with surface spherical modification for improving anti-aging skin care**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Retinol has shown a promising capability to improve skin condition in the field of cosmetics benefiting from its high biological activities. However, various factors such as the light, heat or oxygen make retinol easy to be oxidized or decomposed, and the irritation to skin also limits itsfurther application. In this study, the visualized lipid micro-beads combined with surface spherical structure were explored to protect retinoids molecules, effectively retarding the inactivation of retinol, avoiding irritation and enhancing efficacy for skin anti-aging. Thepreparation process of the visualized micro-

beads was easy to perform in large scale. The increased silicon ratio suggested that the emulsifier was located on the surface. This arrangement allowed for both the solidified particle and surface emulsifier to decrease the inactivation of retinoids. Moreover, the undulated surface of micro-beads benefited to retinol spread and retention on the skin. Meanwhile, owning to encapsulation in the micro-beads, the stability of retinol was improved without inducing skin irritation compared with free retinol. Therefore, micro-beads exhibited better skin anti-wrinkle and compactness effects. Further studies on visualized micro-beads and formulations are currently underway.

A.V. Luna, L. Kakuda, G.I. Licco, G.F. Cadioli, P.M.B.G. Maia Campos, **Clinical efficacy of sunscreen formulations containing Brazilian berry extract on mature skin**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

The use of multifunctional sunscreen is essential to protect the skin from damage caused bythe exposome. In addition, Brazilian berry extrarct (*Plinia cauliflora*), a fruit from Brazilian biodiversity, also known as jabuticaba can provide antioxidant and adstringent properties to the formulation, stimulating cell renewal and enhancing its protective effect. Thus, this study aimed to evaluate the effects of daily use of sunscreen and a formulation with jabuticaba extract on photoaged mature skin. For this, a sunscreen and a cosmetic formulation added or not (vehicle) with 4% of the extract were developed. A clinical study was carried out with 35 participants, aged 40-63 years. Measurements in terms of skin hydration and microrelief, and morphological characteristics of the skin were performed after 45 days of formulations use. An increase in the granulosum layer interkeratinocytes reflectance and a decrease in the basal layerhyperpigmentation were observed after 45-day period of suncreen and the formulation with jabuticaba apllication, which suggest an increase in the skin hydration and a reduction in hyperpigmentation. Finally, the Brazilian berry added to the sunscreen and cosmetic formulation was effective in the improvement of skin hydration and uniformity, being an alternative to obtain innovative cosmetics that values Brazilian biodiversity.

H. Li, J. Xu, J. Zhang, X. Liu, H. Hu, Y. Wang, B. Zhang, Z. Yue, **Development of a new cosmetic ingredient using *Gentiana veitchiorum* flower originated from Pan-Himalayan**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Gentiana veitchiorum Hemsl. (GV) is an important original plant of traditional Tibetan medine, which can be used to treat diseases such as smallpox, tracheitis and cough. To develop GV into a new sustainable skin protection agent, the flowers of GV were extracted in hot water. Three active components---gentiopicroside, isoorientin and isovitexin, of GV flowers extract (GVFE) were identified and analyzed by HPLC, respctively containing 15.5%, 1.7% and 1.9%. In addition, the skin care efficacy of GVFE were studied both in vitro and in vivo. The results of in vitro cell assay showed GVFE could not only promote the expression of AQP3, CLDN1 and ZO-1 genes in HaCaT cells, but also inhibite the inflammatory factor IL-6 produced by THP-1. Futhermore, the results of in vivo efficacy assessment showed that GVFE had the effect of reducing the proportion of cheek red area and inhibiting facial oil production. And GVFE also had the effect of reducing fine lines on the face and eyes. These results revealed that the Gentiana veitchiorum flower extract have an excellent effect of barrier repair, soothing and antiwrinkle efficacy, which is expected to be potentially used as a new natural cosmetics ingredient.

Z. Zhou, M. Guo, Y. Hu, F. Yang, **Unlocking the Potential: A Comprehensive Study on a Natural Fermented Double-Layer Essence Enriched with SRFF for Enhanced Skin Health and Anti-Aging Benefits**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

This study introduces a novel approach to mitigate the greasy sensation commonly associated with pure oil-based formulations by formulating a naturally fermented doublelayer essence, with a water-to-oil ratio of 61.8:38.2. The investigation engaged 33 female participants within the age range of 25-50 years, employing non-invasive methodologies to assess and record diverse skin parameters encompassing moisture levels, skin roughness, dermal density, and thickness. Evaluations were conducted both prior to the application of the developed product and subsequently at intervals of 7 and 28 days. Statistical analyses were executed utilizing SPSS 28.0 software, unveiling notable outcomes, including a significant 25.56% reduction in wrinkles at the eye corner, a marked 34.38% escalation in stratum corneum moisture content, and a substantial 33.08% augmentation in SEr value. These discernments underscore the potential of the product to fortify the skin's barrier function, refine skin texture, mitigate fine lines, enhance skin elasticity, and furnish efficacious anti-aging effects.

C. Wang, L. Wang, X. Wei, Y. Wu, H. Hu, Y. Li, **Repairing effect of an essence cream on skin after intense pulsed light**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Objective: To evaluate the clinical efficacy and safety of an essence cream after intense pulsed light (IPL). Methods: A total of 12 healthy Chinese women were enrolled, and the left and right halves of the face of each subject were randomly divided into an experimental group and a control group. The

skin barrier function recovery status of the two groups was evaluated with the Corneometer® CM825, Tewameter, Visioscan® VC20Plus and VISIA complexion analysis system. Results: During the 28-day trial, none of the 12 subjects experienced any adverse reactions related to the product where the sample was used. Compared with the control group, skin moisture content was significantly improved after 30 minutes, 3 days, 7 days, 14 days and 28 days of use, TEWL was significantly improved after 3 days, 14 days and 28 days of use, and the proportion of stain area was significantly improved after 14 days and 28 days of use ($P<0.05$). Conclusion: The test results show that the essence cream is suitable for IPL, and can enhances moisturization, reduces postoperative irritation, promotes skin barrier function repair in surgical patients, and diminishes facial pigmentation after IPL.

A. Chrysostomo, L. Kakuda, P.M.B.G.Maia Campos, **Development and Evaluation of Photoprotective Cosmetic Formulations Containing Spirulina Extract**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

This study aimed to develop and evaluate sunscreens containing Spirulina extract, known for its photoprotective and antioxidant properties. Two formulations were developed: F1 (vehicle) and F2 (vehicle with 0.1% Spirulina). Stability was assessed over 90 days at varying temperatures. A clinical efficacy study involving 10 participants (CAAE: 45620321.2.0000.5403) assessed stratum corneum water content, transepidermal water loss (TEWL), and skin microrelief before and after 2 hours of application of the formulations on the facial frontal region. For the sensory properties analysis, participants evaluated the formulations based on parameters of spreadability, hydration, and oiliness. Stability tests revealed no changes in pH or rheological properties, affirming the formulation's stability. Both formulations showed non-Newtonian pseudoplastic behavior, with F2 showing a reduction in hysteresis area, which could suggest better UV filter distribution, possibly due to polysaccharides forming a protective film on the skin, reducing TEWL. The clinical results indicated that F2 significantly reduced TEWL and improved skin smoothness and roughness compared to F1. Regarding the sensory analysis, participants considered F2 more moisturizing with better texture. Overall, Spirulina extract enhanced the sunscreen's stability, efficacy, and sensory properties, offering multifunctional benefits.

J. Rodrigues Pinto, S. Arandas Monteiro e Silva, G. Ricci Leonardi, **Influence of Cosmetic Formulation on Skin Barrier Function and Skin Roughness in Healthy and Diabetic Individuals**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Some cutaneous manifestations are very common in both type 1 and type 2 diabetes mellitus (DM) patients. Moisturizing cosmetic formulations may help to prevent or reduce skin damage caused by DM. This study evaluated the effect of a moisturizing formulation on improving skin hydration, skin barrier function and reducing skin roughness in diabetic patients compared to healthy subjects. Skin biophysical parameters were assessed using the Corneometer® and Tewameter® probes and image analysis was performed using the Visioscan® micro-camera at baseline and after 45 days of application of the test formulation on the forearm. The test formulation significantly increased skin hydration in both diabetic and non-diabetic subjects and significantly reduced skin roughness in diabetic subjects. The test formulation showed significantly superior performance in improving barrier function and reducing skin roughness in diabetic subjects compared to the non-diabetic subjects.

A. Potter, B. Fallou, L. Calixto, E. Arbey, C. Gubian, V. Tanguy, C. Chao, F. Jung, C. Baltenneck, N. Billoni, D. Bernard, S. Figueiredo, C. Cornillon, M. Farroux, C. Sirichandra, **Skin hydration and texture refinement: A new efficient approach targeting corneocyte-bound ceramides**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Besides the main classes of free ceramides (CERs) identified in the intercellular lipidic matrix, covalently bound ω-hydroxy CERs were described in the cornified lipid envelop (CLE). The CLE, in conjunction with the intercellular multilayered lipids, contributes to regulate the permeability of stratum corneum (SC). These bound ceramides form a template to organize the intercellular lipid layers as a barrier. Numerous abnormal barrier conditions including ageing, dry skin, winter xerosis, atopic dermatitis and UV burns showed SC lipids alteration with reduced amount of ω-hydroxy CERs. Many studies have shown the benefits of topical application of free CERs to improve the barrier function of CERs deficient skin. In this study, we propose a new approach targeting the corneocyte-bound CERs. We showed that Vitamin F stimulates skin’s bound CERs production capacity, improving a dry skin and rough skin into highly hydrated and smooth skin.

D.S. Campachi, L. Kakuda, G.F. Cadioli, G.I. Licco, P.M.B.G Maia Campos, **Characterization of mature Brazilian male skin by instrumental measurements**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Male skin is exposed daily to extrinsic factors that contribute to premature aging, such as solar radiation

and environmental pollution. For a long time, due to stigma in society, the use of cosmetic products by men was not common, but changes in lifestyle are leading men to increasingly look for products specific to their skin's needs. Therefore, the present study aimed to characterize mature Brazilian male skin and compare it with female skin, to understand its specificities. For this, quantitative analyzes of water content in the stratum corneum, transepidermal water loss, amount of sebum and pores, microrelief and thickness of the dermis were carried out. The results showed that male skin is more oily and dehydrated than female skin, but has fewer pores. Men also had a smaller dermal thickness, with less skin elasticity than the female groups, in addition to a less smooth microrelief, with more roughness and wrinkles, parameters that can be improved with the use of cosmetics. Finally, this study contributed to establishing the physiological aspects of male skin as a platform for prospecting new cosmetic formulations that meet their needs.

J. Zuo, M. Guo, Z. Zhou, F. Yang, **Exploring the Anti-Aging Efficacy and Mitochondrial Impact of a Formulation Containing α-Ketoglutaric Acid (α-AKG)**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Objective: Exploring the anti-aging efficacy of a formulation Containing α-Ketoglutaric Acid (α-AKG), especially the impact on mitochondrial function. Methods: The study involved 33 Chinese women with sensitive skin who tested the anti-aging formula over 56days. Assessments were conducted at intervals (0, 7, 28, 56 days) using various tools: VISIA and Primos CR for wrinkle analysis, Visioscan® for skin surface texture analysis, Dermlab Combo for dermal density, Tewameter® for skin moisture loss, Glossymeter® for glossiness analysis, and Cutometer® for elasticity analysis. Subjective evaluations were gathered through a questionnaire. Observations of mitochondrial morphology and mitochondrial membrane potential were conducted after treatment with α-AKG (with or without UV exposure) using fluorescence microscopy. Results: The study demonstrated that continued use of the formulation significantly reduced wrinkles, improved skin moisture retention, surface texture, roughness, glossiness, tightness and boosted dermal density. Subjects reported over 90% satisfaction after 56 days. In vitro tests confirmed that α-AKG improved mitochondrial morphology and membrane potential. Conclusion: This study indicates that the formulation containing α-AKG offers multi-dimensional anti-aging benefits especially in improving mitochondrial function, affirming its potential as a holistic anti-aging skincare solution.

B.J. Navarro, L. Kakuda, P.M.B.G Maia Campos, **Application of babassu oil in cosmetic formulations for hair and skin care: efficacy, sensory and physico-mechanical properties**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

The study aimed to develop and evaluate cosmetic formulations containing babassu oil for hair and skin, leveraging its emollient, moisturizing, and sensory-modifying properties. Babassu oil, obtained via supercritical CO2 extraction to prevent bioactive compound degradation, was incorporated into a hair mask and a gel cream at a 3% concentration. The stability of the formulation was evaluated in terms of rheological behavior and texture profile. Both formulations were stable and exhibited non-Newtonian pseudoplastic behavior with thixotropy. In hair masks, the oil significantly increased the consistency index and work of shear, improving hair softness and combability. Lauric acid in babassu oil is able to diffuse into the hair fiber, forming a protective film that enhances softness and reduces friction. In the gel cream, babassu oil decreased texture parameters and work of shear, improving spreadability and sensory properties. Clinical efficacy tests showed that the oil significantly reduced transepidermal water loss (TEWL) and improved skin hydration and microrelief. Finally, babassu oil showed potential for application in innovative cosmetic products, highlighting its value in enhancing hair and skin care formulations while promoting Brazilian biodiversity.

L. Sun, Y. Ye, Y. Li, X. Wei, **Assessment of skin barrier repair ability of a dual-phase topical care serum containing sodium hyaluronate and plant oils**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Some facial skin problems, including skin dryness, flushing, and tingling, are often associated with inferior barrier function. Choosing the appropriate moisturizer or cream is usually considered a necessary step to improve skin issues and promote the integrity of the skin barrier. We designed a two-phase serum containing sodium hyaluronate and plant oils in a water-oil separation ampoule without essence and preservatives, and evaluated its effectiveness in improving skin barrier and soothing function. We recruited 32 healthy female volunteers in China with skin sensitivity awareness, who were advised to apply the test serum once a day for 4 weeks. After using the serum for 4 weeks, the TEWL value of the skin was significantly reduced by 18.6%, and the stratum corneum moisture content significantly increased by 18.1%, proving the efficacy of enhancing skin barrier function. Additionally, the skin color a* value significantly decreased by 5.0%, the skin erythema area ratio was significantly

reduced by 25.3%, and the lactic acid stinging test revealed that the score of stinging significantly decreased by 39.1%. This clinical trial confirmed the dual-phase serum's efficacy in enhancing the skin barrier function of dry skin, soothing the skin, and improving skin redness and sensitivity.

P. Kong, C. Jiang, X. Huang Y. He, Y. Bai, **Reishi, a sustainable herb medicine for skin immune barrier repairing**, Presentation at 34rd IFSCC Congress, Iguazu, Brazil, 14-17 October 2024

Naturality and sustainability has emerged as a hot topic in leading skincare products. Natural actives have been used to treat skin diseases throughout history. Nowadays, they are processed into sustainable skincare materials followed the research and development approaches of natural products. As a barrier to protect us from environment, skin also plays crucial role in immune function. It contains immune cells such as Langerhans cells, lymphocytes and macrophages, as well as immune regulatory molecules and cytokines such as IL and TNF. They jointly build skin immune barrier. However, UV and other environmental factors can weaken our skin immunity, resulting in reducing immune cells and releasing various inflammatory cytokines IL-α, TNF-α, etc., which lead to excessive sensitivity and cause even more severe skin problems. Active molecules work on immune regulation could be a good solution for repairing skin immune barrier. The development of actives for immune barrier repairing should be taken into consideration in skincare. Reishi, Ganoderma lucidum, has been used as an important tonic and anti-aging herb in Traditional Chinese Medicine (TCM), Kampo medicine and other Asian traditional medicine over 2000 years. Today, pharmacological and clinical researches showed that immune regulatory effects of Reishi could be the mechanism of its benefit. Reishi contains triterpenes, lipids, polysaccharides and steroids. Ganoderma triterpenes were confirmed by pharmacological study as immuno-modulatory actives. Ganoderma triterpene together with lipid components used in our study have been extracted efficiently by a high-pressure low temperature CO2 supercritical fluid extraction method as an oil-like form, “Reishi oil”. It has a good skin permeabilityand no organic solvent residue, which is suitable for skincare. Series of experiments were designed from in vitro to in vivo to verify skin efficacy and mechanism. By stimulating the inflammatory response of macrophages and mast cells, Reishi oil can significantly inhibit the production of inflammatory factors and mediators. An UVB-induced 3D-epidermis model was used to discover inflammatory modulation efficacy of Reishi oil. It significantly down-regulated inflammatory factors and mediators, while up-regulated the content of filaggrin, aquaporins-3 and Ki67 for barrier hydration, repairing and cell proliferating. Meanwhile, it can effectively inhibit the number of sunburn cells, improve the morphology of epidermis, providing us with physiological evidence to confirm that Reishi oil can protect skin tissue from UV-induced damage and has moisturizing, repairing and soothing effects. The clinical studies of Reishi oil with instrumental tests and consumer self-assessment was performed to evaluate direct skin benefit of this immune modulatory active. Reishi oil exhibited the effects of enhancing skin hydration, glossiness, elasticity and barrier function, together reducing skin wrinkles and sensitivity. In summary, in vitro and in vivo studies of Reishi oil have confirmed its skin benefits through a skin immune barrier repairing way. Significant skin quality improvements in sensitivity and skin aging were also observed in human clinical research. The biomass obtained from a good cultivation area; a green chemistry guided process; scientific evidence based raw material efficacy evaluation, all these provide Reishi oil a great potential as a sustainable natural skincare active.

C. Pretel-Lara, R. Sanabria-de la Torre, S. Arias-Santiago, T. Montero-Vilchez, **Skin Barrier Function and Microtopography in Patients with Atopic Dermatitis**, J. Clin. Med. 2024, 13, 5861

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease whose incidence is increasing. Skin barrier dysfunction plays an important role in this disease. It has been observed that AD patients have higher transepidermal water loss (TEWL) and lower stratum corneum hydration (SCH); however, there is little information about skin microtopography in this pathology. The objective of this study is to evaluate skin barrier dysfunction and structural changes in patients with AD. Methods: A cross-sectional study was conducted including patients with AD. Parameters of skin barrier function were measured (TEWL, temperature, erythema, pH, skin hydration, elasticity) and also other topographical parameters (scaliness, wrinkles, smoothness, surface, contrast, variance) in both healthy skin and flexural eczematous lesions. Results: A total of 32 patients with AD were included in the study. Flexural eczematous lesions had higher erythema (369.12 arbitrary unit (AU) vs. 223.89 AU, $p < 0.001$), higher TEWL (27.24 g/h/m2 vs. 13.51 g/h/m2, $p < 0.001$), lower SCH (20.3 AU vs. 31.88 AU, $p < 0.001$) and lower elasticity (0.56% vs. 0.65%, $p = 0.05$). Regarding topographic parameters, flexural eczematous lesions presented greater scaliness (5.57 SEsc vs. 0.29 SEsc, $p = 0.02$), greater smoothness (316.98 SEsm vs. 220.95 SEsm $p < 0.001$), more wrinkles (73.33 SEw vs. 62.15 SEw $p = 0.03$), greater surface area (836.14% vs. 696.31%. $p < 0.001$), greater contrast (2.02 AU vs. 1.31 AU $p = 0.01$), greater variance (6.22 AU vs. 4.96 AU $p < 0.001$) and a lower number of cells (105.5 vs. 132.5 $p < 0.001$) compared to unaffected healthy skin, reflecting a decrease in skin quality in AD patients.

Conclusions: Both skin barrier function and skin topography are damaged in patients with AD, with differences between healthy skin and flexural eczema.

B. Aral, **Testing Tactics in Skin - Evaluating Radiance and Texture**, Cosmetics & Toiletries Magazine, Vol. 139, No.9, October 2024

The K-beauty trend for flawless, “glass” skin aims to achieve a complexion so smooth, clear and luminous that it resembles a sheet of glass. The hydrated, even-toned skin with natural glow, all indicators of health, is now more desired than ever: Makeup looks of admired celebreties such as Jennifer Lopez, Hailey Bieber and bella Hadid reflect theses radiant, fresh and minimalistic qualities. As such, this article explores the meaning of skin radiance, its relationship to texture, and various ways to measure this desired attribute.

A. Taimana, S. Kuo, **Mobilising the power of New Zealand red seaweed**, PERSONAL CARE MAGAZINE, Volume 28, Issue 8, September 2024, p. 68-71

Antarctic Bottom Water (AABW) plays a crucial role in shaping the marine ecosystems of New Zealand. Originating from the frigid depths of Antarctica, this dense, cold water mass travels northward, bringing with it a wealth of nutrients and impacting global ocean currents. For New Zealand, a country uniquely positioned in close proximity to Antarctica, the influence of AABW is particularly significant. Nestled in the southwestern Pacific Ocean, New Zealand’s unique geographical location positions it as one of the closest inhabited landmasses to the icy expanse of Antarctica.1 This proximity not only establishes New Zealand as a critical player in Antarctic exploration and research but also as a guardian of some of the world’s purest oceanic waters. From its southernmost city, Invercargill, to the key port of Christchurch, the nation serves as a vital hub for logistical support, environmental stewardship, and oceanic purity. The role of Antarctic Bottom Water in marine ecosystems AABW forms as cold, salty, and dense water sinks near the Antarctic continent, driven by the extreme temperatures and salinity changes. As this water travels along the ocean floor, it acts as a conveyor belt, transporting nutrients essential for marine life. These nutrients support the growth of phytoplankton, the foundation of the marine food web, which in turn sustains a diverse array of marine species, from tiny zooplankton to large fish and marine mammals. For New Zealand, this influx of nutrient-rich water is vital.

A. Charpentier, **K-Beauty- New challenges around claims & substantiation**, Cosmetic Business, September 2024

Korean beauty emerged as a major actor in product cosmetics, setting new standards for efficacy, ingredients and product diversity. Fueled by social media and a growing interest in skin care, K-beauty blends centuries-old tradition, culture and ancient practices with modem scientific advancements in research and formulations. Additionally, Korean brands, as well as OEM/ODMs, are the driving force behind new marketing concepts, quickly picking up on the weak signals of the expectations of well-informed beauty consumers.

B.L. Lua, L. Ruan, Y. Lyu, S. Liu, **Understanding the causes of skincare product pilling**, Skin Research and Technology: Volume 30, Issue 8, August 2024

Background: Skincare and makeup “pilling” is an unsightly and undesirable phenomenon whereby skincare such as moisturizers or foundation ball up to form flakes on the skin. To date, the causes of skincare product pilling have not been studied. This study aimed to examine the relationship between skin physiology and pilling potential of sunscreen and foundation (the two products most reported by consumers to cause pilling). This study also examined the effects of product applicationmethods on pilling. Materials and methods: 528 female volunteers fromGuangzhou, China, aged between 20 and 49 years, underwent various clinical skin assessments, followed by three steps of product layering. Pilling was assessed after each product application step. Results: 217 volunteers (41%) experienced pilling. The majority of pilling (n = 655 events) occurred following sunscreen application, while only a few pilling events (n = 35) occurred with foundation. Foundation improved pilling caused by sunscreen in 98.9% of cases. Volunteers experiencing pilling with both sunscreen and foundation had significantly lower facial skin hydration and oiliness, higher pH, and smoother skin texture ($P < 0.05$). Two application methods, rubbing of products in circular and linear motions, yielded the highest numbers of pilling events. Conclusion: This study has provided the first insights into the causes of pilling. Sunscreen is a promoter of pilling, while foundation may resolve sunscreen-induced pilling in many cases. Skin physiology, particularly drier, smoother skin with higher pH, and product application methods are likely contributing factors to this undesirable phenomenon.

S. Varothai, P. Chaweekulrat, C. Pruksaeakanan, S. Wongdama, W. Boonchai, **Efficacy of panthenol-andbisabolol-containing lip care as monotherapy for mild-to-moderate cheilitis**, Int J Dent Hyg., 2024 Aug;22(3): p. 711-716

Background: Cheilitis is a chronic inflammatory condition of the lips, and frequent or prolonged use of topical corticosteroids may lead to various adverse events. Therefore, alternative therapies with fewer side effects are beneficial for the treatment of this condition. Aim: To evaluate the efficacy of a lip care formulation containing both panthenol and bisabolol as a monotherapy for mild-to-moderate cheilitis. Methods: This single-centre prospective pilot open-label study included 20 patients with mild-tomoderate cheilitis who were treated with the tested lip care for 8 weeks and evaluated by physician and patient assessments before the final efficacy was determined using the Visioscan score. Results: Of the 20 patients, 13 (65.0%) presented with moderate cheilitis with dry and chapped lips. All parameters, including physician and patient clinical scores and bioengineering measurements, showed significant improvements as early as week 2 and sustained until week 8 following the application of the tested lip care. The frequency of cheilitis flareups also decreased significantly. The tested product was well tolerated without any adverse effects. Conclusions: Lip care with panthenol and bisabolol was safe and effective. It can be used as monotherapy for the treatment of mild-to-moderate cheilitis.

S. Warma, H. Warma, A. Merja, N. Patel, M. Patel, **Revitalizing skin, hair, nails, and muscles: Unlocking beauty and wellness with vegan collagen**, J Cosmet Dermatol. June 2024

Background: Collagen, a key protein in the body maintains hair, skin and bone health and its production tends to decrease in synthesis as humans age. The demand for vegan collagen-builder has increased worldwide due to increased adaptability to vegan diet. Objective: This clinical study was designed aim to evaluate the safety and efficacy of vegan collagen builder (VEGCOL™) at different dosages (2.5, 5, and 10 g) in adult participants. Methods: Total 66 subjects (22 subjects/dose) aged 30 to 50 years were enrolled, and 63 subjects completed the study. Duration of study was 60 days. Evaluations included change in skin elasticity, hydration, crow's feet area wrinkles, fine lines, skin, Glogau skin age, change in pain scale score, muscle strength and subject perception assessment about test treatment use. Results: After 60 days of treatment, there was significant improvement in hair growth rate by 45.01%, 38.54% and 50.37% with $p < 0.01$ for doses 2.5, 5, and 10 g respectively. Additionally, 19.64% ($p < 0.0001$) and 20.51% ($p < 0.0001$) increase in hair density and hair thickness respectively was observed with 10 g dose. 2.5 g dose resulted in 33.03% ($p < 0.01$) increase in skin smoothness and 49.94% ($p < 0.0001$) decrease in crow's feet area wrinkles, decreased retraction time by 21.71 milliseconds ($p < 0.05$). 52.54% reduction in pain score ($p < 0.001$). No any adverse events were reported. Conclusion: Vegan collagen-builder effectively improved multiple age-related concerns such as wrinkles, fine lines, joint pain, muscle strength and hair growth. All respondents perceived the product as beneficial in improving the aesthetics of the skin, hair, and nails. The findings support the use of vegan collagen-builder as safe and efficacious in promoting healthier skin, stronger muscles, and improved hair and nail conditions.

M. Yamamoto, **Novel active illuminating the path to radiant skin,** PERSONAL CARE MAGAZINE, June 2024, p. 33-35

The face and hands serve as the canvas of our age, revealing the first brushstrokes of the passage of time. The emergence of telltale signs such as wrinkles, sagging, dryness, age spots, freckles, and discoloration signifies the intricate dance between ageing and skin health.This article delves into the fascinating world of age spots, with a particular focus on their formation, exploring the interplay between melanin, lipofuscin, and the essential cellular processes of autophagy and proteasome activity.

A.S. Farberg, S.J. Palomares, T.Q. Nguyen, C. Emesiani, M. Meckfessel, **An Over-the-Counter Healing Ointment: Benefits in Dry Skin and Wound Healing**, J Drugs Dermatol. 2024;23(5): p. 360-365

Background: The use of ointments can be beneficial for dry, chapped, or cracked skin and also for supporting wound healing. We describe the results of 2 studies with an over-the-counter healing ointment (HO) to evaluate the effects on skin hydration and in the setting of wound healing after dermatologic procedures. Methods: Study 1 was a single-center, in-use study using HO on qualified areas at least once daily for 4 weeks in subjects with dry, cracked body skin and self-perceived sensitive skin. Study 2 was a multi-center study of wound healing in subjects using HO on a daily basis after having dermatologic surgical procedures. Results: In Study 1, there was a significant reduction in skin dryness after 1 and 4 weeks of HO use ($P<0.05$). Image analysis of the skin revealed a significant increase in skin smoothness after the first application of HO in 100% of subjects ($P<0.05$). Tolerability and safety were excellent, and HO was well-perceived by subjects throughout the study. In Study 2, HO improved clinical assessments at all time points compared with baseline with a decrease in erythema, edema, scabbing/crusting, and an improvement in overall wound appearance ($P<0.05$). There was no worsening or significant increase in measures for tolerability parameters at any study visits. Additionally, HO achieved a favorable perception by study subjects. Conclusions: HO has a well-established safety

profile and has been shown to improve both skin hydration and the overall wound healing process after dermatologic surgical procedures.

A. Guerra-Tapia, H. Martínez, C. Nieto, C. Ruiz Alonso, R. Bermejo, N. Carrón, S. Garcia-Segura, P. Gonzalez-Torres, D. Palacios-Martínez, L. Bou, M. Pérez, R. de Lucas, **A new topical biotechnological phytocomplex for truncal mild-moderate acne restores skin microbiota balance**, Skin Res Technol. May 2024

Background: The disruption of the microbial community or dysbiosis alters the functional composition, metabolic activity, and local distribution of the microbiota leading the development of acne. The aim of this study is to evaluate the effect of a lotion containing a biotechnological phytocomplex, niacinamide, and succinic acid in the bacterial diversity of subjects with truncal mild-moderate acne and its clinical benefits due to microbiota changes. Materials and Methods: Open, clinical study in 43 subjects with truncal mild-moderate acne treated with a lotion for 8 weeks. Bacterial diversity was analyzed by 16S rRNA gene sequencing of skin samples. Clinical effects were evaluated through IGA acne severity scale, biometric measurements, and safety. Results: After 56 days of product's use, an increase in richness alpha diversity was found ($p = 0.005$), with a decrease in Cutibacterium acnes relative abundance (66.43% vs. 58.11%, $p = 0.009$). The clinical results showed a decrease in IGA score (27.59% decrease; $p = 0.001$), the inflammatory lesions (52.12% decrease, $p = 0.006$) and erythema (18.33% decrease, $p = 0.007$), and desquamation index (63.83% decrease, $p = 0.02$). The responder analysis of the IGA score showed that 60.47% of patients improved by at least one point at day 56. The product was well tolerated along the study. Conclusion: The use of the lotion on acneic skin was effective on rebalancing the microbiota, inhibiting biofilm formation and other virulence factors, reducing erythema and desquamation, and improving acne's severity.

B. Aral, **Testing Tactics: Approaches to Measure Scalp Comfort and Care**, Cosmetics & Toiletries, May 2024

The global hair and scalp care market is expected to generate a revenue of about $94 billion in 2024, with an anticipated CAGR of 2.8% in the next four years. Anti-dandruff, hair loss, dry and itchy scalp, dry and dull hair, and white/gray hair product categories dominate, while products targeting scalp comfort and care have emerged as their own sub-category thanks to a few combined factors.

L. Kakuda, P.M.B.G. Maia Campos, W.P. Oliveira, **Development and Effcacy Evaluation of Innovative Cosmetic Formulations with *Caryocar brasiliense* Fruit Pulp Oil Encapsulated in Freeze-Dried Liposomes**, Pharmaceutics 2024, 16, 595

Encapsulation and drying technologies allow the engineering of innovative raw materials from plant biodiversity, with potential applications in pharmaceutical and cosmetic felds. Lipid-based nanoencapsulation stands out for its effciency, ease of production, and versatility in encapsulating substances, whether hydrophilic or lipophilic. This work aimed at encapsulating pequi oil in liposomes and freeze-dried liposomes to enhance its stability and functional benefts, such as skin hydration and anti-aging effects, for use in innovative cosmetic formulations. Pequi oil—extracted from the *Caryocar brasiliense* fruit pulp, a plant species from Brazilian plant biodiversity—is rich in secondary metabolites and fatty acids. Liposomes and dried liposomes offer controlled production processes and seamless integration into cosmetic formulations. The physicochemical analysis of the developed liposomes confrmed that the formulations are homogeneous and electrokinetically stable, as evidenced by consistent particle size distribution and zeta potential values, respectively. The geltype formulations loaded with the dried liposomes exhibit enhanced skin hydration, improved barrier function, and refned microrelief, indicating improvements in skin conditions. These results highlight the potential of dried liposomes containing pequi oil for the development of innovative cosmeceutical products. This research contributes to the valorization of Brazilian biodiversity by presenting an innovative approach to leveraging the dermatological benefts of pequi oil in cosmetic applications.

L.K.W. Phoebe, K.W.A. Lee, L.K.W. Chan, L.C. Hung, R. Wu, S. Wong, J. Wan, K.-H. Yi, **Use of platelet rich plasma for skin rejuvenation**, Skin Research & Technology, April 2024

Objective: Platelet-rich plasma (PRP) is recognized as a safe and effective therapy for regenerative skin healing and rejuvenation, utilizing autologous blood enriched with various growth factors. This review aims to assess the efficacy of PRP treatments forskin rejuvenation. Methods: Keywords such as "platelet-rich plasma," "rejuvenation," "skin aging," and"wrinkles" were queried on Ovid, PubMed, and MEDLINE to identify pertinent studies on PRP treatment for skin rejuvenation.Results: Analysis revealed that PRP treatment led to significant enhancements in multiple facial parameters after one to three sessions. Improvements were noted in skin pore size, texture, wrinkle reduction, pigmented spots, collagen density, hyaluronic acid levels, and protection against ultraviolet damage. Combining PRP with hyaluronicacid demonstrated a synergistic effect, particularly

enhancing skin elasticity in patients with lower body mass index and firmness in individuals aged 50s and 60s. Incorporating both physical and biometric data for assessment proved superior to relying solely on physical observations for evaluating subtle skin quality and structural changes. Conclusion: This study underscores the efficacy of PRP monotherapy for skin rejuvenation and emphasizes the necessity of standardizing PRP preparation protocols in future investigations. Heightened awareness and advancements in technology have contributed to the emergence of higher-quality, less biased studies supporting PRP as a reliable and safe therapeutic option for skin rejuvenation.

J.M. Crowther, P.J. Matts, **What defines dry skin? Correlating a range of skin hydration parameters with In Vivo Confocal Raman Spectroscopy**, Int J Cosmet Sci. 2024;46: p. 610–622

Objective: While there are a wide range of approaches for the assessment of skin hydration, it is not always clear how data from them relate to one another or to the skin itself. With the development of in vivo Confocal Raman Spectroscopy (ICRS), it has become possible to measure water concentration as a function of protein/depth within the stratum corneum (SC). This article reports a comparison between electrical skin hydration measures/visual/optical grading and water concentration profiles measured using ICRS, to better understand the relationship between these approaches. Methods: SC hydration of lower-leg skin with varying degrees of dryness was assessed using visual grading (live and from digital images), Corneometer®, Visioscan and ICRS. In addition, a custom fingerprint sensor was used to image surface capacitance (as a surrogate of SC hydration), and SC barrier function was assessed using evaporimetry (to measure trans-epidermal water loss; TEWL). Results: Significant correlations were observed between a number of different skin grading/measurement approaches and ICRS data. ICRS hydration profiles also revealed a region near the SC surface with a relatively flat water profile in dry skin subjects. Conclusions: The advent of quantitative in vivo analytical techniques such as ICRS, which can be used in a clinical setting, has enabled greater insight into more conventional approaches for assessing skin dryness. While traditional skin grading and biophysical methods for measuring skin hydration have varying degrees of correlation with one another, they also provide comparatively unique information about different regions within the SC. This should enable a more informed approach to product development in the future.

M. Coirier, M. Humeau, H. Muchico, E. Aymard, B. Closs, **An alfalfa quintessence to the benefit of a plural beauty**, HPC Today, Vol. 19(2), 2024

In the cosmetics industry, "plural beauty" is a concept that has been rising with the diversity equity and inclusion (DEI) movement. In line with this idea of considering all skin specificities, SILAB identified the main cutaneous characteristics of consumers in terms of ethnicity age, and gender. This approach highlighted that the three major beauty axes responding to universal expectations are all regulated by biological mechanisms taking effect in both the dermis and epidermis. The aim of the study was therefore to demonstrate how a Water & *Medicago sativa* (Alfalfa) Extract can respond to the needs of all skin types through a transversal action on both the dermis and the epidermis.

C.A. Ysulat, H. Suzuki, S. Ushijima, S. Yoshimoto, **Lysolecithin ingredient to restore sensitive skin**, PERSONAL CARE MAGAZINE, Volume 25, Issue 4, April 2024, p. 60-63

The number of people suffering from sensitive skin caused by atopic dermatitis, allergies, air pollutants, temperature changes and stress is increasing, and sensitive skin cosmetics that claim low irritation and skin barrier repair have become essential products for such people. According to The prevalence of sensitive skin', 60-70% of women and 50-60% of men report having some degree of sensitive skin on surveys conducted in 20 different countries in five continents.

R. Amin, F. Rancan, K. Hillmann, U. Blume-Peytavi, A. Vogt, J. Kottner, **Effects of a leave-on product on the strength of thedermoepidermal junction: An exploratory, intraindi-vidual, randomized controlled trial in older adults with dry skin**, Health Sci. Rep. 2024;7:e1985

Background and Aims: Skin aging is associated with dry skin and a decrease of the strength of the dermoepidermal adhesion, which increases the risk for lacerations
(skin tears). Application of leave-on products improves dry skin and seems to reduce skin tear incidence. The aim of this study was to measure the effects of a humectant containing leave-on product on the strength of the dermoepidermal junction in older adult participants with dry skin.Methods: A randomized controlled trial using a split body design was conducted. One forearm was randomly selected and treated with a lipophilic leave-on product containing 5% urea for 8 weeks. The other forearm was the control. The parameters stratum corneum hydration (SCH), transepidermal water loss, pH, roughness, epidermal thickness and skin stiffness were measured at the baseline, Weeks 4 and 8. At Week 8, suction blisters were created and time to blistering was measured. Blister roofs and interstitial fluid were analyzed for Interleukin-1α, 6 and 8. Results: Twelve participants were included. After 8 weeks

treatment, SCH was higher (median difference 11.6 AU), and the overall dry skin score (median difference −1) and median roughness (Rz difference −12.2 µm) were lower compared to the control arms. The median group difference for Interleukin-1 α was −452 fg/µg total protein (TP) in the blister roofs and −2.2 fg/µg TP in the blister fluids. The median time to blister formation was 7.7 min higher compared to the control arms. Conclusion: The regular application of humectant containing leave-on products improves dry skin and seems to lower inflammation and contribute to thestrengthening of the dermoepidermal adhesion. This partly explains how the use of topical leave-on products helps to prevent skin tears.

L. Cheng, J. Guo, Y. Lu, ***Lotus corniculatus*** **extract to inhibit lipogenesis**, PERSONAL CARE MAGAZINE, March 2024, p. 78-82

In recent years, excess oil secretion on the skin surface has become a more and more common skin problem with the acceleration of the pace of life. Oily skin is frequently accompanied by large pores, and contributes to the development of acne. The sebaceous glands are an important organ for synthesizing lipids and an important source of sebum for oily skin. Sebum can maintain the integrity of the cutaneous lipid barrier, transport antioxidants to the skin surface, and have antimicrobial, antiinflammatory activity. Although their function is important, excess oil secretion on the skin surface cause great discomfort and should be treated.

L.N. Favaro, L. Kakuda, P.M.B.G. Maia Campos, **Boosting Moisturization for Tattooed Skin Care**, Cosmetics & Toiletries February 2024

Globally, according to Fortune Business Insights, the tattoo market is projected to grow from $2.04 billion in 2023 to $3.93 billion by 2030 – a CAGR of 9.87%.1 In Brazil alone, according to the Brazilian Support Service for Micro and Small Businesses (SEBRAE), from 2016 to 2017, the tattoo market was unhindered by the country's economic crisis and grew at rate of nearly 20% per year.1 In this context, this increase can be correlated with higher consumer demand for tattoos.

A. Trehan, R. Anand, G. Chaudhary, H. Garg, M. Kumar Verma, **Efficacy and Safety of Skin Radiance Collagen on Skin and Hair Matrix: A Placebo-Controlled Clinical Trial in Healthy Human Subjects**, Clinical, Cosmetic and Investigational Dermatology 2024:17, p. 581–591

Purpose: Collagen supplements are rising in the market as collagen has been demonstrated to be an important protein in the human aging process. Also, it is safe and easily absorbed in the body. Hence the aim of this study was to examine the effectiveness and safety of a collagen and antioxidant-rich treatment compared to a placebo in relation to various skin and hair indicators in healthy adult human subjects. Patients and Methods: Forty healthy adult non-pregnant/non-lactating women (aged 38–50 years) provided their informed consent in writing before their participation. Skin Radiance Collagen (SRC) treatment and a placebo were assessed for effcacy before application on Day 1, and post-application on Days 28 and 56, to measure changes in skin elasticity, hydration, brightness, pigmentation; texture, wrinkles, dryness, smoothness, fne lines, changes in the crow's feet region; as well as hair strength and hair fall. Results: It was observed after 56 days that therapy with SRC, compared to placebo, produced a substantial effect on reduction of wrinkle depth and fne lines by 48.11% and 39%, respectively, with *p*-value <0.01 in the test group. There was a 15.69% improvement in skin hydration observed and 28% reduction in hair fall with *p*-value <0.01. Conclusion: SRC, a combination of collagen with hyaluronic acid (HA), biotin, and vitamins C and E, showed a signifcant improvement in skin and hair health, including improvements in skin elasticity, skin hydration, reduction in crow's feet area wrinkles and fne lines, hair fall, and decrease in roughness, leading to improved skin texture. Vitamin C in the formulation also acts as a collagen builder for the body and helps in preventing oxidative stress in the body. The test treatment SRC was found to be effcacious and safe in healthy human adult subjects.

J.M. Jurek, V. Neymann, **The role of the ImmunatuRNA® complex in promoting skin immunity and its regenerative abilities: Implications for antiaging skincare**, J Cosmet Dermatol. 2024;23: p. 1429–1445

Introduction: Recent advancements in cosmetic science have ushered in a new era of skincare strategies, with a focus on utilizing natural bioactive ingredients to enhance skin health and combat premature aging. The skin, as the largest organ of human body, provides as a vital protective barrier against external hazards such as environmental pollutions, toxins, and radiation. However, intrinsic and extrinsic factors, including various types of radiation, reduced air quality, and increased exposure to pollutants, lead to an imbalance in the skin's immune system, significantly reducing the skin's ability to regenerate and accelerating skin aging. Therefore, there is an emerging need to develop innovative skincare strategies that could support the skin's immune capacity by strengthening antioxidant

protection, skin regeneration, and repair. Plant-derived compounds, along with naturally sourced ingredients, show promise in accelerating wound healing, especially when incorporated into cosmetic formulation. ImmunatuRNA® stands as a prime example of a biologically active complex, uniquelycomprising yeast-derived RNA, marine exopolysaccharides, and natural hyaluronic acid, that exhibits high antioxidant activity and exerts beneficial modulatory effects on skin microbiota, thereby positively influencing skin immunity. Methodology: The main aim of this study was to investigate the potential of the ImmunatuRNA® complex in promoting skin regeneration and reducing signs of skin aging, both through the use of in vitro human skin cultures and the evaluation of clinical trials in healthy volunteers. Results: The results of conducted experimental studies have shown that the ImmunatuRNA® complex demonstrated significant positive effects on the immunity and repair capabilities of the skin, characterized by increased fibroblast proliferation, enhanced glycosaminoglycan synthesis, and reduced oxidative stress. Furthermore, use of the complex also significantly accelerated wound healing following mechanically-induced damage in the keratinocytes, demonstrated as reduction in wound margins measurement, new cell production, and an increase in regeneration speed. In addition, conduced clinical study on healthy human volunteers with various skin types confirmed that use of cosmetic products that incorporate theImmunatuRNA® complex within the formulation can visibly improve skin condition, appearance, and general health, achieved by increased skin hydration and elasticity, reduced wrinkles, and enhanced skin firmness. Conclusions: This study confirms the usefulness of the ImmunatuRNA® complex inthe innovative antiaging cosmetic products that can be suitable for all skin types, including sensitive skin. The inclusion of naturally sourced bioactives, as those found in ImmunatuRNA® complex, represents a promising advancement in holistic natural skincare that consumers appreciate. The active ingredients of the complex support the skin's immunity, fostering its repair and protecting against oxidative damage, thus maintaining skin homeostasis and promoting its regenerative capacity. Further research is necessary to explore the long-term effects of ImmunatuRNA® complex on skin health and its potential applications in innovative skincare formulations.

R. Sanabria-de la Torre, M. Ceres-Muñoz, C. Pretel-Lara, T. Montero-Vílchez, S. Arias-Santiago, **Microtopography and Barrier Function in Healthy Skin: Differences between Forearm, Cheek and Palm**, Cosmetics 2024, 11, 5

Background: Skin barrier function resides mostly in the stratum corneum, which consists of a protein component, the corneocyte (bricks), which provides a scaffold for the second component, the extracellular matrix, consisting of multilayers of lipids (mortar). These two components closely interact and this could be the basis for the differences in the biophysical properties of the skin between anatomical regions. So, the aim of this study was to compare skin microstructural properties between body sites. Methods: A comparative study was conducted that included healthy individuals without previous skin diseases. Skin barrier function parameters and microtopography parameters (smoothness, roughness, desquamation, wrinkles, surface, volume, contrast, variance, homogeneity, anisotropy, total cell count, flaking index, skin surface hardness, brightness, deformability and friction) were measured on the forearm, cheek and palm. (3) Results: 44 participants were included in this study, with a mean age of 38.8 ± 15.0 years. Significant differences were found between body sites for 14 of the 15 parameters evaluated. Smoothness was higher on the forearm than on the cheek and palm (240.02 Sems vs. 348.16 vs. 408.19 Sems, $p < 0.05$). Hardness was higher on the palm than on the forearm and cheek (13.22 AU vs. 9.44 AU vs. 7.94 AU, $p < 0.05$). Moreover, we observed that sociodemographic characteristics such as age, sex, tobacco and/or alcohol use, influenced the parameters evaluated. (4) Conclusions: The differences in skin barrier function and microtopography between anatomical regions reflects the different structure of skin in each body part and could help to understand the influence of the sociodemographic characteristics on theses parameters. This information could be useful for comparison with pathological skin characteristics and for targeting new treatments.

S. Oh, H. Kim, M. Kim, X. Jin, S. Zheng, T.-H. Yi, **The effects of Jawoongo soap on skin improvement**, Journal of Cosmetic Dermatology, Jan 2024

Background: Jawoongo is used to treat and prevent skin issues such as dry and keratinization disorders,
burns, trauma, pigmentation, scarring, and inflammatory skin conditions. In this study, the efficacy and safety of 0.47% Jawoongo extract-containing soap (JAUN-CS) were assessed in terms of skin improvement effects such as cleansing, moisturizing, sebum secretion management, and skin elasticity enhancement. Methods: Twenty healthy adult men and women aged 20-60 years old took part in the study. Before and after using JAUN-CS, the participants were divided into groups, and various skin improvement effects were measured utilizing machines such as the Corneometer, Tewameter TM 300, and Visioscan. A dermatologist analyzed the product's safety in accordance with Frosch & Kligman and the Cosmetic, Toiletry, and Fragrance Association (CTFA) rules. Results: Using JAUN reduced the

amount of base and point makeup by 25.7% and 76.7%, respectively. Also, JAUN showed a great facial exfoliation effect by removing the old and lifted skin keratins by 84.7% and 20.3%, respectively. Impurities in facial pores decreased by 58%, too. Furthermore, JAUN increased the moisture content of deep skin and skin surface by 3.5% and 74.0%, and skin elasticity by 2.8%. Skin tone, skin texture, skin radiance, and skin barrier all showed improvements of 3.3%, 20.0%, 15.0%, and 115.2%, respectively. Lastly, cleansing with JAUN successfully enhanced the condition of the youth triangle by 7.6%, while TEWL significantly decreased by 52.7%. Neither the JAUN nor the control group soap showed any adverse reactions, such as erythema or allergies, during the testing period. Conclusions: The results of this study demonstrated that JAUN is safe for human use and has various skinimproving properties, making Jawoongo a promising natural material for the development of functional cosmetics in the future. Keywords: Jawoongo extract-containing soap (JAUN-CS); skin barrier; skin care; skin elasticity; skin improvement.

S. Glücklich, **Der transformative Einfluss von intradermalem Incobotulinumtoxin A auf die Hautqualität: Möglichkeiten und Grenzen**, Dissertation zur Erlangung des Doctor philosophiae (Dr. phil.) an der Universität Hamburg, Fakultät für Mathematik, Informatik und Naturwissenschaften, Fachbereich Chemie, Abteilung Biochemie und Molekularbiologie, Fachrichtung Kosmetikwissenschaft, Januar 2024

Die Schönheitsindustrie hat in den letzten Jahren kaum eine Bezeichnung häufiger verwendet als ‚Glow'. Der Begriff bezieht sich auf einen jugendlichen und ebenmäßigen Teint, der frei von Hautrauigkeiten oder Rötungen ist. Der Wunsch nach glatter, fester und ebenmäßiger Gesichtshaut ist jedoch nicht neu, es war schon immer ein wesentlicher Aspekt des eigenen Aussehens angesichts der Bedeutung einer optimalen Hautbeschaffenheit und einer makellosen Ästhetik, Schönheit und Attraktivität. Dabei zeigte sich aber in den letzten Jahren ein wachsender Trend zur Verbesserung der allgemeinen Hautqualität, nicht nur zur Retusche von Alterserscheinungen wie Falten. Trotz der bedeutenden Rolle, die die Hautqualität für die allgemeine Attraktivität spielt, gibt es derzeit keine allgemein akzeptierte Definition oder kein globales Messinstrument für diesen Begriff. Allerdings definieren Goldie und Kerscher in ihrer neusten Publikation „Skin Quality – A Holistic 360° View: Consensus Results" aus dem Jahr 2021 vier emergente Wahrnehmungskategorien (EPCs), die die Hautqualität, das Selbstwertgefühl und die Attraktivität einer Person maßgeblich beeinflussen. Die EPCs, die für alle Ethnien gelten, sind ‚Einheitlichkeit des Hauttons', ‚Glätte der Hautoberfläche', ‚Hautfestigkeit' und ‚Hautglanz'. Diese EPCs bestehen aus einzelnen Parametern wie Elastizität, Hydratation, Porengröße, Hautdichte, Falten, Narben, Haare, Pigmentierung, Rötung und Helligkeit. Mittels unterschiedlicher Methoden ist es heutzutage möglich, diese Parameter zu optimieren. Dabei wird neuerdings auch BoNT-A, das intradermal injiziert wird, zur Verbesserung der Hautqualität in Betracht gezogen. In den meisten Studien werden zur intradermalen Injektion die BoNT-A Typen ABO und ONA verwendet. Eine Studie von Park et al. deutet darauf hin, dass auch INCO die Talgproduktion reduzieren und die Gesichtsporen verbessern könnte. Es fehlen jedoch noch ausreichende Untersuchungen zur Anwendung von INCO zur Verbesserung der Hautqualität und der EPCs. Das Ziel dieser Projektarbeiten ist es zu ermitteln, ob die Parameter der vier EPCs durch die intradermale Injektion mit INCO verbessert werden können.

M. Bagheri, M. Werres, P.C. Fuchs, H. Seyhan, R. Lefering, G. Grieb, J.L. Schiefer, **Which Moisturizer to Use in Scar Therapy after Burn Injuries? A Subjective and Objective Skin and Scar Evaluation after Topical Treatment with Dexpanthenol, Aloe Vera, and Plant Oil**, Medicina 2023, 59

Abstract: Background and Objectives: Good scar management in burn care is essential. Nevertheless, there are no consistent recommendations regarding moisturizers for scar management. Our aim was to investigate and compare the effects of commonly used products on normal skin and burn scars. Materials and Methods: A total of 30 skin-healthy (control group) and 12 patients with burn scars were included in this study. For an intraindividual comparison, each participant received creams consisting of dexpanthenol (P), aloe vera (A), and a natural plant oil (O) with instructions to apply them daily to a previously defined area for at least 28 days. Objective scar evaluation was performed with Visioscan®; Tewameter®; Cutometer®, and the Oxygen To See® device. Subjective evaluation was performed with an "application" questionnaire, the Patient and Observer Scar Assessment Scale (POSAS), and with the "best of three" questionnaire. Results: After (A) a high trend of amelioration of +30%, TEWL was detected on the scar area. Blood flow increased slightly on healthy skin areas after (A) application to +104%. The application of (A) on healthy skin demonstrated a positive effect on the parameters of scaliness (+22%, $p < 0.001$), softness (+14%, $p = 0.046$), roughness R1 (+16%, $p < 0.001$) and R2 (+17%, $p = 0.000$), volume (+22%, $p < 0.001$), and surface area (+7%, $p < 0.001$) within the control group. After (P), a significant improvement of the baseline firmness parameter of +14.7% was detected ($p = 0.007$). (P) also showed a beneficial effect on the parameters of R1 (+7%, $p = 0.003$), R2 (+6%, $p = 0.001$), and volume (+17%, $p = 0.001$). (O) lead to a statistically significant improvement

of volume (+15%, p = 0.009). Overall, most study participants stated (A) to be the “best of three”. Conclusions: (A) performed statistically best, and is a well-tolerated moisturizing product. However, further quantitative studies are needed to provide statistically significant clarification for uniform recommendations for scar therapy.

G. Rodríguez Delgado, L. Barbosa-Barros, M. Vázquez-González, L. Rubio, O. López, **Multi-active vehicle concept for an integral restoring of the skin and scalp microbiome**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023

The skin microbiome is a complex ecosystem that collaborates in the protective function of cutaneous tissue. Many factors, such as pollution, unbalanced diet, and stress, can hinder the skin-microbiome equilibrium and worsen disorders such as acne and dandruff. In these conditions, excessive sebum production, deficient cell turnover, microbiome imbalance and inflammation are intensified compromising microbiome balance and making more challenging the skin and scalp recovery. In this work, we developed a multi-active lipid system that combines three different agents (sebostatic, postbiotic and keratolytic) that focus on working in each step of the acne and dandruff cycles. Two clinical studies are performed to evaluate the efficacy of a multi-active lipid system formulated in a topical delivery system. Our results demonstrate that this multi-active lipid system improving remarkably acne and dandruff restoring the skin’s health and natural homeostasis.

G.F. Cadioli, P.M.B.G. Maia Campos, **Skin Hydrolipidic Mantle: Formulations Development based on Avocado and Sunflower Seed Oil and Clinical Efficacy Evaluation**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023

The hydrolipidic mantle of the skin is essential in maintaining hydration and cutaneous homeostasis. However, continuous exposure to exposome factors can disrupt this mantle and compromise the skin's barrier function. Thus, the development of cosmetic formulations containing biocompatible ingredients is essential for preserving the hydrolipidic mantle and skin physiology. In this study, moisturizing cosmetic formulations were developed, incorporating sunflower seed oil and avocado oil either individually or in combination. A 28-day long-term efficacy evaluation was conducted in terms of skin microrelief, transepidermal water loss, stratum corneum water content, as well as perceived efficacy in terms of hydration and oily sensation. Results demonstrated that the formulation with the synergistic combination of oils effectively protected the skin barrier, improved hydration, and reduced skin desquamation compared to the vehicle formulation and individual oil additions. In conclusion, the formulation containing both oils was more effective in protecting the skin barrier function, increasing skin hydration and improvement of skin microrelief when compared to the formulations containing the oils individually. These findings suggest that the ideal composition of fatty acids contributes to better outcomes when incorporating vegetable oils into cosmetic formulations.

Y. Yang, X. Sun, Y. Yu, S. Ding Song, K. Yang C. Liu, **Process optimization of astaxanthin nanoemulsion and evaluation of facial nourishing efficacy**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023

In this study, astaxanthin nanoemulsion was prepared by D-phase emulsification method. Compared with the original phase transformation component method, the production time was shortened by half, and the production efficiency was greatly improved. Human test and safety evaluation were carried out. Thirty-one subjects with fine lines, dryness and roughness on the face were selected, and the age range was between 30 and 60 years old. The test product was used continuously for 28 days, and the moisture content of the stratum corneum, trans epidermal water loss, smoothness (SEsm) and roughness (SEr) of the face were tested before use, 14 and 28 days after use, respectively. At the same time, facial images were obtained using the facial imaging tester. The results of product safety evaluation showed that 0 of 31 patients had skin adverse reactions. The results of human efficacy evaluation showed that astaxanthin nanoemulsion had nourishing effect.

S. Ding, X. Sun, Y. Yu, C. Liu, **Combinatorial application of liquid crystal emulsion and glycosyl glycerol for improvement of skin elasticity, roughness, trans epidermal water loss and hydration**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023

Liquid crystal skin care products are widely used in cosmetics field because of their good skin affinity, unique optical characteristics, excellent water locking and moisturizing, control ability in active substances slow-releasd and other advantages. glycosyl glycerol is a glycoside compound formed by the connection of glycerol molecules and glucose molecules through glycosidic bonds. It can balance cell osmotic pressure and maintain cell survival under adverse environmental conditions. In this study, we developed a cream with liquid crystal structure using glycosyl glycerol as main active ingredient and evaluated its effects in skin care on 33 males or females between 30-65 years old with rough and dry skins and wrinkles around their eyes. The combinatorial creams showed statistically significant efficacy

for the improvement of skin elasticity, roughness, trans epidermal water loss and hydration. Through self-evaluation from the subjects, facial dry lines, fine lines, moisture, elasticity and other aspects had obvious improvements. cThe efficacy results showed that this combinatorial application was a outstanding method for skin care, especially in anti-aging area to improve skin elasticity, roughness, trans epidermal water loss and hydration.

P.M.B.G. Maia Campos, L. Kakuda, C.R.F. Souza, **A Cosmetic formulation with Brazilian berry extract improves skin morphological characteristics and hydration: a clinical study by reflectance confocal microscopy**, Poster presentation at the 33rd IFSCC congress, Barcelona, September 4-7, 2023

The skin hydrolipid balance is essential to maintaining the physiological conditions of the skin. Natural extracts with antioxidant properties can accelerate cell renewal and keep the skin in good condition. In this context, the Brazilian berry (*Plinia cauliflora*) extract, rich in polyphenols, presents antioxidant effects and can contribute to restoring and maintaining the skin barrier. Thus, the objective of this study was to evaluate the clinical efficacy of a cosmetic formulation containing Brazilian berry extract in improving skin morphological characteristics and hydration. A gel formulation containing or not (vehicle) 2% of the extract was developed, and a clinical study using Reflectance Confocal Microscopy (RCM) was carried out to evaluate the skin morphological characteristics. In addition, skin hydration, microrelief, and TEWL were evaluated. The studied formulation showed a significant increase in the stratum corneum water content, reduction in TEWL and an improvement of skin microrelief after 45-day period of application. RCM imaging analysis showed that the formulation containing the extract improved the skin hydration in the viable epidermis due to an increase of interkeatinocyes reflectance in the granular layer after the treatment period. Finally, the results showed the benefits of Brazilian berry extract for improving and maintaining skin physiology.

Y. Ye, Y.Li, C. Xu, X. Wie, **Improvement of mild photoaged facial skin in middle-aged Chinese females by a supramolecular retinol plus acetyl hexapeptide-1 containing essence**, Skin Health Dis. 2023;3:e239

Background: The anti-ageing gold standard, retinol, has been widely recognized for its anti-wrinkle benefits in the Chinese population. Studies have shown that Asians are more sensitive to retinol compared to their Caucasian counterparts, and it is generally recommended to use retinol once a day in the evening. However, there are few reports on the most appropriate concentration and frequency of retinol use in the general Chinese population. Objectives: In this study, supramolecular retinol was prepared using cyclodextrin encapsulation technology, and the most appropriate concentration for the general Chinese population was investigated. Then, a cosmetic essence was developed by combining the classic supramolecular retinol, which promotes collagen regeneration, with acetyl hexapeptide-1, a popular ingredient known for reducing expression lines. The safety and efficacy of this cosmetic essence were studied through clinical tests. Methods: First, a patch test was conducted on 32 healthy Chinese subjects to compare the tolerance of supramolecular retinol to non-encapsulated retinol and to select the optimal concentration of retinol. Then, an 8-week clinical study was conducted using a twice-daily cosmetic essence containing 0.1% supramolecular retinol and 0.02% acetyl hexapeptide-1 to treat mild photoaging in 32 middle-aged Chinese women. Dermatological evaluations and instrument measurements were taken at baseline, 4 weeks, and 8 weeks. Efficacy was assessed using facial skin wrinkles, textures, elasticity, firmness, pores, gloss and stratum corneum hydration. Tolerability was assessed throughout the study. Results: Our patch test results showed that supramolecular retinol was better tolerated than non-encapsulated retinol, and our findings suggest that 0.1% was the approximate optimal retinol concentration for the general Chinese population. The cosmetic essence studied was effective in improving the appearance of photoaged skin in the Chinese population in all aspects studied and was well tolerated. Conclusions: 0.1% retinol is suitable for twice daily use in the general Chinese population. Data and records on efficacy dimensions of skin textures, elasticity, firmness, pores, gloss and stratum corneum hydration for retinol in the Chinese population are supplemented with our study. Cosmeceutical approaches targeting both static and dynamic wrinkles are of value for treating the photoaged Chinese population.

C. Uhl, D. Khazaka, A. Pouladi, **Is hair care the new skin care? Use of "classic" biophysical methods for hair & scalp measurement. A review,** EURO COSMETICS, 4-2023

Hair diversity (style, shape, growth pattern or color) is one of the most important features to define us physically. Therefore, it is no surprise that the market of hair care products with a value of 93-5 billion US $ 1 (Statistica, September 2020) is one of the most important sectors in the complete area of cosmetic products. Hair care products for women are the most frequently bought and used cosmetic products of all. Shampoos and conditioners are leading the field. For men, hair care is the most important

and favored sector of all cosmetics.

A. Charpentier, **Achieving Instant Gratification – Investing in the Millenial's Dream,** EURO Cosmetics, 4-2023

Hair is an integral part of one's identity, and people around the world place a great deal of importance on its look and style. Consumers are now looking for more inclusive, natural, ethical, and sustainable products that can help them improve their hair grooming rituals while still providing the necessary cleansing and caring benefits.

C. Uhl, G. Khazaka, **Ins Bild gesetzt – Bilddiagnostische Testverfahren in der Dermatologie,** Medical by Beauty Forum, 2, 2023

Hautveränderungen sind für Dermatologen mit dem bloßen Auge gut erkennbar. Die Unterschiede über einen gewissen Zeitraum objektiv zu erfassen und die Grunde für Hautveränderungen sind es meist nicht. Dafür gibt es verschiedene bilddiagnostische Testverfahren, die wir hier vorstellen.

*L. Cheng, J. Guo, Y. Lu***, Inhibition of lipogenesis and sebum secretion for Lotus corniculatus seed extract in vitro and in vivo**, Int J Cosmet Sci 2023 Feb;45(1): p. 62-72

Background: Botanical ingredients are widely used in hair- and skin-care products. However, few studies have investigated the effectiveness of botanical products on counteracting sebum synthesis and secretion. Objective: To investigate the composition of Lotus corniculatus seed extract (LC) and its potential inhibition of lipogenesis in SZ95 sebocytes and oily human skin. Methods: The active components of LC solutions were identified by high-performance liquid chromatography (HPLC) and nuclear magnetic resonance (NMR). The in vitro effects of LC were evaluated using SZ95 cells treated with linoleic acid (LA) and dihydrotestosterone (DHT) and incubated with LCs for 24 h and 72 h. Lipogenesis was assessed by Oil Red O and Nile Red staining of the cells. In vivo effects were assessed on 30 subjects with oily skin who were enrolled in a randomized, blank-controlled trial and were treated with LC solution for 6 h and 4 weeks. The skin sebum contents and area on the forehead and cheeks were evaluated using a Sebumeter SM815 and Sebfix sebutape with Visioscan VC98. In addition, VISIA was used to collect half-face photos for analysis. Results: A novel active molecule, 5'-o-rhamnosyl uridine, was identified in LC. LC exhibited a dose-dependent inhibitory effect on LA and DHT-induced lipid synthesis. When 5% LC was applied for 3 h, the skin sebum contents and area were significantly reduced compared with the vehicle control, with an obvious reductionb after 6 h. Continued use of the serum containing 5% LC for 4 weeks resulted in a significant reduction in the skin sebum contents and area. No adverse reactions were reported during the study. Conclusions: Topical application of LC resulted in an immediate and long-lasting reduction of the sebum contents and area of oily human skin by reducing sebaceous lipogenesis through the LA and DHT pathways. This indicates the potential of LC as a new biological treatment for oily skin.

M. Gina, K. Wichert, B. Pieper, T. Behrens, T. Brüning, M. Fartasch, **Irritant potential of different washing procedures used for heavy-duty soiling: Short and intense or longer and mild?** Contact Dermatitis. 2023; 88, p. 363–371

Background: To prevent irritant contact eczema even in occupational fields with heavy-duty soiling, it is generally recommended to use 'mild' hand cleansers (mild detergent without grits, MC). On the other hand, since grit-containing cleansers (GC) show a higher washing power that minimizes washing time, their usage is generally preferred in specific occupational fields. Objectives: To compare whether a shorter, intense washing period might cause less skin damage than a longer washing period with an MC. Methods: Differences in cleaning time were first verified in a pilot study using standardized model dirt. In the main study, the forearms of 35 healthy volunteers were washed with three standardized procedures over a period of 3 days, either using 2 min of MC with/without hand brush or 1-min GC. Clinical scoring, transepidermal water loss (TEWL), corneometry, colourimetry and scaliness/roughness (Visioscan) were used to evaluate the epidermal barrier, topography and irritation. Results: The pre-study showed that washing time doubled when using MC vs. GC. Using GC resulted in stronger barrier disruption, even after a shorter washing period – median ΔT4–T1 TEWL 0.96 g/m2/h vs. 4.91 g/m2/h respectively, $p < 0.0001$. The most harmful procedure for the skin was the additional application of a hand brush (18.86 g/m2/h). Conclusions: Short-time washing with GC damages the skin barrier more significantly in comparison to a longer application of an MC. When washing with MC, the strongest irritant reaction occurred when accompanied with hand brushing.

Q. Wang, F. Hu, X. Hu, Y. Xie, L. Du, R. Ye, **The synergistic effect of retinyl propionate and hydroxypinacolone retinoate on skin aging**, J Cosmet Dermatol. 2023;22: p. 2040–2049

Background: Aging is responsible for the majority of skin and soft tissue remolding in humans.

Retinol and its derivatives or retinoids effectively intervene skin aging process. Nevertheless, retinoids usually induce skin intolerance, especially among the Chinese, and thus, their application to prevent skin aging is yet to be well accepted. The study of optimal composition and concentration of retinoids is necessary to offer strong antiaging efficacies with minimum irritations. Therefore, a better understanding of retinol and its derivatives is acutely needed to develop strategies to combat skin aging.Objective: In this study, we aimed to determine the optimal ratio of two retinol derivatives— hydroxypinacolone retinoate (HPR) and retinyl propionate (RP) in terms of dermal remodeling and skin aging prevention— and to investigate their synergistic antiaging effects both in vitro and in vivo. Methods: An in vitro human foreskin fibroblast (HFF-1) cell model was established to evaluate the cell viability of HPR and/or RP treatment. In addition, the antiaging and retinol receptor genes expressions in HFF-1 cells cotreated with HPR and RP were quantified. The in vivo adverse reaction evaluation of skincare serums containing various levels of retinol or the optimal HPR and RP combination termed Gravi-A was performed by 24 h patch tests in 33 subjects prior to the clinical research. Last but not the least, clinical research with 42 Chinese urban women was conducted to assess the in vivo antiaging efficacy of the skincare serum containing this optimal retinoid combination. Results: The combination of HPR and RP at the weight ratio of 5:9 was shown to achieve the optimal in vitro antiaging performance. Coadministration of 5 μg/mL HPR nd 9 μg/mL RP to HFF-1 cells promoted their proliferation at 24 h and synergistically enhanced the expressions of type IV collagen, CRBP-I, and RARB genes. In addition, the skincare serum containing HPR and RP combination at 5:9 weight ratio demonstrated superior in vivo anti-wrinkle and skin elasticity improvement benefits without any adverse reactions, while retinol in the same concentration exerted much higher adverse effect. Skin wrinkles, skin smoothness, TEWL, skin elasticity R2 and R5 were improved by 8.3%, 11.9%, 25.7%, 14.5%, and 22.6%, respectively, after 8-week use. Conclusion: Our results indicated the advanced antiaging effect of HPR and RP combination both in vitro and in vivo. In addition, little adverse effect was observed in this study, in comparison with retinol. This combination named as Gravi-A is a potential therapeutic strategy to prevent skin aging, especially for Chinese women.

M. Takada, Y. Ishikawa, K. Numano, S. Hirano, G. Imokawa, **A Nano-Emulsion Containing Ceramide-like Lipo-Amino Acid Cholesteryl Derivatives Improves Skin Symptoms in Patients with Atopic Dermatitis by Ameliorating the Water-Holding Function**, Int. J. Mol. Sci. 2022, *23*

Abstract: Because ceramide-like lipo-amino acid cholesteryl derivatives can exert a bound waterholding function due to their lamellae-forming properties, in this study, we determined if topical application of those derivatives to atopic dry skin would elicit an ameliorative effect on skin symptoms, at least on its water-holding function. In this clinical study, daily treatment with a nano-emulsion containing 10% phytosteryl/octyldodecyl lauroyl glutamate (POLG) significantly ($p < 0.0001$) improved skin symptoms, including dryness/scaling, itchiness and stimulus sensations, in the non-lesional skin of patients with atopic dermatitis (AD) at 3 and at 6 weeks compared with week 0. Those significant improvements in skin symptoms were accompanied by a significantly enhanced watercontent (conductance) and a significant improvement of roughness (SESC) and smoothness (SESM) values measured using a Visioscan at 3 and 6 weeks. Those effects appeared concomitant with a significantly increased corneocyte size, a significantly down-regulated degree of thick abrasions, and a significant impairment of the corneocyte lipid envelope at 6 weeks. Thus, our clinical study suggests, for the first time, that topical application of the POLG nano-emulsion has the distinct potential to ameliorate atopic dry skin symptoms, particularly scaling and itchiness, in the skinof patients with AD. Those effects result from alleviation of the disrupted water-holding functionprobably due to the increased supply of lamellae structures into the stratum corneum despite the failure to improve barrier function.

S.I. Ibrahim, J. Matmin, N.M. Hairul, A.B.A. Majeed, **Enhancing Emollient Properties of Natural and Structured Virgin Coconut Oil Creams on Skin Condition Using Non-Invasive Skin Biophysical Methods**, Malays. Appl. Biol. (2022) 51(4): p. 109-117

This study aims to evaluate the emollient properties of natural-based oil creams on skin conditions. The focus is primarily on natural virgin coconut oil (VCO) and structured VCO (SVCO) which contain medium-chain triglycerides (MCTs) that have been reported to have a permeation enhancement effect on the lipophilic active ingredient. SVCO, which contains a higher amount of MCTs than VCO, was produced by lipase-catalyzed acidolysis of caprylic/octanoic acid (eight-carbon chain) and VCO. The emollient cream was prepared using the oil in water (o/w) formulation cream and it consisted of 30% (w/w) of oils, emulsifying wax, and deionized water. While in the oil phase, 5% (w/w) α-tocopherol, the model lipophilic active ingredient was added to the cream. Signifcant effects ($p<0.05$) were statistically produced in the skin moisture content, Transepidermal water loss (TEWL), and skin elasticity values for all formulations as compared to the skin at T0 (before application) after the short- and long-term study periods. The skin smoothness (SEsm) and skin roughness (SEr) values, which are indicators

of the skin condition, also showed signifcant improvement. The results indicated that VCO and SVCO creams exerted an emollient effect when applied topically and also acted as skin permeation enhancers in the formulation.

S. Bom, M. Ferreira, C. Santos, R. Cláudio, P. Pinto, H.M. Ribeiro, J. Marto, **Towards the personalization of 3D printed patches for cosmetic applications**, 32nd IFSCC Congress London, September 2022

Background: The production of cosmetic products by semi-solid extrusion 3D printing has been explored as a solution to personalize skincare products. Therefore, the main goal of this work was to develop an innovative and versatile gelatin-based 3D printed patch with controlled network topology for multipurpose cosmetic applications, such as anti-aging, and which can be easily personalized by changing print parameters. Methods: 3-Layered gelatin-based patches with several infill patterns were printed in an extrusion-based 3D printer (Allevi2, USA), varying the line distance and the angles. Measurements of pore width were performed using the ImageJ® software and Visioscan® was used to record the topography. Afterwards, Visia-CR™ was employed as: i) biometric equipment to record the bioactive fluorescence; and, ii) 2D scanner for designing a personalized eye patch with controlled network topology. Results: Gelatin-based patches with different degrees of porosity were successfully printed and showed good bioactives release modulation properties. As a proof-of-concept, an antiaging purified tomato extract, IBR-TCLC®, was incorporated into the personalized eye patch. Topographic analysis showed that the printing accuracy and pore shape fidelity were not largely affected by this incorporation, reinforcing the versatility of the technology employed. Additional data also showed that it is possible to visualize and quantify the fluorescence of the bioactive incorporated using Visia-CR™. Conclusion: The 3D printing approach employed opens a new perspective in the production of personalized skincare products for different cosmetic applications. Moreover, the possibility to evaluate the bioactive release *in vivo* is being explored.

H.-Y. Yoo, D.-R. Jung, M. Jeong, M.-J. Kim, Y.-J. Jang, S.-H. Park, B.-J. Park, J.-H. Shin, **Comparison of Scalp Microbiome According to the Severity of Androgenic Alopecia and Gender in a Korean Cohort**, 32nd IFSCC Congress London, September 2022

Introduction: Androgenic alopecia (AGA) is the most common alopecia case of men and women with hair loss and thinning at the parietal scalp and vertex. The treatment of AGA is not only a difficult and long-term process, but also reduces people's quality of life. Various factors influencing AGA induction have been suggested including environmental, genetic, and hormones. The studies have recently shown that bacteria community of scalp (*Cutibacterium* and *Staphylococcus*) affects scalp and hair-related diseases such as dandruff or seborrhoeic dermatitis. The purpose of this study is to analyze the difference in scalp bacterial flora between men and women according to the severity of AGA (normal, weak and severe hair loss). In addition, we intend to apply it to the prevention of hair loss by functional gene prediction analysis of beneficial or harmful bacteria associated with AGA. Methods: A total of 141 Korean men and women (47.2±1.4) aged 20 to 65 participated in the study, consisting of 46 normal group (21 men and 25 women) and 95 AGA group (46 men and 49 women). AGA group was further classified into stages 1 and 2 according to the severity of symptoms by referring the Basic and Specific (BASP) classification criteria with visual assessment of researchers. In order to standardize the scalp condition, subjects were prohibited from using hair care products and shampoo for one day before sampling. After measuring the clinical conditions of the scalp (moisturizing, sebum, desquamation, and temperature) and hair (thickness, density, and gloss), scalp microbial samples were collected by sterile swabbed cotton. 16S rRNA gene was amplified from V4 to V5 hypervariable region and next generation sequencing was performed. Alpha and beta diversity, and taxa abundance differences were identified between groups. Functional analysis was predictied by PICRUSt2 and bacterial associations networks were revealed. In this study, all statistical analysis and visualization of our results results were performed with RStudio 1.4.1717. Results: In comparison with the overall clinical measurements between the normal and AGA groups, the results excluding the moisturization, density, and thickness of the scalp showed little difference significantly depending on whether or not hair loss was present. However, the structure of scalp bacterial communities was significantly different both by gender and severity of AGA. The men had a relatively diverse bacterial composition compared to women, and as AGA progressed, alpha diversity increased compared to normal group. The phylum and genus-level differences were identified. These differences included: (1) In both women and men, the ratio of total *Cutibacterium* and *Staphylcoccus* (dominating genus of healthy scalp) decreased in the AGA group compared to normal group, (2) In the AGA group, *Bifidobacterium* for women and *Corynebacterium* and *Massilia* for men increased, (3) Especially, in the men group, *Lawsonella* decreased significantly according to AGA stage. As a result of predicting the metabolic function of the microbial communities, lipoic acid and folate biosynthetic pathways, substances that stimulate proliferation of hair follicles, were relatively more predominant in healthy subjects than in AGA subjects. Depending on the severity of AGA, the bacterial

co-occurence network became more diverse and complex, and the number of unique associations between bacteria increased compared to healthy subjects.Discussion and Conclusion: The results of this study indicated differences in the scalp bacterial communities associated with gender and severity of AGA. The increased diversity as hair loss progresses may be caused by increased contact with the scalp and external environment, decreasing *Cutibacterium* and *Staphylococcus* and increasing non-skin commensal bacteria. The decline of two genera bacteria involoved in maintaining scalp homeostasis and immune regulation was a very interesting founding. The results of this study demonstrated that, while it is important to understand the differences of individual microbes between each groups, the entire bacterial communities exhibited unique and distinct variations in the scalp. Futhermore, it can also serve as a scientific basis for future research on AGA by presenting candidate microbes and metabolic pathways that can lead a comprehensive understanding of AGA related scalp microbiome.

T. Nakamura, H. Yoshida, M. Haneoka, S. Nakamura, Y. Takahashi, **Season- and facial site-specific skin changes due to long-term mask wearing during the COVID-19 pandemic,** Skin Reasearch & Technology, Volume 28, Issue 5, September 2022, p. 749-758

Background: As people have regularly worn facial masks due to the coronavirus disease **Talgregulierung, der ethische Weg** (COVID-19) pandemic, mask-wear-related adverse effects on the skin have been recognized. The aim of this study was to explore skin changes, their seasonal variations in the general population caused by commonly used masks and a possible mechanism underlying negative effects of mask-wearing. Materials and methods: Eighteen Japanese females participated in the study during summer and winter in Japan. Skin characteristics were measured in the non-mask-wearing preauricular area and the mask-wearing cheek and perioral areas. Results: Trans-epidermal water loss (TEWL) on the cheek area tended to be increased in winter, which was positively correlated with skin scaliness on the same area. Ceramide (CER) content and composition in the mask-covered stratum corneum (SC) were slightly changed between summer and winter, and CER [NP]/[NS] ratio was negatively correlated with the TEWL on the perioral skin in winter. Skin hydration and sebum secretion were higher on the cheek compared to the perioral area in summer. Skin redness was particularly high on the cheek in winter. Conclusion: Mask-wear-related skin changes were season- and facial site-specific, and alterations in SC CER may play a role in barrier-related skin problems caused by mask use.

L. Shao, S. Jiang, Y. Li, Y. Shi, M. Wang, T. Liu, S. Yang, L. Ma, **Regular Late Bedtime Signifcantly Affects the Skin Physiological Characteristics and Skin Bacterial Microbiome**, Clinical, Cosmetic and Investigational Dermatology 2022:15, p. 1051–1063

Background: Late bedtime is a common form of unhealthy sleep pattern in adulthood, which influences circadian rhythm, and negatively affects health. However, little is known about the effect of regular late bedtime on skin characteristics, particularly on skin microbiome. Objective: To investigate the changes and effects of the regular late bedtime on skin physiological parameters and facial bacterial microbiome of 219 cases of Chinese women aged 18–38 years living in Shanghai. Methods: Based on the Self-Evaluation Questionnaire, bedtime was categorized as 11:00 PM; thus, the volunteers were divided into early bedtime group (S0) and late bedtime group (S1). The physiological parameters of facial skin were measured by non-invasive instrumental methods, and the skin microbiome was analyzed by 16S rRNA high-throughput sequencing. Results: The skin physiological parameters of the late bedtime group exhibited signifcant decrease in skin hydration content, skin frmness (F4) and elasticity (R2), while TEWL, sebum and wrinkle signifcantly increased. The result indicated that late bedtime signifcantly impaired the integrity of skin barrier, damaged skin structure, and disrupted water–oil balance. Furthermore, the analysis of α-diversity, Sobs, Ace and Chao index were found to signifcantly decrease ($P < 0.05$) in the late bedtime group, suggesting that late bedtime reduced both the abundance and the diversity of facial bacterial microbiota. Moreover, the abundance of *Pseudomonas* increased signifcantly, while *Streptococcus*, *Stenotrophomonas*, *Acinetobacter, Haemophilus, Actinomyces* and *Neisseria* decreasedsignifcantly. In addition, Spearman correlation analysis revealed strong correlations between the microbiota and the physiologicalparameters. Notably, the abundance of *Pseudomonas* signifcantly positively correlated with skin frmness and elasticity, butsignifcantly negatively correlated with skin hemoglobin content, melanin content and skin hydration. Conclusion: Bedtime is an important factor in maintaining skin health. Regular late bedtime not only damages the skin barrier and skin structure but also reduces the diversity and composition of facial bacterial microbiome.

A. Charpentier, **How testing innovations is meeting beauty trends**, PERSONAL CARE Magazine, June 2022, p. 25-28

For many years now, every cosmetic product launched on markets around the world has been validated for its safety and efficacy in accordance with the cosmetic regulations of each country. Product

performance is changing along with consumer expectations, shopping habits, beauty routines and lifestyles. For the past two years, the health crisis has had an impact on the use of hand hygiene products specifically and on care and make-up products with new products resistant to the conditions of wearing a mask and the increase on the surface of the skin of temperature, humidity, $C0_2$ and friction. In addition, after the decrease in human activities related to confinement, large cities are regaining significant levels of pollution that have a significant impact on the condition of the skin.

H. Stettler, R. de Salvo, M. Brandt, A.-K. Effertz, S. Laing, S. Trapp, **Performance and Acceptability of a New Dexpanthenol-Containing Hand Cream in Subjects with Sensitive and Very Dry Skin: A Randomized Controlled Study,** Cosmetics 2022, 9, 44

Dry, sensitive skin is a common condition that is associated with lack of water in the stratum corneum (SC). The SC of dry skin sufferers displays an altered lipid organization/composition and lipid content, thereby markedly contributing to the development of impaired skin barrier function with increased transepidermal water loss (TEWL) and consequently reduced skin hydration. Often, dry skin involves the hands. Dry handscan be a condition in itself, but in most instances, it is triggered by environmental factors, such as frequent washing, cold weather, or exposure to chemicals/detergents. The hands feel dry and rough; they are tense, reddened, and painful cracks appear. People with dry hands have an increased risk of eczema formation. Regular use of a moisturizing hand cream can help to restore hydration and barrier function of the skin as illustrated by a study in healthy subjects showing that skin dryness and roughness caused by frequent hand washing can be alleviated by applying a moisturizing hand cream after each hand wash. However, to be accepted by users, a hand cream must have special features in addition to its moisturizing effect. It must be absorbed quickly so that the hands are immediately ready for use again. The hand cream should be non-greasy and non-sticky and instantly relieve the feeling of tightness and roughness of dry hands.

S. Sangthong, P. Pintathong, P. Pongsua, A. Jirarat, P. Chaiwut, **Polysaccharides from *Volvariella volvacea* Mushroom: Extraction, Biological Activities and Cosmetic Efficacy**, J. Fungi 2022, 8, 572

Abstract: Polysaccharides from Volvariella volvacea (VVP) were investigated for their cosmetic-related activities and in vivo efficacy for use as a multifunctional active cosmetic ingredient. Three different polysaccharide extraction methods, including hot water shaking (HS), microwave-assisted (MA) and ultrasonic-assisted (UA), were used. Extractable yield, polysaccharide contents and biological activities, including antioxidant, anti-tyrosinase and anti-elastase activities, were compared. The polysaccharides from HS provided the highest extraction yield (15.58 0.96% w/w) and the highest beta-glucan content (18.80 0.81% w/w). The HS polysaccharides also possessed the highest inhibitory effects toward lipid peroxidation (IC50 of 0.0378 mg/mL), tyrosinase (51.46 mg KAE/g), and elastase (604.21 73.66 mg EGCG/g). The cytotoxicity of the VVP was determined for safe use. A cosmetic gel cream containing VVP was developed and 0.2% VVP formulation was observed to be the most stable in color. UV protection factors, skin irritation by single patch test, and in vivo efficacy, including skin moisturization, anti-wrinkle and whitening, were measured. The VVP showed no cytotoxicity against human dermal skin fibroblast. The gel cream containing VVP provided less sun protection factor; however, it significantly exhibited the skin benefits of increasing moisture, gross elasticity, net elasticity, and skin firmness. Improvements to skin roughness, scaliness, wrinkles and in melanin content were also depicted gradually along 8 weeks. V. volvacea, therefore, could be a good source for polysaccharides being used as a moisturizing, anti-wrinkle, and whitening agent in cosmetic preparations.

S.-Y. Huang, Q.-Y. Qi, F. Huang, L.-D. Zhou, Y.-N. Lu, **Feeling peachy: resin extract for the skin**, PERSONAL CARE GOBAL, p. 77-79, May 2022

Subjects of different ages and suitable health were selected for clinical evaluation of the instant wrinkle-removing function of a peach resin extract. It was found that both 5% and 10% concentrations can significantly improve the firmness of the skin of the finger and that that the 10% concentration can significantly improve skin elasticity. Five minutes after application, wrinkles in the corners of the eyes were significantly improved. In both cases the effect was most obvious in two hours and was maintained after eight hours.

A. Nikolis, K.M. Enright, L.E. Avelar, S. Rice, H. Sinno, D. Rizis, S. Cotofana, **A Prospective, Multicenter Trial on the Efficacy and Safety of Poly-L-Lactic Acid for the Treatment of Contour Deformities of the Buttock Regions**, JDD online, March 2022

Background: There is a significant emphasis on minimally invasive whole-body rejuvenation throughout the world. Recently, gluteal aesthetics have become an increasingly common patient concern. Although the application of poly-L-lactic acid (PLLA) to the face is already well known, there

are relatively fewer publications on its use in other corporeal regions. This study aims to extend previous findings by evaluating the efficacy and safety of PLLA in the treatment of contour (including lifting) deformities of the buttock region. Methods: This was a prospective, multicenter (3 sites), single cohort, open-label clinical trial. Thirty female subjects were treated with PLLA in the bilateral buttocks, with three treatment sessions, each spaced one month apart and followed for six months after completion of the treatment regimen. At each visit, various safety and clinical efficacy parameters were collected, these included: Global Assessment of Improvement Scale (GAIS), subject satisfaction, skin hydration, elasticity, scaliness, roughness, and 3-dimensional imagery. Results: Six months following the last treatment, 84.00% of patients were rated as having “improved” or more on the physician assessed GAIS, accompanied by a 96.00% patient satisfaction rate. Approximately three vials of PLLA, per buttock and treatment were used. There were no serious adverse events throughout the duration of the trial, nor adverse events related to the investigational device. The most common subject-reported adverse events included pain during treatment (Mean: 70.97%) and bruising (Mean: 28.80%). Objective improvements were persistent after treatment in measurements of skin elasticity (improved 63.5% - 82.5% from weeks 16-32), hydration (increased ~11 Corneometer® units by week 16), roughness (decreased 36.95% at week 32), and scaliness (desquamation; decreased 60.41% at week 32). Conclusions: PLLA is safe and effective for the indication of buttock contouring and improving parameters of skin health. PLLA can provide long-lasting effects with a high level of patient and physician satisfaction.

W. Liu, L. Jie, D. Liu, E.T. Makino, J. Krutmann, R.C. Mehta, **Protective effects of a day/night dual-antioxidant serum on skin: A randomized, regimen-controlled study in Chinese women exposed to air pollution**, J Cosmet Dermatol. 2022

Background: Chronic exposure to air pollution can negatively affect skin health. Aims: To assess the efficacy of the LUMIVIVE® System (LVS), a skincare system consisting of individual day and night serums, in Chinese women exposed to air pollution. Patients/Methods: In this single-center, vehicle-controlled study, eligible females (mean age, 49.02 years) were randomized 1:1 to treatment group (LVS plus basic moisturizer) or control group (basic moisturizer). Skin color, sebum content, barrier function, elasticity, and texture were measured at baseline and at each follow-up visit (days 28, 56, and 84). Air pollution parameters were collected throughout the study. Results: Air pollution levels, including PM2.5 and NO2, were consistently high during the study. The treatment group showed significantly higher skin color L* ($p \leq 0.0001$) and lower a* values ($p \leq 0.05$) at all follow-up visits compared with the control group, indicating lower skin pigmentation and redness, respectively. Skin color L* and a* values remained unchanged over time for the control group but were significantly different at all follow-up visits compared to baseline ($p \leq 0.0001$ and $p \leq 0.05$, respectively) for the treatment group. There was an increasing trend for sebum content in the control group, which was not observed in the treatment group. Both groups showed improvements over time in other skin physiology parameters. Conclusions: The current analysis demonstrates the efficacy of LVS plus basic moisturizer compared with basic moisturizer alone to reduce skin pigmentation and redness, as well as to mitigate sebum production, in Chinese women exposed to air pollution.

C. Yan, J.N.C. Ng, R. Wanitphakdeedecha, **Efficacy of handheld iontophoresis device in enhancing transdermal vitamin C delivery: A split-face clinical trial**, J Cosmet Dermatol, 2022 Feb;21(2): p. 698-706

Background: The stratum corneum of the epidermis is the principal barrier in topical drug delivery. Currently, iontophoresis is incorporated in dermatology management to increase transdermal drug delivery. Objective: To evaluate the efficacy and safety of handheld iontophoresis device in enhancing transdermal vitamin C delivery. Methods: This was a prospective split-face clinical trial with a total of 24 subjects, who presented with photoaging skin. All subjects were treated with the handheld iontophoresis device on the left side of their face, twice a week for 8 weeks. Primary outcomes were the improvement in pore tightening and skin hydration. Evaluations were done at baseline, 2-, 4-, 6-, and 8-week follow-up. Subjects' self-improvement scores and adverse reactions were also recorded. Results: Out of 24 subjects, 17 (70.8%) completed the study protocol. Pore tightening in the iontophoresis group had significant improvement at 2- and 8-week follow-up when compared to the baseline ($p = 0.019$ and 0.026). Skin hydration on the iontophoresis group improved significantly at 4-week follow-up when compared to the baseline ($p = 0.024$). In the iontophoresis group, an image of the skin captured using Visioscan showed improvement of skin texture and pore tightening at 8-week follow-up. Majority of the subjects in the iontophoresis group scored good improvement at 2-, 4-, and 6-week follow-up (41.7%, 29.2%, and 45.8%) when compared to the baseline. No adverse reactions were recorded. Conclusion: The handheld iontophoresis device is safe and can be used as an adjunctive home treatment in enhancing transdermal vitamin C delivery.

P. Montero, M. Pérez-Leal, J.A. Pérez-Fidalgo, C. Sanz, C. Estornut, I. Roger, J. Milara, A. Cervantes,

J. Cortijo, **Paclitaxel Induces Epidermal Molecular Changes and Produces Subclinical Alterations in the Skin of Gynecological Cancer Patients**, Cancers 2022, 14, 1146

Background: Paclitaxel is a microtubule-stabilizing chemotherapeutic agent. Despite its widespread use, it damages healthy tissues such as skin. The goal of this study was to prove that the real impact of paclitaxel-induced skin toxicity could be underestimated because the adverse events might appear asymptomatic. Methods: Gynecological cancer patients were recruited. Skin parameters measurements were taken after three and six paclitaxel cycles. Measurements were conducted using specific probes which measure hydration, transepidermal water loss (TEWL), sebum, elasticity and firmness, erythema, roughness, smoothness, skin thickness, and desquamation levels. Further, a 3D epidermis model was incubated with paclitaxel to analyze gene and protein expression of aquaporin 3, collagen type 1, elastin, and fibronectin. Results: Paclitaxel induced alterations in the skin parameters with no visible clinical manifestations. Gynecological cancer patients under paclitaxel treatment had a decrease in hydration, TEWL, sebum, elasticity, and thickness of the skin, while erythema, roughness, and desquamation were increased. The molecular markers, related to hydration and the support of the skin layers, and analyzed in the 3D epidermis model, were decreased. Conclusions: Results suggest that paclitaxel modifies gene and protein expression of skin-related molecular markers, and impairs different physical, physiological, and biomechanical properties of the skin of cancer patients at a subclinical level.

M. Termer, A. Jaeger, C. Carola, A. Salazar, C. Keck, H. Kolmar, J. von Hagen, **MeO-MBM: Protect Skin from UV induced-Damage and Prevent Signs of Inflammation While Improving the Skin Barrier**, IFSCC Magazine Volume 24, No. 4, February 2022

Sun protection is important in skin care and requires special attention as ineffcient protection may trigger severe diseases like skin cancer and less serious effects with a physiological and psychological impact on humans like polymorphic light eruption (PLE). The reduce-improve-protect (RIP) concept is of importance in skin care for avoiding onset of UV irradiation-induced diseases or damage to human skin. Potential molecular targets of methoxymonobenzoylmethane (MeO-MBM) were identifed by in silico docking experiments followed by microarray analysis of genes after MeO-MBM treatment. Randomized, double-blind, intraindividual comparison vs. placebo studies were conducted to assess the effect of MeO-MBM in vivo. The effect after UV-induced inflammation was evaluated in a protective and curative set-up on the basis of the change in blood flow. The barrier function of the skin after treatment with MeO-MBM was studied by measuring the change in transepidermal water loss (TEWL), skin scaling and skin thickness. Additionally, the effect of MeO-MBM after UV-induced stress on the activation of ferritin in human explants was determined ex vivo. From this study, it can be concluded that MeO-MBM reduces (R) inflammation and prevents downstream effects like irritation, redness and itching. Moreover, MeO-MBM improves (I) the skin barrier and protects (P) the skin from UV-induced cellular damage. The benefcial combinatorial effects of MeO-MBM were demonstrated with in silico, in vitro, ex vivo and in vivo experiments.

R. Alonso-Bartolomé, D. Pando Rodríguez, P. Rodríguez-Jiménez, R. Ruiz-Rodríguez, **Method R: Efficacy of a cosmetic routine comprising six topical lipid-encapsulated products**, J Cosmet Dermatol, 2022 Jan 23

Introduction and objective: Efficacy of cosmetic routines is reportedly available in several dermatological conditions, such as acne or rosacea. However, clinical evidence about objective advantages of skincare routine remains limited despite advertising often claims benefits. Method: We aimed to assess the subject satisfaction level and the benefit from daily use of an advanced skincare routine named Method R. We used four different approaches to try and demonstrate the efficacy of the method: Transdermal delivery test, ex-vivo efficacy test, Visioscan VC 20, and patient survey. MetR consists of a six-step routine that shows an increased epidermal penetration and activity due to liposomation. Results: Transdermal delivery test and ex-vivo efficacy test show increased efficacy for liposomated actives. The skincare routine is well tolerated, and is associated with a marked efficacy in global quality of skin, dyschromia/pigmentation, brightness, and hydration according to patient perception. The subject satisfaction level is high and the routine is safe. The continuous use of the routine for one month or more results in objective changes when measured with Visioscan VC 20 plus.

P. Tumsutti, M. Maiprasert, P. Sugkraroek, R. Wanitphakdeedecha, A. Bumrungpert, **Effects of a combination of botanical actives on skin health and antioxidant status in post-menopausal women: A randomized, double-blind, placebo-controlled clinical trial**, J Cosmet Dermatol. 2022;21: p. 2064–2072

Background: Skin aging is one of the most concerning issues during the post-menopausal period. Despite the promising effects of hormonal therapy, there is still concerned about the long-term outcomes from the treatment. Therefore, nutraceuticals that contain estrogenic and antioxidative effects

have gained a lot of attention as an alternative therapy for slowing down skin age-related changes in women after menopause. Objective: This study was aimed at evaluating the effects of a combination of nutraceuticals on skin health and antioxidant status in women after menopause. Methods: Post-menopausal women aged 45–60 years old were enrolled and randomly allocated (n = 110) equally to either treatment or placebo group (n = 55 per group). The test product, a nutraceutical containing a blend of Glycine max, Cimicifuga racemosa, Vitex agnus-castus, and Oenothera biennis extracts, was administered over a 12-week period, with dermatological parameters evaluated at baseline, week 6, and week 12 of the study. Additionally, glutathione (GSH) and malondialdehyde (MDA) levels were detected at baseline and week 12 to evaluate the antioxidant status. Results: At week 6, skin roughness was significantly improved in the treatment group (n = 50 completed), while at week 12, a significant improvement and large effect sizes observed in skin elasticity (Cohen's d = 1.56, [SDpooled = 0.10]), roughness (d = 1.53, [0.67]), smoothness (d = –1.33, [34.65]), scaliness (d = –0.80 [0.095]), and wrinkles (d = –1.02 [13.68]) compared to placebo (n = 51 completed). Moreover, GSH was significantly increased (d = 1.54 [32.52]) whereas MDA was significantly decreased (d = –1.66, [0.66]) in the test group, compared to placebo. Blood biochemistry, along with vital signs, did not differ between groups, and no subjects reported any adverse throughout the trial. Conclusion: These data indicate the supplementation with the formulated blend of four herbal extracts is supportive of skin health and antioxidant status in women of menopausal age.

H. Stettler, J Crowther, A. Boxshall, S. Bielfeldt, B. Lu, R. de Salvo, S. Trapp, P. Blenkiron, **Biophysical and Subject-Based Assessment of the Effects of Topical Moisturizer Usage on Xerotic Skin—Part II: Visioscan® VC 20plus Imaging,** Cosmetics 2022, 9(1), 5

As new biophysical methods become available to the skin researcher it is important to understand the type of information that they are capable of measuring, and how it relates to consumer perception of topical moisturizing products. The aim of the work presented here was to understand what dry skin imaging can reveal about the skin and subject feedback from the use of a topical moisturizing product and how it relates to the consumer usage experience of a topical product. Images from a dry skin camera—the Visioscan® VC 20plus—during 3 weeks in vivo usage of a topical moisturizing product were analyzed. Subject feedback regarding their skin condition was also collected. Strong statistical improvements ($p < 0.05$) were observed for a wide range of skin parameters derived from the Visioscan® VC 20plus. Skin scaliness and smoothness and parameters associated with skin health and appearance (surface, energy, contrast, homogeneity) improved as a result of topical product usage. Subjects reported their skin to feel less dry, to be smoother, and more supple and to look and feel healthier after product usage. The length of time until they felt the need to re-apply the product increased during the study.

S.-Y. Huang, Y.-N. Lu, Y. Xiong, J. Tian, **Instant Skin Firming and Anti-Wrinkle Effect of The *Prunus persica* (peach) Gum Extract**, Poster at the IFSCC conference, Cancun, Mexico, October 18-28 2021

Skin aging is a complex biological process, which is produced by two basic processes: internal aging (affected by genetic factors, cell metabolism, hormones and metabolic processes) and due to long-term exposure to light, pollution, ionizing radiation, chemicals and toxins external aging. Research demonstrated that *Prunus persica* (peach) gum extract (PG) has anti-aging and moisturizing efficacy. The effect of PG on skin firming, elasticity and wrinkle was verified *in vivo*. Results show that PG increases infant and lasting skin firming, skin elasticity and reduces skin wrinkle from 5 min to 8 h.

J. Li, W. Zhang, J. Song. S. Dong Y. Qin, N. Lu, **The best compatibility between formulation type and efficacy: an appropriate formulation type brings better efficacy**, Poster at the IFSCC conference, Cancun, Mexico, October 18-28 2021

There are different types of formulation of skin care products, such as toner, serum, lotion, cream and so on. From the technical characteristic of the formula, it can be divided into toner (single water phase), oil in water, water in oil and water in siliconeoil. They have different effects on skin physiological parameters due to their respective technical characteristics. Toner brings instant moisture to the skin. Oil in water system usually brings fresh skin feeling, while water in oil system tends to moisturize the skin.

Y. Ye, Y. Li, A. Liu, L. Jiang, **Improvement of conspicuous skin pores with a serum containing supramolecular retinol, pyridoxine, salicyloyl phytosphingosine and lactobionic acid**, Poster at the IFSCC conference, Cancun, Mexico, October 18-28 2021

Conspicuous skin pores generate many aesthetic concerns or complaints. Despite the prevalence of conspicuous skin pores, there have been few published articles of topical cosmetics treatment to improve the appearance of conspicuous pores. Generally, pores are considered as conspicuous pores when the opening becomes visible to the naked eye and the facial appearance is

compromised.

H. Kim, J. Kim, H. Shin, S. Kim, Y.-M. Kim, S. Park, **Development and Evaluation of a Novel Skin Peeling System Containing Natural Fatty Acid for Skin Aging**, Poster at the IFSCC conference, Cancun, Mexico, October 18-28 2021

Currently, our skin is losing transparent skin due to severe air pollution and slowing skin regeneration (skin turnover) due to various harmful substances, and due to excessive keratin accumulation. It is aging as it turns into a dull skin that has lost transparent skin as a symbol of healthy skin. Facial skin aging is one of the most prevalent cosmetic concerns to women. The many noticeable manifestations such as wrinkles, sagging, uneven skin tone, and dull and dry skin can significantly impact self-esteem and social relations.

B. Kyoung Hwang, S. Lee, J.-O. Myoung, S.J. Hwang, J.M. Lim, E.T. Jeong, S.G. Park, S.H. Youn, **Effect of the skincare product on facial skin microbial structure and biophysical parameters: A pilot study**, MicrobiologyOpen. 2021

Daily use of cosmetics is known to affect the skin microbiome. This study aimed to determine the bacterial community structure and skin biophysical parameters following the daily application of a skincare product on the face. Twenty-five Korean women, who used the same skincare product for four weeks participated in the study. During this period, skin hydration, texture, sebum content, and pH were measured, and skin swab samples were collected on the cheeks. The microbiota was analyzedusing the MiSeq system. Through these experiments, bacterial diversity in facial skin increased and the microbial community changed after four weeks of skincare product application. The relative abundance of Cutibacterium and Staphylococcus increased, significant changes in specific bacterial modules of the skin microbial network wereobserved, and skin hydration and texture improved. It was suggested that daily use of skincare products could affect the microbial structure of facial skin as well as the biophysical properties of the facial skin. These findings expand our understanding of the role of skincare products on the skin environment.

P. Chaikul, M. Kanlayavattanakul, J. Somkumnerd, N. Lourith, ***Phyllanthus emblica* L. (amla) branch: A safe and effective ingredient against skin aging**, J Tradit Complement Med. 2021 Sep; 11(5): p. 390–399

Background and aim: Skin aging influences the changes in skin, including skin dryness, wrinkle, and irregular pigmentation. Amla (*Phyllanthus emblica* L.) branch has shown several benefits, but not the anti-skin aging. The study aimed to evaluate the anti-skin aging efficacy of amla branch. Experimental procedure: Amla branches were standardized the phenolic acids. The extract was investigated anti-skin aging activities, including antioxidant, anti-tyrosinase, anti-melanogenesis, and matrix metalloproteinase-2 inhibitory assays. Topical gel containing extract was prepared and evaluated the skin irritation by a single closed patch test. Randomized, double-blind, placebo-control study was performed in 20 volunteers for 84 consecutive days. The tested skin was evaluated by Chromameter® CR 400, Dermalab® USB, Mexameter® MX 18, Corneometer® CM 825, and Visioscan® VC 98. Results: Amla branch extract, a dark brown powder, consisted a variety of phenolic acids, mainly sinapic and ferulic acids. The extract exhibited the potent antioxidant and tyrosinase inhibitory activities *in vitro* assays and the melanin suppression through inhibition of tyrosinase and tyrosinase-related protein-2 activities, the strong antioxidant, and the potent matrix metalloproteinase-2 in cellular assays at 0.1 mg/mL. Topical gel containing 0.1% extract was a stable and safe formulation. Clinical study was proved the superior anti-skin aging efficacy, including the lightening skin color, the enhanced skin elasticity and hydration, and the skin wrinkle reduction. Conclusion: The study results suggested that amla branch is a rich source of bioactive compounds and can be a potential ingredient for utilization in anti-skin aging products.

J. Kim, J. Kim, Y.I. Lee, J. Suk, D. Lee, J.H. Lee, **A pilot study evaluating the efficacy and safety of retinaldehyde-loaded niosomes against mild-to-moderate acne**, J Cosmet Dermatol, 2021 Sep 29

Background: Retinoids are the mainstay of topical therapy for acne. To improve the efficacy and minimize the side effects of retinoids, various novel drug delivery mechanisms, including nanoparticles, have been developed. Aim: To evaluate the efficacy and safety of a retinaldehyde-loaded niosome (RA-N) nanoemulsion against sebum secretion and keratinization on mild-to-moderate acne. Patients/methods: Twenty-three participants exhibiting mild-to-moderate acne with both closed and open comedones were included. They applied a 0.05% RA-N nanoemulsion daily for 4 weeks, did not to use any other emollient or topical pharmaceutical, and were asked to report any symptoms and treatment satisfaction. Results: The participants demonstrated significantly fewer closed and open comedones after 2 and 4 weeks of treatment than at baseline ($^*p < 0.05$). The mean sebum secretion, measured using Sebumeter®, was 327.95 ± 90.20 μg cm^{-2} at baseline and reduced to 282.60 ± 99.70

and 250.65 ± 97.6 µg cm^{-2} , respectively, after 2 and 4 weeks of treatment (*p < 0.05). The mean desquamation index, determined using Visioscan®, was 10.99 ± 1.69 at baseline and decreased to 9.81 ± 1.10 and 8.89 ± 1.32, respectively, after 2 and 4 weeks of treatment (*p < 0.05). The application of the RA-N nanoemulsion resulted in a significantly lower desquamation level, suggesting that the RA-N nanoemulsion was well-tolerated without any skin irritation. None of the participants reported a serious adverse event during this study. Conclusion: Our findings suggest that the RA-N nanoemulsion was effective in improving comedones in acne-prone skin and safe for long-term application. Further studies are necessary to investigate the long-term effects of the application of the RA-N nanoemulsion in participants with inflammatory acne and acne scars.

N. Kaul, **Clinical testing for a booming men's sector,** PERSONAL CARE Magazine, September 2021, p. 25-28

The male grooming industry is growing at a rapid pace. Entire aisles of drug stores are dedicated to men's grooming products. Product demand in the skin care, hair care, and fragrance industries has grown dramatically and is expected to keep pace in the coming years. Whether this growth stems from celebrity advertising or social media influence, one thing is clear: men have come a long way from the days of merely using a soap bar as face and body wash. The modern man stands ready and willing to invest in skin and hair products that maintain their health and youth. Globe News Wire reports the men's grooming market worldwide will reach $183.2 Billion by 2027, with the U.S. market alone estimated at $38 Billion, and China Forecast to grow at 6.9%.1 As men continue to open their wallets for new and improved grooming products, brands catering to this market are stepping up to meet those needs by expanding offerings to include anti-ageing, SPF and antiacne products. Customisation of products is proving equally important, such as specialized regimens for every combination of skin and hair.

M. Dąbrowska, I. Nowak, **Lipid Nanoparticles Loaded with Selected Iridoid Glycosides as Effective Components of Hydrogel Formulations**, Materials 2021, 14, 4090

One possibility of improving active ingredient penetration into deeper skin layers to enhance the cosmetic product effectiveness, is the application of lipid nanoparticles. The aim of the study presented in this paper was to evaluate the potential of hydrogel formulations enriched with iridoid glycosides-loaded lipid nanoparticles. Lipid nanocarriers were produced using an emulsification-ultrasonication method based on multiple emulsions. The encapsulation efficiency was determined at the level of 89% and 77% for aucubin and catalpol, respectively. The next stage was the incorporation of the obtained dispersions of lipid nanoparticles into hydrogel formulations, followed by determination of their physicochemical properties, shelf-life stability, and application properties (in vivo tests). The introduction of lipid nanoparticles increased the stabilization of the consistency of the obtained hydrogel formulations, and was confirmed by viscosity measurements. No effect of lipid nanoparticle incorporation on shelf-life stability of the hydrogels was detected. In vivo studies showed improvements in moisture content of the epidermis, transepidermal water loss, skin topography, and macrorelief parameters. In particular, a synergistic effect of the active ingredients and lipid nanoparticles on the anti-wrinkle effect, moisturizing effect, and regeneration of the protective barrier of the stratum corneum was evidenced. The attractiveness of aucubin and catalpol as cosmetic raw materials in hydrogel formulations was evidenced, especially when the iridoid glycosides were applied in the form of lipid nanoparticles.

T.-F. Hsu, Z.-R. Su, Y.-H. Hsieh, M.-F. Wang, M. Oe, R. Matsuoka, Y. Masuda, **Oral Hyaluronan Relieves Wrinkles and Improves Dry Skin: A 12-Week Double-Blinded, Placebo-Controlled Study,** Nutrients 2021, 13, 2220

Hyaluronan (HA) is present in all connective tissues and organs, including the skin and joint fluid. However, few clinical trials have comprehensively evaluated the impacts of oral HA on skin conditions, including wrinkles and moisturization. In this study, we conducted a placebocontrolled, randomized, double-blind trial of daily HA (120 mg) intake for 12 weeks in 40 healthy Asian men and women (aged 35–64 years). Skin condition was determined by the evaluation of wrinkles, stratum corneum water content, the amount of transepidermal water loss, elasticity, and through image analysis. After 12 weeks, skin condition was significantly improved in terms of wrinkle assessment, stratum corneum water content, transepidermal water loss, and elasticity in the HA group compared to the placebo group. Regarding the percentage change from baseline, wrinkle assessment, stratum corneum water content, and skin elasticity were significantly improved in the HA group versus the placebo group after 8 and 12 weeks of ingestion. The present findings indicate that oral ingestion of HA may suppress wrinkles and improve skin condition.

K. Goldie, M. Kerscher, S. Guillen Fabi, C.Hirano, M. Landau, T.S. Lim, H. Woolery-Lloyd, K. Mariwalla, J.-Y. Park, Y. Yutskovskaya, **Skin Quality – A Holistic 360° View: Consensus Results**, Clinical,

Cosmetic and Investigational Dermatology 2021:14, p. 643–654

Introduction: Skin quality is an important component of human attractiveness. To date, there are no standardized criteria for good skin quality. To establish a consensus for good skin quality parameters and measurement and treatment options, a virtual skin quality advisory board consisting of a global panel of highly experienced aesthetic dermatologists/ aesthetic physicians was convened. Methods: A total of 10 dermatologists/aesthetic physicians served on the advisory board. A modifed version of the Delphi method was used to arrive at consensus. Members accessed an online platform to review statements on skin quality criteria from their peers, including treatment and measurement options, and voted to indicate whether they agreed or disagreed. Statements that did not have agreement were modifed and the members voted again. Consensus was defned as: strong consensus = greater than 95% agreement; consensus = 75% to 95% agreement; majority consent = 50% to 75% agreement; no consensus = less than 50% agreement. Results: There was strong consensus that good skin quality is defned as healthy, youthful in appearance (appearing younger than a person's chronological age), undamaged skin and that skin quality can be described across all ethnicities by four emergent perceptual categories (EPCs): skin tone evenness, skin surface evenness, skin frmness, and skin glow. The EPCs can be affected by multiple tissue layers (ie, skin surface quality can stem from and be impacted by deep structures or tissues). This means that topical approaches may not be suffcient. Instead, improving skin quality EPCs can require a multilayer treatment strategy. Conclusion: This global advisory board established strong consensus that skin quality can be described by four EPCs, which can help clinicians determine the appropriate treatment option(s) and the tissue or skin layer(s) to address. Skin quality is important to human health and wellbeing and patients' perception for the need for aesthetic treatment.

M. Mendes Fossa Shirata, P.M. Berardo Gonçalves Maia Campos, **Sunscreens and Cosmetic Formulations Containing Ascorbyl Tetraisopalmitate and Rice Peptides for the Improvement of Skin Photoaging: A Double-blind, Randomized Placebo-controlled Clinical Study**, Photochem Photobiol., 2021 Jul;97(4): p. 805-815

Photoprotective formulations containing substances with antioxidant properties in combination have been used as a strategy for the improvement of photoaged skin conditions. However, there is a lack of studies evaluating the clinical efficacy of these substances in young women with signs of photoaging. Thus, the objective of the present study was to evaluate the clinical efficacy of sunscreens and cosmetic formulations containing ascorbyl tetraisopalmitate and rice peptides for the improvement of skin photoaging in young women. A double-blind, randomized placebocontrolled clinical efficacy study was conducted on 60 female subjects aged 20-30 years with skin changes related to photoaging and without photoprotective habits. The hydrolipidic layer conditions and structural and morphological characteristics of the skin were evaluated by Photoprotective formulations containing substances with antioxidant properties in combination have been used as a strategy for the improvement of photoaged skin conditions. However, there is a lack of studies evaluating the clinical efficacy of these substances in young women with signs of photoaging. Thus, the objective of the present study was to evaluate the clinical efficacy of sunscreens and cosmetic formulations containing ascorbyl tetraisopalmitate and rice peptides for the improvement of skin photoaging in young women. A double-blind, randomized placebocontrolled clinical efficacy study was conducted on 60 female subjects aged 20-30 years with skin changes related to photoaging and without photoprotective habits. The hydrolipidic layer conditions and structural and morphological characteristics of the skin were evaluated by biophysical and skin imaging techniques. The results showed that the daily use of the formulations under study improved the skin conditions by increasing skin hydration and dermis echogenicity. In addition, the application of the active substances reduced skin hyperpigmentation and increased epidermal cell renewal. In summary, the present study showed the importance of daily application of sunscreens and formulations with antioxidant properties for the prevention and attenuation of skin changes related to photoaging in young women.

C. Uhl, D. Khazaka, **Skin sensitization in pandemic times,** PERSONAL CARE MAGAZINE, June 2021

For almost a year and a half, an unprecedented pandemic has had us in its grip worldwide, forcing us to abandon many cherished activities and realign our entire daily lives. It is particularly important in these times to prevent the spread of the pandemic through protective measures, distance and significantly increased requirements for hygiene measures such as the wearing of protective mouth-nose masks and the frequent use of sanitisers on all kinds of surfaces and naturally also on the skin.

N. Cameli, M. Silvestri, M. Mariano, E. Berardesca, **Effects of food supplements and a topical solution containing nanosilicon on skin hydration, barrier function, and elasticity**, J Cosmet Dermatol, 2021 Apr;20 Suppl 1: p. 32-35

Background: Silicon is an abundant element in the human body and plays an important role in the skin, taking part in the synthesis of collagen and glycosaminoglycans. The use of nanotechnology methods, which processes materials at an atomic and molecular scale, has allowed the development of nanosilicons. Aims: The study evaluates the effectiveness of a food supplement and a topical solution containing nanosilicon in improving skin hydration and elasticity. Methods: A total of 30 female subjects were randomized to receive the placebo (n = 15) and the active compound (n = 15). All enrolled subjects took the food supplement twice a day for 20 days and then once a day for the next 20 days, and they also had to apply the nanosilicon solution on the right forearm four times a day. Evaluation of several parameters was performed after 20 and 40 days through the use of non-invasive instrumental methods (Corneometer® CM 825, Cutometer® MPA 580, Visioscan® VC, Tewameter® TM 200). Results: Both treatment groups showed a statistically significant improvement in barrier function and in skin hydration on the right forearm after 20 days; increase in skin elasticity was observed only in the group taking the active compound. Conclusions: The study showed that the administration of a food supplement and a topical solution, both containing nanosilicon, improves hydration, elasticity, and skin barrier function.

L. Sanchez, C. Thiebaut, **The natural solution for damaged and curly hair**, PERSONAL CARE, April 2021, p. 57-60

Curly hair has particular characteristics in elasticity and shape that require a special and different care. Curly hair is more fragile than straight hair and therefore requires specific care. Every day, hair is exposed to a series of external aggressions: brushing, friction, straightening treatments, heat irons, colouring, perms, pollution, UV radiation, etc... Ethomega, with high content in Omega 3, is an excellent natural active ingredient for promoting faster and healthier hair growth, nourishing the follicles to stimulate their growth and shine. Ethomega has proven to restore the hair lipids barrier, increase gloss and avoid hair colour fade after UV irradiation, making hair more resistant to breakage and split ends. Ethomega has high concentrations of delta and gamma-tocopherol, difficult to find in other botanical oils. Both PUFA and tocopherol content, shield the hair fibres creating a protective film that prevents protein loss caused by UV damage, retaining moisture, preventing photooxidation, and providing the necessary lipids for the specificities of this type of hair.

M. Dąbrowska, I. Nowak, **Noninvasive evaluation of the influence of aucubin-containing cosmetic macroemulsion on selected skin parameters,** J Cosmet Dermatol, 2021 Mar;20(3),:p. 1022-1030

Background: Objective evaluation of skin condition on the basis of noninvasive methods has become obligatory and may be a good strategy for verifying the efficiency of new cosmetic active ingredients. Aim: The aim of this study was to assess the influence of aucubin-containing cosmetic macroemulsion on skin parameters using the skin testing equipment. Patients/methods: The study was carried out on the group of 25 female volunteers of the mean age 27 ± 2 years. The skin parameters were measured using the following devices: Tewameter® TM 300 (transepidermal water loss, TEWL), Corneometer® CM 825 (skin hydration), Cutometer® MPA 580 (skin elasticity), Visioscan® VC 98 (skin topography), and Visioline® VL 650 (skin macrorelief). All measurements were performed on the inner part of the left forearm. Results: The skin parameters measured revealed the beneficial influence of aucubin on TEWL and skin hydration level. The application of aucubin-enriched cream caused more significant improvements of all determined SELS parameters, in comparison with cream without it. An analogous tendency was noticed in the case of skin macrorelief parameters; the addiction of the active ingredient led to a decrease in the value of total wrinkle area and diminished the mean length and depth of single wrinkles. Conclusions: Noninvasive methods of skin testing have provided a possibility of objective evaluation of the action of new active ingredients in cosmetic formulations. The study has proved the positive influence of aucubin on effectiveness of cosmetic macroemulsions, diminishing TEWL, increasing skin hydration level, and improving the values of SELS and skin macrorelief parameters.

C. Uhl, D. Khazaka, A. Pouladi, **"Classic" biophysical methods for hair & scalp**, PERSONAL CARE, March 2021, p. 23-26 and **Métodos biofísicos 'clásicos' de análisis capilar,** Revista técnica de la Industria Cosmética, Perfumería e Higiene Personal, Primavera 2021 No. 018, p. 34-37

Hair is not only strands of horn made mainly of keratin. Hair indicates someone's personal beliefs or social status. The matter of hair care / grooming is not entirely all about women. For men, a well-kept, thick head of hair brings added good looks. However, there is more to it. Nowadays, social media, most of all Instagram, influences different generations. Besides skin, hair is the characteristic attribute for health, youth and attraction. Hair can even be a communication and political instrument. Just take as an example the men who let grow a moustache of their own style every November of a year, the so called Movember, to raise funds for men's health. Plenty of products and treatments are ready to fit the modern hair care market for thin, thick, curly, dry, oily, blonde, coloured, ethnic, young, or old hair. Imagine a claim, the product is already invented. As hair is unique, personalised products

flood the hair care market. Respectively, a great number of claims around the various products exists. Hair care rituals can be complemented with food supplements and treatment devices.

Además de la piel, el cabello representa un atributo social característico de la salud, la juventud y la atracción. Multitud de productos y tratamientos están listos para ser adaptados al nuevo mercado de cuidado del cabello, específicamente para tratar cabellos finos, gruesos, rizados, secos, grasos, coloreados, jóvenes, envejecidos... Existe un gran número de afirmaciones en torno a los distintos productos existentes en el ámbito del cuidado capilar.

E. Besic Gyenge, S. Hettwer, B. Suter, B. Obermayer, **Genderless cosmetics with gender-specific efficacy**, PERSONAL CARE, March 2021, p. 50-52

Unisex was yesterday's trend – genderless beauty is here to stay. The definition of gender has become very fluid. It now goes beyond simply 'male' and 'female', taking the form of a desire for acceptance and empowerment in one's own person. Man, woman, transgender and those who fall under any other definitions of gender should be able not only to share fashion but also their lotions and potions. From the consumers' point of view, this makes cosmetics more practical and sustainable. Nevertheless, genderless cosmetics should not be defined in terms of non-binary fragrances but rather by their mode of action, which should adapt to the respective needs of various skin types. However, where to start? Can genderless skin care truly cater to the distinct needs of male and female skin? Are there differences between male and female skin? With this in view, our approach has been to develop Reforcyl®-Aion, an active ingredient with the capability to spring clean skin cells, activating and rejuvenating them, improving overall skin appearance and positively influencing the personal perception of beauty. Reforcyl-Aion meets the individual needs of skin regardless of gender or age.

C. Uhl, D. Khazaka, A. Pouladi, **"Classic" biophysical methods for hair & scalp**, PERSONAL CARE, March 2021, p. 23-26

Hair is not only strands of horn made mainly of keratin. Hair indicates someone's personal beliefs or social status. The matter of hair care / grooming is not entirely all about women. For men, a well-kept, thick head of hair brings added good looks. However, there is more to it. Nowadays, social media, most of all Instagram, influences different generations. Besides skin, hair is the characteristic attribute for health, youth and attraction. Hair can even be a communication and political instrument. Just take as an example the men who let grow a moustache of their own style every November of a year, the so called Movember, to raise funds for men's health. Plenty of products and treatments are ready to fit the modern hair care market for thin, thick, curly, dry, oily, blonde, coloured, ethnic, young, or old hair. Imagine a claim, the product is already invented. As hair is unique, personalised products flood the hair care market. Respectively, a great number of claims around the various products exists. Hair care rituals can be complemented with food supplements and treatment devices.

R.P. Martin, P. Varela, C. Peres Gomes, M.M. Marins, R. Filippelli-Silva, S. Yarak, J.L.M. Soares, A. Sanudo, J. Idkowiak-Baldys, S. Chen, C. Hwang, Y. Zhuang, J. Lyga, J. Bosco Pesquero, E. Bagatin, **Transcriptomic and histological analysis of exposed facial skin areas wrinkled or not and unexposed skin**, Research Square, Feb. 2021

Skin aging involves genetic, environmental and hormonal factors. Facial wrinkles also depend on muscular activity. Gene expression investigation may be useful for new anti-aging products. To evaluate structure and gene expression differences among exposed and unexposed skin in menopausal women. Cross-sectional study, including 15 menopausal women, 55-65yo, phototype III; photo-exposed, periorbital wrinkles (A1), preauricular, not wrinkled (A2), and unexposed gluteal (A3) areas were described and compared by non-invasive measures, histology, immunohistochemistry and gene expression (RNASeq); participants mean age was 61yo, presenting moderate periorbital wrinkles and light facial photodamage. Higher roughness, wrinkles number and echogenicity were observed in A1 and A2 versus A3. Decreased epidermal thickness and dermal collagen IV were demonstrated in A1 versus A2 and A3. Exposed areas impacted different pathways compared to unexposed. Exposed wrinkled skin (A1) showed impact on cell movement with decreased inflammatory activation state. Pathways related to lipid and aminoacids metabolism were modulated in non-wrinkled exposed (A2) compared to unexposed (A3) skin. Expected histological fndings and gene expression differences among areas were observed. Photoaging in menopausal women may modulate lipid and aminoacids metabolism and decrease inflammatory and keratinization pathways, cellular homeostasis, immune response, fibrogenesis and filament formation. These findings may help development of new therapies for skin health and aging control.

S. Varothai, S. Bunyaratavej, C. Leeyaphan, S. Phaitoonwattanakij, W. Winayanuwattikun, K. Mun-prom, **Pilot Study of the Effcacy and Safety of Nail Gel Containing *Artemisia abrotanum* Extract**

and Glycerin in the Treatment of Nail Plate Surface Abnormality, Siriraj Medical Journal, Volume 73, No.3: 2021

Objective: Tis study investigated the efficacy and safety of a nail gel containing glycerol and *Artemisia abrotanum* extract in treating nail plate surface abnormalities. Methods: The nail gel was painted over the total nail surface of selected nails twice daily. All the nails were evaluated at the proximal and central parts using the Visiometer® system and according to transonychial water loss (TOWL) at baseline, and at the 2nd and 8th weeks of treatment. Results: In total, 19 patients with a mean age of 50.6 years old were enrolled on the study, with 50 nails studied. Sixty percent of the patients showed significant clinical improvement, as determined by the total agreement between two treatment-blinded dermatologists. Regarding the Visiometer system, a significant reduction in the SER value (roughness) of the nail plates was found at the 2nd week, while at the 8th week, the surface and volume values were found to be significantly decreased from baseline and also from the values at the 2nd week. There was a significant improvement in the Rku (smoothness) value at the 8th week compared to baseline. The mean TOWL at both the 2nd and 8th weeks were statistically decreased from baseline. No side effects were detected. Conclusion: Tis nail gel containing glycerol and Artemisia abrotanum extract provided benefits in terms of improvements in the nail surface texture and water retention in patients with nail surface abnormalities.

J. Kim, H. Yeo, T. Kim, E.-T. Jeong, J.M. Lim, S.-G. Park, **Relationship between lip skin biophysical and biochemical characteristics with corneocyte unevenness ratio as a new parameter to assess the severity of lip scaling**, Int J Cosmet Sci. 2021;43: p. 275–282

Objective: Lip skin dryness and chapping are major concerns related to lip skin care in many populations. The distinctive features of lip skin, such as the low waterholding capacity and weak skin barrier, are strongly associated with these problems; however, few studies have examined lip skin characteristics and the mechanisms underlying these issues. This study was conducted to identify the biophysical properties of dry lip skin and molecular targets affecting lip skin physiology. Methods: Skin hydration, transepidermal water loss and lip skin scaling were evaluated in 40 female subjects. Skin scaling was assessed as a percentage area divided into five categories (G0, G1, G2, G3 and G4) according to the thickness level of tape-stripped corneocytes. The activities and amounts of proteases, cathepsin D and bleomycin hydrolase were measured as markers for the desquamation process and skin hydration, respectively. Results: Skin hydration showed a significantly positive correlation with the percentage area of evenly thin corneocytes (G0) and negative correlations with the percentage areas of slightly thick to severely thick corneocytes (G1-G4). The corneocytes unevenness ratio (CUR) was calculated by dividing the sum of the G1, G2, G3 and G4 values with the G0 value. The CUR was significantly negatively correlated with skin hydration, suggesting that CUR is a new parameter representing the severity of lip scaling. Subjects with lower hydration and higher CUR had higher bleomycin hydrolase activity and lower cathepsin D activity, respectively, than subjects with higher hydration and lower CUR. Conclusion: Our study revealed a correlation between lip skin hydration and severity of lip scaling and verified the association of protease activity with the hydration and chapping state of lip skin. These observations provide a basis for further studies of the persistent problem of lip skin dryness and chapping.

C. Uhl, D. Khazaka, **Pomiar Rzeczywistego Wieku Skóry,** CHEMIA I BIZNES. 1/2021

Nagłówki w czasopismach i blogi coraz częściej ogłaszają, że „50 lat to nowe 30". Czy to faktycznie prawda? Czy osoby „po pięćdziesiątce" rzeczywiście są dziś bardziej sprawne fzycznie i umysłowo – i wyglądają młodziej – niż kiedyś?

C. Fei, Y. Xu, T. Cao, W. Jiang, Y. Zou, H. Maibach, **Effect of scratching and friction on human skin in vivo,** Skin Research & Technology, 00, 1-8

Objective: To investigate effect of scratching and friction on human skin function and functional differences between scratching and friction. Method: Forty healthy volunteers were enrolled. Scratching and friction behavior was modeled by scalpel and sandpaper simulation to forearm for 80 times, respectively. Noninvasive bioengineering devices were used to measure basic skin physiological parameters and exfoliated stratum corneum collected and protein quantified. Parameters were recorded at baseline (BL) and after every 20 times interventions (20, 40, 60, and 80 times). Results: Compared to BL, transepidermal water loss (TEWL) value increased significantly at both scratched and friction sites ($P < .001$) with a significant higher value for friction ($P < .001$). There was no significant difference in stratum corneum hydration (SCH) value postscratching ($P > .05$), while it decreased first and then increased significantly at friction site ($P < .001$). Roughness values (contract (CONT), variety (VAR), and scaliness (SEsc)) were raised significantly at both sites ($P < .001$). Net change in CONT and SEsc values of friction was higher than scratched sites ($P > .05$). There was no significant difference in blood

flow after both scratching and friction ($P > .05$). Quantity of keratinocyte protein from friction sites was statistically higher than scratching after 80 times interventions ($P < .05$). Conclusion: Both noninvasive detections and protein quantification indicated more damage from friction, which may have significance for behavior guidance of patients with pruritus and implication for further investigation.

M. Streker, M. S. Thill, M. Kerscher, **Einfluss oraler Kollagen-Peptide auf die Hautqualität am ganzen Körper**, Akt Dermatol 2020; 46: 87–93

Die Hautalterung ist ein komplexer Prozess, der sowohl extrinsischen als auch intrinsischen Einflüssen unterliegt. Neben sichtbaren Zeichen wie Falten und einem Verlust an Elastizität spielen sich insbesondere in der Dermis molekulare Veränderungen ab. Ein wesentlicher Faktor ist die Minderung der Qualität und Quantität von kollagenen Fasern sowie weiteren extrazellulären Matrixbestandteilen. Bereits in früheren In-vivo-Human-Studien wurde eine Verbesserung der Hautqualität im Gesicht durch die orale Supplementierung mit Kollagenpeptiden nachgewiesen. Es konnte mittels objektiver, validierter dermatologischer Mess methoden bestätigt werden, dass die orale Aufnahme von speziellen Kollagen-Peptiden über einen längeren Zeitraum die Hautphysiologie (Lipidgehalt der Hautoberfläche, Stratum-corneum-Hydratation, Hautelastizität, Hautglätte und Hautdichte) positiv beeinflusst. In der vorliegenden 12-wö- chigen Studie wurden die positiven Effekte eines Nutraceuticals mit bioaktiven Kollagen-Peptiden (ELASTEN®) auf die Hautqualität erstmals am gesamten Körper (Gesicht, Dekolleté, Arm und Oberschenkel) untersucht.

M.G. Almeida Leite, P.M.B.G. Maia Campos, **Correlations between sebaceous glands activity and porphyrins in the oily skin and hair and immediate effects of dermocosmetic formulations**, J Cosmet Dermatol. 2020;00: p. 1–7

Background: Oily skin and hair not only contain a large amount of sebum, but also exhibit other changes that compromise their physiology. The immediate effects of dermocosmetics are very important for adhesion to treatment. Aim: The aim of the present study was to characterize oily skin and scalp, to evaluate the correlation of sebum production with porphyrin counts and the immediate effects of topical formulations for sebum control. Patients/Methods: A total of 100 women aged 18-49 years were recruited. Sebaceous gland activity, sebum amount, stratum corneum water content (SCWC) transepidermal water loss (TEWL), skin gloss, amount of porphyrins and pores were determined in the face and SCWC, sebum amount, porphyrin count, and TEWL were also determined in the scalp. The immediate effects of formulations containing a guarana extract were determined after 2 hours of application. Results: A correlation between sebaceous gland activity and presence of porphyrins in the frontal region of the face was detected. Low gloss values and large amounts of pores in the malar region were related to lower skin uniformity. High sebum values and low SCWC and porphyrin count were also observed in the vertex region. The studied formulations reduced the sebum content of face and scalp after 2 hours of application. Conclusion: Oily skin and hair showed high sebum values, which were correlated with porphyrin count and with the activity of sebaceous glands. Finally, the studied formulations had immediate reducing effects on sebum amounts on the skin and scalp.

D.J. Son, J.C. Jung, Y.M. Choi, H.Y. Ryu, S. Lee, B.A. Davis, **Wheat Extract Oil (WEO) Attenuates UVB-Induced Photoaging via Collagen Synthesis in Human Keratinocytes and Hairless Mice**, Nutrients 2020, 12, 300

The efficacy of wheat extract oil (WEO), standardized to glucosylceramides, for protectingagainst ultraviolet B (UVB)-induced damage of skin barrier function was assessed using the SHK-1 hairless mouse model and two human skin cell lines, namely, CCD-986sk and HeCaT. The ability of repeated oral administration of 30, 60, and 120 mg of WEO/kg/day for 12 weeks to prevent skin damage of SKH-1 hairless mice induced by UVB irradiation was evaluated. The results demonstrated that UVB-induced water evaporation (transepidermal water loss, TEWL) was significantly decreased by WEO. Similarly, UVB-induced losses in moisture and skin elasticity were improved by WEO supplementation. WEO attenuated the tissue procollagen type I, hyaluronic acid (HA), and ceramide reductions induced by UVB treatment as well. Collagen concentrations in skin tissue were increased in the WEO-treated mice, while UVB-induced epidermal thickening was reduced. In vitro studies using HeCaT human keratinocytes confirmed increased HA and collagen synthesis in response to WEO treatment. This may occur via WEO suppression of matrix metallopeptidase-1 (MMP-1), since its induction by UVB treatment was diminished in treated CCD- 986sk cells. Oral administration of WEO improves skin barrier function in UVB-irradiated mice by attenuating damage typically observed in photoaging. This research further clarifies the clinical benefits previously observed by dietary WEO consumption.

Moderne Hautanalyse - Die ungeschminkte Wahrheit, Fit for Fun, Juli 2020

Ein geschultes Auge sieht der Haut auf Anhieb das Wichtigste an – aber nicht alles. Präzise Informationen über den Hautzustand liefern diese fünf technischen Geräte.

D.S. Kim, K.U. Song, H.K. Lee, J.H. Park, B.J. Kim, K.H. Yoo, J.H. Shin, **Synergistic effects of using novel home-use 660- and 850-nm lightemitting diode mask in combination with hyaluronic acid ampoule on photoaged Asian skin: A prospective, controlled study**, J Cosmet Dermatol, Jul 2020

Background: Recently, light-emitting diode (LED) devices are among those mostly preferred for esthetic application because they improve the appearance of photoaged skin characterized by wrinkles, sagginess, pigmented lesions, and others. In addition, the use of hyaluronic acid (HA) for skin rejuvenation is already well proven. Aims: This study aims to evaluate the synergistic effects of using home-use LED mask device with HA ampoule. Methods: The total number of recruited subjects was 48:24 in Group A treated with both home-use LED mask device and HA ampoule and 24 in Group B treated with HA ampoule only, for 4 weeks. To assess the efficacy of the treatment, the following were used: Antera 3D CS, EOS 800D with Image-Pro Plus, DUB-USB, VisioFace Quick, and Visioscan VC98. Results: After treatment, the volume measurement (mm) for prejowl sulci and nasolabial fold flattening as well as the area measurement (pixel) for lower chin firmness improvement was significantly reduced, and the number of pores (ea) for enlarged pores as well as the desquamation index (%) for the amount of corneocytes significantly decreased in both Group A and Group B. Moreover, the percentage of skin density significantly improved. Furthermore, Group A showed a significantly faster and higher rate of improvement than Group B. Conclusion: The use of 660- and 850-nm home-use LED mask device can generate synergistic effects on home-use topical applications like HA on photoaged face, and such device can be safely and efficiently used daily in personal environments.

J.N.C Ng, R. Wanitphakdeedecha, C. Yan, **Efficacy of Home-Use Light Emitting Diode Device at 637 and 854-nm for Facial Rejuvenation: A Split-Face Pilot Study**, J Cosmet Dermatol, Jul 2020

Background: The use of light-emitting diode (LED) in combination wavelength for facial rejuvenation has been previously reported. Nowadays, there has been a growing market for home-use cosmetic devices because of its low-cost and convenience. Objective: To evaluate the efficacy and safety of home-use LED device on facial rejuvenation. Methods: This was a prospective split-face clinical trial with a total of 24 subjects, who presented with photo aging skin. All subjects were treated with the home-use LED device on the left side of their face, twice a week for 8 weeks. Primary outcomes measured in the study were the changes in the biophysical properties of the skin assessed with the following parameters: skin elasticity, skin hydration, texture and wrinkles. Evaluations were done at baseline, 2-, 4-, 6- and 8-week follow-up. Subjects' self-improvement scores and adverse reactions were also recorded. Results: All 24 subjects completed the study and attended all follow-up. Skin elasticity was significantly higher in the LED group compared to the control during the 6- and 8-week follow-up ($p < 0.05$). In the LED group, an image of the treated skin captured using Visioscan® showed improvement of the skin texture at 8-week follow-up. Majority of the subjects in the LED group scored good improvement on all follow-ups (37.5%, 41.7%, 58.3% and 62.5%) when compared to the baseline. No adverse reactions or pain were recorded in the study. Conclusion: The home-use LED device with a combination wavelength of 637 and 854 nm, is safe and can be used as an adjunctive treatment for self-administered facial rejuvenation.

R. Wanitphakdeedecha, J.N.C. Ng, N. Junsuwan, S. Phaitoonwattanakij, W. Phothong, S. Eimpunth, W. Manuskiatti, **Efficacy of olive leaf extractcontaining cream for facial rejuvenation: A pilot study**, J Cosmet Dermatol, Jul 2020, 19(7): p. 1662-1666

Background: Olive leaf extract (OLE), a naturally extracted product from olive leaves, contains oleuropein and other bioactive phenolic compounds. Oleuropein was identified to have various medical properties. It was also found to inhibit the effects of both acute and chronic UVB-induced skin damage as well as accelerate wound healing activity. Aims: To evaluate the efficacy of olive leaf extract-containing cream on facial rejuvenation. Methods: This is a prospective pilot study with a total of 36 participants, who presented with photoaging skin. All participants applied the olive leaf extract-containing cream (SUPERHEAL™ O-Live Cream, PhytoCeuticals, Inc, USA) to their whole face twice daily for 2 months. Primary outcomes measured in the study were the changes in the biophysical properties of the skin assessed with the following parameters: melanin and erythema index, transepidermal water loss (TEWL), skin hydration, skin pH, sebum level, texture, and wrinkles. Results: After 2 months, TEWL decreased significantly ($P = .007$) and maintained the results 1 month after discontinuation of the treatment ($P = .007$). Skin hydration also increased significantly after 2 months ($P = .004$). Wrinkles improved significantly on all follow-ups ($P < .001$, $P = .001$, $P = .001$, respectively). An image of the skin captured using Visioscan® showed improvement of the skin texture 2 months after treatment. Majority of the participants (64%) noted improvement in their skin texture. Conclusion: Olive leaf extract-containing cream provided benefits on skin rejuvenation in human skin.

A. Charpentier, **Clinically supporting 'antiage' and 'pro-age' claims**, Personal Care Europe, June 2020

Claims of personal care evolve following trends and various innovations in the field of the active ingredient development, the finished product formulation and the way both are evaluated, demonstrating their performances. Since 2014, the cosmetics industry is gradually leaving the era of anti-ageing behind. Today, most consumers are more in the mood for a well ageing, slow ageing or pro ageing approach. The philosophy of the 'pro-ageing' movement has sought to remove all 'anti' claims because, according to this concept, women over 50 are not interested in looking younger; they want to look healthy and be honest about their age. Some brands have used the idea of "improves the appearance of skin quality", and "restore the skin comfort", for example. A new vocabulary of renewal, regeneration, plumpness and "glow" now dominates the language of the beauty industry.

J.M. Crowther, A. Davies, **Beyond the Visible: UV, IR and Fluorescence Imaging of the Skin**, in: P. Pasquali (ed.), Photography in Clinical Medicine, Springer Nature Switzerland AG 2020

Our world is typically an abundance of colour, from which we derive a vast amount of information about it. Even within the range of human vision, there are some individuals who can see only in black and white (achromatopsia) and, at the other end of the spectrum, some (tetrachromats) who see millions of colours [2]. Despite these apparent differences in how human eyes operate, we are still only sensitive to a relatively narrow range of wavelengths between approximately 390 and 720 nm.

S.I. Jang, My. Lee, J. Han, J. Kim, A.R. Kim, J.S. An, J.O. Park, B.J. Kim, E. Kim, **A study of skin characteristics with long-term sleep restriction in Korean women in their 40s**, Skin Res Technol., March 2020, Volume 26, Issue 2, p. 193-199

Background: Previous studies have demonstrated increased pore size and darkening skin color with total sleep deprivation. There are many studies of skin characteristics with short-term sleep restriction, but there are few studies on skin characteristics when sleep is restricted more than three consecutive days. This study evaluated skin changes with sleep limited to 4 hours per night for six nights. Materials and Methods: The study included 32 Korean women in their 40s. Skin hydration, desquamation, barrier recovery, texture, gloss, transparency, elasticity, crow's feet, frown lines, and color were measured. Individual sleep time was monitored by smartwatches. Subjects slept 8 hours per night for six nights in week one and 4 hours per night for six nights in week two. Results: Skin hydration was significantly reduced after 1 day of sleep deprivation, and it continued to decrease. Skin gloss, desquamation, transparency, elasticity, and wrinkles were significantly aggravated after 1day of sleep deprivation. Skin texture was significantly aggravated on the fourth day of sleep restriction. Elasticity was most affected by reduced sleep, with a standardized coefficient of -.320, indicating a significant decrease over time as compared to other characteristics. Conclusion: Skin hydration was gradually decreased with sleep restriction. Skin texture did not change after only1day of sleep restriction. It is a new finding that elasticity decreases more than other skin characteristics with prolonged sleep restriction.

K.M. Enright, A. Nikolis, **In vivo determination of the skin surface topography and biophysical properties of human hands: Effects of sex and hand dominance**, Skin Res Technol., March 2020; Volume 26, Issue 2, p. 277-283

Background: The effect of hand dominance on the skin topography and parameters associated with skin health and aging is unknown. Methods: Healthy adult volunteers were recruited. The following four strata were enrolled: Group 1: male, right handed; Group 2: male, left handed; Group 3: female, right handed; and Group 4: female, left handed. The differences between groups on their surface evaluation of living skin (SELS) parameters were evaluated. These variables included (a) roughness (SER); (b) smoothness (SESM); (c) scaliness (SESC); and (d) wrinkles (SEW). Results: A total of twenty subjects were recruited, with five in each stratum. Significant differences between groups were found for SESC [$F(7,31) = 2.742$, $P = .024$, partial eta squared = 0.382] and SEW [$F(7,31) = 3.705$, $P = .005$, partial eta squared = 0.456]. An evaluation of the descriptive statistics revealed that males had a higher mean SESC value than females and a lower mean SEW value. Moreover, the dominant hand of both sexes had a higher mean SEW value than non-dominant hands. Conclusions: Given the evidence of sex and handedness differences in wrinkle genesis and desquamation severity, these factors should be considered in the dermatological treatment and counseling of patients.

N. Lourith, M. Kanlayavattanakul, **Formulation and clinical evaluation of the standardized Litchi chinensis extract for skin hyperpigmentation and aging treatments**, Ann Pharm Fr, 2020 Mar;78(2): p. 142-149

Introduction: The standardized litchi extract had been revealed on phytochemical actives, in

vitro and cellular activities against aging and darkening of skin. However, a formulation containing the extract has never been developed as per clinical evaluated. Materials and methods: The litchi serum was developed, safety and efficacy were clinically evaluated in human volunteers. The stable and none irritated 0.05 and 0.1% litchi serums were randomized-single blind placebo control clinical applied on the inner forearm of 29 volunteers for a consecutive 112 days and monitored by Mexameter® MX18, Cutometer® MPA 580 and Visioscan® VC 98. Results: Skin lightening efficacy of the 0.1% and 0.05% litchi serum was significantly ($P<0.001$ and $P<0.05$) higher than the placebo. Skin elasticity and wrinkle reduction was significantly ($P<0.05$ and $P<0.005$) achieved by the 0.1% litchi serum. The efficacy of litchi serums was confirmed by a split-face, randomized, single-blind controlled that the 0.1% litchi serum was significantly ($P<0.05$) better than the 0.05% one of all examined parameters. Conclusion: Safety and efficacy of litchi extract are clinically confirmed for hyperpigmentation and aging of skin treatments.

S. Meer, S. Aslam, M.S.A. Abbasi, M. Aslam Tahir, **Improvements in human skin texture and surface with the use of emulgels containing *Annona squamosa* L. fruit extract along with penetration enhancer**, International Journal of Scientific & Engineering Research Volume 11, Issue 3, March, 2020

This investigational study was designed to characterize anti-aging effects of o/w emulgels containing *Annona squamosa* L. fruit extract by comparing it with its control and the variation in these effects with the addition of penetration enhancer. The control (without extract and penetration enhancer i.e. clove oil 8%) and the two test formulations with 4% fruit extract (one without clove oil and other with clove oil) were formulated and applied on the cheeks of 26 healthy female human volunteers (n=26, divided into two equal groups) for a period of 12 weeks. All the formulation was evaluated for skin texture parameters (energy, contrast and variance) and surface evaluation of the living skin (SELS parameters) using Visioscan® VC 98. There was a visible improvement of the overall skin appearance and reduced number of fine lines by both of the test formulations. Moreover, skin texture (variance and contrast) and SELS (SEr, SEsc and SEw) parameters showed significant decline ($p < 0.05$) and the texture parameter of energy and SEsm showed significant increase ($p < 0.05$). All our findings indicate that the emulgel containing 4% *Annona squamosa* L. fruit extract improves skin texture and SELS parameters ultimately possesses anti-aging effects and these effects can be increased by the addition of penetration enhancer.

A. Ali, N. Akhtar, H. Khan, M.H.H. Bin Asad, Z. Ahmad, **The improvement on the skin surface by a new type of dermocosmetic loaded plant extract: A split face skin topographic study**, Pak. J. Pharm. Sci., Vol.33, No.2, March 2020, p.531-535

Various extrinsic and intrinsic origins slant skins and pledge evident vicissitudes of the skin surface. We explored the effects of dermocosmetic loaded medical *Cannabis* seed extract and evaluate the improvement on the skin surface in Asian and male volunteers in a split face topographic study. Dermocosmetic and base (without extract) fabricated were directed to apply by volunteers (Asian male) on their right and left cheek, respectively, in the split face skin topographic study up to three months. Efficacy of dermocosmetic versus base was assessed by non- invasive diagnostic technique focusing on skin texture parameters (energy, contrast and variance) and surface evaluation of the living skin (SELS), SEr (skin roughness), SEsc (skin scaliness), SEsm (skin smoothness), SEw (skin wrinkles). Unlike base, dermocosmetic showed significant effects on skin texture parameters (energy, variance and contrast) and SELS (SEr, SEsc, SEsm and SEw) parameters in Asian male volunteers when ANOVA applied. The level of significance was5%. Dermocosmetic ultimately improved on skin surface and advocacies for anti-aging effects on skin appearance.

P. Rattanawiwatpong, R. Wanitphakdeedecha, A. Bumrungpert, M. Maiprasert, **Anti-aging and brightening effects of a topical treatment containing vitamin C, vitamin E, and raspberry leaf cell culture extract: A split-face, randomized controlled trial**, J Cosmet Dermatol. 2020 Jan

Background: Skin aging has many manifestations such as wrinkles, uneven skin tone, and dryness. Both intrinsic and extrinsic factors, especially ultraviolet light-induced oxidative radicals, contribute to the etiology of aging. Human skin requires both water- and lipid-soluble nutrient components, including hydrophilic and lipophilic antioxidants. Vitamins C and E have important protective effects in the aging process and require exogenous supply. Raspberry leaf extracts contain botanical actives that have the potential to hydrating and moisturizing skin. Topical products with these ingredients may therefore combine to provide improved anti-aging effects over single ingredients. Objectives: To evaluate the anti-aging and brightening effects of an encapsulated serum containing vitamin C (20% w/w), vitamin E, and European raspberry (Rubus idaeus) leaf cell culture extract. Methods: Fifty female volunteers aged 30-65 years were allocated one capsule of serum for topical application on one side of the face for 2 months, in addition to self-use of facial skin products. Both test (treated) and contralateral (untreated) sides were dermatologically assessed after 4 and 8 weeks. Skin color (melanin index), elasticity, radiance, moisture, and water evaporation were measured by Mexameter MX18®, Cutometer®, Glossymeter GL200®, Corneometer CM825®, and Tewameter TM300®

instruments, respectively (Courage + Khazaka Electronic GmbH). Skin microtopography parameters, smoothness (SEsm), roughness (SEr), scaliness (SEsc), and wrinkles (SEw), were measured by Visioscan® VC98 USB (Courage + Khazaka Electronic GmbH), and gross lifting effects were measured by VECTRA® H1 (Canfield Scientific), and adverse reactions and satisfaction were also assessed. Results: Skin color, elasticity, and radiance were significantly improved. The smoothness, scaliness, and wrinkles were also revealed significant improvement. Mild adverse reactions were tingling and tightness. Conclusions: The vitamin C, vitamin E, and raspberry leaf cell culture extract serum has anti-aging and brightening effects of skin.

C. Theek, H. Tronnier, U. Heinrich, N. Braun, **Surface Evaluation of Living Skin (SELS) parameter correlation analysis using data taken from astronauts working under extreme conditions of microgravity**, Skin Research & Technology, Volume 26, Issue 1, January 2020, p. 105-111

Background: In space, due to fluid shift a 45% decrease in the skin topography parameter volume (mm3) was seen using the VisioScan® camera. Simultaneously, the parameters roughness, scaling and wrinkles changed dramatically as well. Thus, the present study has the objective to understand the relationship between the SELS parameters under extreme conditions and their application by addressing scientific-dermatological questions. Material and Methods: SELS measurements were performed on the volar forearms of six astronauts. The Pearson correlation coefficient was used to determine the association between the variables. Results: A significant correlation was found between the skin topography parameter volume and the skin parameters roughness, scaling and wrinkles. A closer look at each astronaut revealed a significant correlation for all astronauts for the parameters volume and roughness and for more than 65% of the astronauts for the parameters volume and scaling and volume and wrinkles. However, no correlation could be found between the parameters skin hydration and roughness and scaling, respectively. Conclusion: Only the parameter skin volume leads to meaningful data under microgravity. Physiological changes observed by fluid shift are comparable to the skin condition edema on earth. Based on the obtained data, we can conclude that the formulas for the SELS parameters roughness, scaling and wrinkles for this special skin condition need to be reviewed.

N. Braun, S. Binder, H. Grosch, C. Theek, J. Ulker, H. Tronnier, U. Heinrich, **Current Data on Effects of Long-Term Missions on the International Space Station on Skin Physiological Parameters**, Skin Pharmacol Physiol 2019; 32: p. 43-51

Background: Skin reaction to spaceflight has not really been studied yet, although the skin has a very important barrier function to protect the body and can contribute to a more general understanding of physiology. It is proposed here to make a more thorough investigation of the skin during longterm spaceflight, using noninvasive techniques. Aims: The aim of the present Skin-B study is to investigate the kinetics and range of possible skin modifications during long-duration spaceflights and their recovery. Methods: In order to investigate the effect on skin physiological parameters during spaceflight, measurements were carried out on 6 astronauts with respect to skin hydration, transepidermal water loss/n barrier function, and surface evaluation of the living skin in orbit. Additional measured parameters on the ground were skin elasticity, skin density and thickness, as well as microcirculation. Results: Data from the Skin-B subjects (n = 6) contradict the results obtained in the previous pilot study SkinCare (n = 1 subject).In the present study, no deterioration of the skin was found but rather an improvement in skin hydra tion and skin barrier function, and no changes or improvement in the appearance of the skin surface. Furthermore, the skin density and skin thickness as well as skin elasticity values were unchanged from pre-flight values. Conclusion: In conclusion, we found that spaceflight under present conditions has no negative impact on skin physiological parameters.

M.O. de Melo, P.M.B.G. Maia Campos, **Application of biophysical and skin imaging techniques to evaluate the film-forming effect of cosmetic formulations,** Int J Cosmet Sci. 2019 Dec;41(6): p. 579-584

Objective: Products with film-forming effect, or 'second skin', which guarantees an immediate protective effect after application, is a highlight, especially when composed of natural ingredients. Thus, the objective of this study was to evaluate the immediate film-forming effect on skin of a gel and emulsion formulations added with Kappaphycus alvarezii and Caesalpinia spinosa extracts through biophysical and skin imaging techniques, especially with the Reflectance Confocal Microscopy (RCM). Methods: The measurements were done in the forearm region before (baseline) and 1 h after of application of the developed formulation and its control. The parameters related to the stratum corneum water content, transepidermal water loss (TEWL), cutaneous microrelief and morphological and structural characteristics of the epidermis were analysed through the following biophysical and skin imaging techniques: Corneometer® CM 825, Tewameter® TM 300, Visioscan® VC98 and Vivascope® 1500, respectively. A sensorial analysis was also performed to study how the formulations were perceived on

the skin. Results: The obtained results showed that the active ingredient under study allows the film formation on the skin surface, leading to a reduction of TEWL and skin desquamation. The obtained images from RCM showed a reduction of furrows on the skin surface and a film formation after a single application of the formulations. However, these effects were more pronounced in the emulsion formulation, which suggests a synergistic effect of the active ingredient under study with the emollients of formulation composition. This result was also observed in the sensorial analysis, as both formulations added with the active substance were well evaluated. Conclusion: The presence of Kappaphycus alvarezii and Caesalpinia spinosa extracts in the studied cosmetic formulations, enabled a film formation on a skin surface, bringing benefits as a reduction of transepidermal water loss and skin desquamation, as well as a furrows reduction and an improvement of stratum corneum after 1h of application. Finally, the skin imaging techniques can be suggested as an excellent tool to evaluate a film-forming effect of cosmetic formulations.

F. Carlomagno, **Effectiveness of a Biotechnological Active Ingredient for Cosmetics Targeting Skin Microbiota Protection,** presentation at the 25th IFSCC Conference Milan, October 2019

The skin is the largest organ of the human body in surface, mainly serving as a physical barrier which protects the body from external aggression. An adult's skin hosts an average population of 1,000 billion microorganisms among fungi, viruses and bacteria. This fauna lives and moves on the skin surface as well as in the superficial layers of the epidermis to down to the hair follicles and glands. Microorganisms form a complex ecosystem collectively referred to as skin microbiota. This tiny, but important micro-world is essential for the skin to main it healthy and to work as a perfect barrier. A distinctive combination of microorganisms all over our body is peculiar for all of us, although scientists point out that skin microbiome varies a lot during our lives. This variation is linked to age, changes of lifestyle and to the external stressors we are submitted to (4). Different body sites can also have completely different skin microbiota configurations, both inter- and intra-personally, linked to the peculiar characteristics of that precise micro-environment. For example, just focusing on the face, studies show that there are great differences between forehead and cheek skin microbiota, due to the existence of moist, dry and sebaceous skin sites (5). Despite continuous changes in its composition, when the body is healthy, skin microbiota seems to be an equilibrium between protective and pathogens microorganisms. These live together in a complex community and have a number of different symbiotic interactions. If we consider bacteria, the most important and frequent phyla living on human skin are Actinobacteria, Firmicutes, Proteobacteria and Bacteroidetes, without huge differences among ethnicities. Further, looking more deeply into specific taxonomic classification, as class or genus or species, we can find differences among peoples' microbiomes even by looking at subjects with very similar age, lifestyle, and from the same ethnicities. The general truth for everyone's healthy condition seems to be the homeostasis of skin microbiota with its singular peculiarities.

V.T. Ferreira, P.M.B.G. Maia Campos, **Design and development of sunscreen formulations: correlation of physicalmechanical properties and skin biophysical measurements**, presentation at the 25th IFSCC Conference Milan, October 2019

Although UVA radiation accounts for only 9.5% of the solar radiation, it can lead to impairment of dermis and epidermis, even in the case of non-extreme exposures. Long UVA rays are the most significant part of the UVA spectrum as it penetrates the skin most deeply and play a decisive role in many aspects as photoaging, DNA damaging through the production of free radicals, immune system responses and various photodermatoses. Avobenzone is a consolidated UVA filter, yet its low photo stability is related to undesirable photochemical reactions which may compromise physical and chemical properties of formulations, mostly when associated with inorganic UV filters, which may further increase research and development challenges. Considerable effort is necessary developing photoprotective products with satisfactory UVB/UVA protection ratio, that are visually and sensorially pleasing and match safety and efficacy by forming a stable and homogeneous film over skin surface, both avoiding adverse effects and ensuring the photoprotective activity. Herein, definition of the appropriate vehicle is fundamental where emulsifying agents not only influence efficacy of fatty components but also model surface tension and the cutaneous film formation, compatibility, physical-mechanical properties and distribution on the skin, greatly influencing sunscreens efficacy. In this context, this study aims to systematic develop formulations of satisfactory UVB/UVA protection ratio, with ability to form a stable and homogeneous film on the skin surface, and to evaluate the effect of waxes concentration in the formulations over the rheological behaviour as well their clinical effects by skin biophysical techniques.

*A.M. Motta***, A new natural and biomimetic detergent concept,** PERSONAL CARE NORTH AMERICA, October 2019, p. 27-30

It is widely recognized that a toned and well moisturized skin can be maintained only if the superficial layers of the epidermis are able to fully accomplish their barrier function, protecting the

deepest and delicate areas of the derma from sensitizing agents and controlling permeability and transpiration of the physiological water present in the intercellular spaces. The skin barrier function is continuously exposed to aggressions. The daily use of soaps and potentially aggressive detergents can alter the hydrolipidic skin film and skin barrier integrity, reducing its impermeabilizing action and favoring skin dehydration. Trans Epidermal Water Loss (TEWL) constitutes one of the main indicator to evaluate skin barrier integrity. The ideal detergent must be able to effectively remove dirt, greasiness and pollutants, meanwhile respecting the lipidic and protein fractions of the horny layer and the superficial hydrolipidic film.

F. Carlomagno, S. Zanzottera, **Skin microbiota: the new era of personal care ingredients,** PERSONAL CARE ASIA PACIFIC, September 2019

Skin is a complex environment where billions of microorganisms live providing a unique environment for each host, collectively referred to as the skin micriobiota. Skin microbiota is, therefore, the result of an equilibrium between protective and pathogens species of those microorganisms. However, this balance can be easily disrupted by stresses. An alteration of skin microbiota may lead to dysbiosis, which has been associated with skin disorders. The present paper aims to demonstrate the efficacy of a specific selected bacterial strain from cutting-edge biofermentation technology able to maintain skin homeostasis and consequent prevention of skin disorders.

*D. Khazaka, C. Uhl***, In-house tests complement CRO final product testing,** PERSONAL CARE EUROPE. September 2019

Before a cosmetic product is offered on the market, final tests are obligatory for the manufacturer to prove its safety and to substantiate the various claims on the products, e.g. reduces wrinkles up to 20%, increases skin hydration for 24 h. There are no limits to modern claims. All over the world, contract research organisations (CROs) varying from small laboratories to vast multinational institutes offer their services to the cosmetic manufacturers to perform all kind of tests and compile the final necessary product documentation.

I. Meyer, M. Pesaro, D. Stuhlmann, L. Garbe, G. Schmaus, **Practical Probiotics: Live Microbial Skin Benefits without Limits**, Cosmetics & Toiletries, Vol. 134, No. 8, p. DM14-22

Driven by modem S lifestyle and the eclectic evolution of new technologies, consumers are aware *r* of the potential skin damage environmental stressors can induce. As such, consumers increasingly seek topical products that improve skins endogenous firstline defense mechanisms. In relation, the concept of probiotics to improve gut health is well-established in both the scientific literature and consumer perception.1 In fact, 79% of consumers already believe the use of probiotics is beneficial for skin health and 63% of consumers think probiotics fit well into the beauty care category. Regardless, the benefits of microorganisms applied topically are not widely described.

J. Crowther, **The Big Reveal: UV Imaging Uncovers Sun Protection, Skin Dryness and Microbiome,** Cosmetics & Toiletries, Vol. 134, No. 8, p. 33-45

Our world typically appears in an abundance of colors from which we derive a vast amount of information. Despite this, our eyes are still only sensitive to a relatively narrow range of wavelengths—from approximately 390-720 nm. As such, while standard visible light imaging of the skin provides a good amount of information about skin condition, such as redness, erythema, overall appearance and skin tone, our eyes are not sensitive to the broader spectral ranges as low as 300 nm and as high as 3,000 nm. At shorter wavelengths is UV light, while longer wavelengths signify infrared (IR) radiation. These both interact with skin differently than visible light and can provide information that is not perceivable by normal visible light imaging.

C. Uhl, **Claim support for Microbiome Skin Care**, happi, July 2019

Since the dawn of mankind, humans have struggled to understand why they were struck by disease. Many theories have been established, most of them discarded now. In the first century BC, Roman medical author Cornelius Aulus Celsus mentioned the term"virus,"the Latin term for"poison."He used it to describe the phlegm that transmits rabies. Until the 17th Century, this term was used for all infectious diseases.

F. Carlomagno, S. Zanzottera, **Empowering the Micro-World of the Skin Microbiota: Appraoches to Maintain Nature's Ideal Homeostasis for Betterment of Cosmetic Products,** Euro Cosmetics, 6-2019, p. 18-22

Skin is a complex environment where billions of microorganisms live providing a unique environment for each host, collectively referred to as the skin micriobiota. Skin microbiota is, therefore, the result of an equilibrium between protective and pathogens species of those microorganisms.

However, this balance can be disrupted by stressors. The alteration of skin microbiota, known as dysbiosis, has been associated with skin disorders. This article is designed to demonstrate different approaches to the prevention of skin microbiota dysbiosis.

M.T. Truchuelo, M. Vitale, **A cosmetic treatment based on the secretion of Cryptomphalus aspersa 40% improves the clinical results after the use of nonablative fractional laser in skin aging**, J Cosmet Dermatol., 2019 Jun

Introduction: The main purpose of this study was to evaluate whether the application of a cosmetic treatment based on the secretion of *Cryptomphalus aspersa* (SCA) enhances the clinical results, tolerance, and skin regeneration after nonablative laser treatment in patients with moderate photoaging. Methods: Randomized, double-blind, split-face trial in 20 patients with moderate aging. Two sessions with fractional nonablative laser were performed, and the cosmetic treatments (SCA 40% on one hemiface and vehicle on the other) were applied immediately after laser session and daily during the study (28 days). Tewameter, Cutometer, Visioscan, VisioFace, photography, dermoscopy, and clinical evaluation were assessed. Side effects were also evaluated. Results: A significant decrease in the density of microcolumns (25%, 71%, 32%, and 61% less density, respectively, at T3 $P = 0.008$, T7 $P = 0.002$, T22 $P < 0.001$, and T24 $P < 0.001$) was observed on the side treated with SCA compared to the vehicle-treated side. Cutaneous elasticity, area of wrinkles, and hydration on the SCA-treated side also showed a significant improvement compared to the vehicle-treated side. Both the researcher and patients observed a significant improvement on the side treated with SCA compared to the vehicle-treated side. Significantly fewer side effects (erythema, burning, and dryness) were also detected. Conclusion: A cosmetic product with SCA 40% applied immediately after laser and for a period thereafter enhances and accelerates repair of damage produced by the laser and significantly reduces related adverse effects. In addition, SCA treatment could improve clinical results. In conclusion, we suggest that SCA enhances the effectiveness of laser in the treatment of cutaneous aging.

I. Meyer, D. Stuhlmann, L. Garbe, G. Schmaus, **How to mimic probiotics circumventing hurdles of handling alive microorganisms?** Euro Cosmetics, 6-2019, p. 24-26

The concept of probiotics to improve gut health is well established in scientific literature and consumer's perception 1. However, benefits of microorganisms applied topically are much less described. According to Symrise's Consumer Market Insight research already 79% of consumers believe that the use of probiotics is beneficial for the skin health 2. 63% of consumers think that probiotics fits well to beauty care products.

H. Dobrev, **Value of non-invasive bioengineering investigations of the human skin in vivo,** Dissertation in Dermatology and Venerology at the University of Plodiv, 2019, Bulgaria

The skin is the largest organ of the human body. It has a surface area of about 2 m^2 and a weight of about 16% of the body weight. Skin is a great visual field. Most of the changes that occur in it are visible and accessible to dermatologists. For centuries, the dermatologist's eyes and fingers have been his main diagnostic tools. Old physicians are known to describe the rash elements with great love, diligence and methodicality, especially with regard to morphological details. Today, this descriptive phase in the evolution of dermatology has lost its dominance. According to Prof. J. Serup, "*The dermatologist's eyes and hands are already becoming archaic diagnostic tools.*" With the introduction of modern skin bioengineering methods, there has been a transition from the "visible" to the "invisible". From the "visual" field, dermatology is increasingly becoming an "instrumental" field. The advantage of the new research methods created is that they enable the detection of invisible changes in skin functions, as well as their objective and quantitative measurement. This dissertation is devoted to the new methods of skin functional diagnostics. It illustrates the practical application of some of them in the field of dermatology and cosmetic science based on the experience of the sector of "Functional diagnostics of the skin" at the Department of Dermatology and Venereology, University Hospital "St. George", Plovdiv, Bulgaria. The literature review part provides an overview of current bioengineering methods for functional skin diagnostics. The apparatus used to carry out the present work is described in detail. Additionally, two little-known aspects of skin bioengineering research are presented - protocol and research ethics. Data on Bulgarian experience in the field of skin functional diagnostics have also been reported.

L.-Y. Lin, S.-C. Chiou, S.-H. Wang, C.-C. Chi, **Effects of Facial Threading on Female Skin Texture: A Prospective Trial with Physiological Parameters and Sense Assessment**, Evidence-Based Complementary and Alternative Medicine, Volume 2019

Background: Facial threading is a common tradition in Taiwan, Southeast Asia (called "Bande Abru"), Middle East (called "Khite"), and Egypt (called "Fatlah"). In addition to the ability to remove facial vellus hairs, facial threading can make the skin fairer and shinier. However, there has been a lack of

hard evidence regarding the effects of facial threading on the skin. Objective: To examine the effects of facial threading on skin physiology as well as visual and touch senses by using scientific instruments. Methods. A total of 80 participants were allocated to receive facial threading, application of powder only, exfoliation, and shaving. Prior to and following the assigned treatment, a noninvasive skin condition detection device was used to measure skin coarseness, hydration, melanin, and erythema index. Sense assessment and image analysis were also performed. Results: This study showed that facial threading was found to improve the facial skin roughness indices with significant decreases by 30.4%, 35.9%, and 16.7%, respectively, for the participants' forehead, cheek, and mouth corner skin. No significant adverse changes in moisture levels and skin pigment indices were detected. In addition, there was improvement in subjects' touch sense of their skin and feelings about skin color. Conclusions. Traditional facial threading can remove facial vellus hairs and lower skin roughness levels, thereby improving the skin texture. However, pricking sensation appeared during the facial threading process, which might cause concerns about irritation.

P. Suchonwanit, K. Triyangkulsri, M. Ploydaeng, K. Leerunyakul, **Assessing Biophysical and Physiological Profiles of Scalp Seborrheic Dermatitis in the Thai Population**, BioMed Research International, Volume 2019

Background: Scalp seborrheic dermatitis (SD) is a common and chronic inflammatory skin disease which tends to recur over time. By measuring biophysical properties of the stratum corneum, many studies report abnormal biophysical profiles and their association in various dermatologic diseases. The aim of the study is to analyze the biophysical properties and skin barrier defects of scalp SD compared to healthy controls. Materials and Methods: Tis study is a cross-sectional study assessing the correlation of various biophysical and physiological profiles in scalp SD. Forty-two Tai participants with scalp SD were enrolled in the study and 40 healthy participants were also enrolled as the control group. Both SD and control group were subjected to a one-time biophysical and physiological properties' measurement of transepidermal water loss (TEWL), stratum corneum hydration (SCH), skin surface pH, skin surface lipid, and skin roughness. Results: The mean TEWL of lesional skin of SD cases were significantly higher than those of control group ($P<0.05$). Relating to high mean TEWL, the mean SCH was found to be significantly lower in SD cases ($P<0.05$). Skin surface lipid was also found to be significantly higher in SD group ($P<0.05$). However, there were no differences in skin surface pH ($P=0.104$) and roughness ($P=0.308$) between the two groups. Pairwise comparison of each subgroup found that moderate and severe SD demonstrated significantly higher mean skin surface lipid than that of control group ($P<0.05$). Conclusion: Scalp SD may be associated with seborrhea in Tai population. Monitoring of SCH, TEWL, and skin surface lipid could be helpful in assessing severity and evaluating the treatment outcome in patients with scalp SD.

M.M.F. Shirata, P.M.B.G.M Campos, **Eficácia clínica de formulações cométicas contendo tetraisopalmitato de ascorbila e peptídeos de arroz na pele jovem com fotoenvelhecimento,** Congresso Colamiqc, São Paulo, May 21-23, 2019

Considerando que a intensidade do fotoenvelhecimento está diretamente relacionada ao grau de exposição a radiação solar, a pele de pessoas ainda jovens pode apresentar alterações decorrentes do mesmo, como hiperpigmentações e redução da elasticidade da pele. Nesse contexto, o desenvolvimento de formulações fotoprotetoras e de formulações cosméticas contendo substâncias ativas com propriedades antioxidantes, hidratantes e com potencial para atuar na derme é fundamental para a prevenção e atenuação de tais alterações cutâneas. Para a comprovação dos beneficios dessas formulações na pele fotoenvelhecida, a avaliação da eficácia clinica por técnicas de biofisica e análise de imagem permite a análise objetiva de várias caracteristicas da pele além da correlação dos resultados obtidos por meio de diterentes parâmetros, o que possibilita a obtenção de resultados mais conclusivos.

M. Kanlayavattanakul, N. Lourith, P. Chaikul, **Youth in Yields - Jasmine Rice Extract Whitens, Protects and Smooths Skin,** Cosmetics & Toiletries, Vol. 134, No, 5, May 2019, p. 26-33

The demand from consumers for natural products including cosmetics continues to inrease. Eco-friendly, organic and sustainable options are in the mainstream of this trend. Moreover, active phenolics derived from natural sources are playing an important role in the safety and efficacy of cosmetics. In relation, rice, or Oryza sativacv. Indica (Oryzeae), is well-known as the major staple in Asian cuisine. It has long been used in traditional Asian medicines as well as Italian remedies, including for aesthetic benefits for skin.

A. Charpentier, **Wrinkles, peaks and valleys – Anti wrinkles objectivation**, Special International Issue of Industries Cosmétique, April 2019

Brands communication is always on the lookout for new techniques for highlighting anti-wrinkle

results. As soft as it may be, skin is not a flat surface, it has a relief, which is organized in relatively uniform way into a system a wide, deep primary furrows and transverse secondary more superficial fine lines.

C. Uhl, **Efficacy testing of microbiomeskin care**, PERSONAL CARE EUROPE, April 2019, p. 41-45, PERSONAL CARE ASIA, May 2019, p. 51-55, косметолог 2 [94] 2019 (in Ukranian), Cosmetics & Toiletries Brasil, Vol. 31, Mai-June, 2019, p. 22-27 (in Portuguese)

For years now, we have accepted the idea that we can nourish our intestinal tract with dedicated bacterial ingredients from food supplements and thereby improve our general health. Books written on this subject have become bestsellers. But why should we focus only on our intestinal tract? There are so many different microbial communities that can be found on and inside our body. Especially the colonization of the skin being our largest organ, tangible to the hands, visible to the eye, and in constant contact with the outside environment has moved to the front of cosmetic research. The idea of being a complex ecosystem is adding to the existing trend of personalised cosmetics, and will confirm the customer in their feeling of uniqueness.

В течение многих лет мы принимали идею о том, что можем обогащать наш кишечный тракт специальными бактериальными ингредиентами из пищевых добавок и тем самым улучшать общее состояние здоровья. Книги, написанные на эту тему, стали бестселлерами. Но можем ли мы сосредотачиваться только на нашем кишечном тракте?

O microbioma cutâneo é a população de microrganismos que habita a pele. Neste trabalho, o autor apresenta uma breve descrição da importância da atividade do microbioma e dos meios analíticos instrumentais para medir a eficácia de produtos cosméticos de interesse do microbioma cutâneo.

A. Charpentier, **Soothing effect dedicated to sensitive skin,** PERSONAL CARE EUROPE, April 2019, p. 76-77

The skin plays multiple roles of protection, perception, immunity, regulation of blood and lymphatic reservoir for the whole body. Thanks to several mechanical, chemical or biological (sebum, biofilm...) reactions, the skin ensures its integrity according to the various endogenous or exogenous environmental variations. Today, the increase in the fragile phenomena of skin is a major issue in the development of dermo-cosmetics.

M.L. Vazquez-Gonzalez, G. Rodriguez, L. Rubio, J. Nestor, E. Fernandez, L. Barbosa-Barros, O. López, **Intelligent ageing repair with skin superfoods**, PERSONAL CARE EUROPE, April 2019, p. 157-162

The many environmental factors related to modern lifestyle generate a skin imbalance that leads to premature ageing. In this study, we evaluate the capacity of a new skin delivery system based on bicosomes (named bicosome-xanthin) to provide intense detox and revert the signs of ageing. This system was specially designed to incorporate, stabilise and deliver microalgae extract into deep skin layers. Bicosomexanthin proved to be effective in protecting the skin against pollution particles and to prevent 90% of the damage caused by blue light. This extraordinary ingredient also proved *in vivo* to boost the skin's antioxidant capacity and barrier function, to accelerate epidermal cell renewal, improve skin brightness and firmness, and visibly reduce wrinkles.

P.M.B.G. Maia Campos, M.O. Melo, D.G. Mercurio, **Use of Advanced Imaging Techniques for the Characterization of Oily Skin**, Frontiers in Physiology, March 2019, Volume 10, Article 254

Excessively oily skin leads to clinical signs that cause discomfort to patients, such as excessive shine, enlarged pores, acne, and an imbalance of the hydrolipidic layer. In this context, a constant demand for the research and development of products that prevent these features, has been noted in the field of cosmetics and dermatology. Thus, the objective of this study is to evaluate the cutaneous characteristics of oily skin due an excessive production of sebum through biophysical and skin imaging techniques. 19 participants with different skin types were selected and the following parameters were evaluated: pore count, determination of the number of sebaceous glands and amount of sebum in infundibulum, determination of cutaneous microrelief, count of comedones, evaluation of epidermis thickness, characterization of the cellular, and comedone size and its characteristics. These evaluations were done through biophysical and skin imaging techniques. The obtained results showed that different regions of the face presented different characteristics related to oiliness, quantity, and the appearance of pores and comedones. The malar region had a lower epidermis thickness and a larger number of large pores. Moreover, in this region excessive sebum production, which can be related to pores, not comedones, was noted. The nose region presented higher sebum content in the infundibulum and lower active sebaceous glands, showing a higher activity of sebaceous production in this region. The chin region presented a positive correlation between the sebum content, roughness parameter and the

number of pores and comedones. As different skin properties are related and influence the appearance of undesirable clinical signs, we identified the need for a multifactorial approach for the effective treatment of oily skin. The rational development of multifunctional cosmetic products that promote the control of oily skin, that regulate the keratinization process, improve the microrelief and leads to a better epidermis and dermis structure, will not only improve oily skin conditions but will also allow for the reduction or disappearance of clinical signs that result from excessive oiliness, all of which causes concern and results in a relentless search for cosmetic and dermatological products that address the unaesthetic nature of these conditions.

J.I. Yablonski, D.R. Winne, **Beginner's Guide to Natural Organic – Product Safety, Claims Support and Preservation**, Cosmetics & Toiletries, Volume 134, No. 2, February 2019, p. 18-31

Browsing a cosmetic counter, searching online or tuning into home shopping networks, one cannot help but notice the ever-increasing number of cosmetic and personal care products purporting to be *green*, *natural* or *organic* that are obviously targeting the rapidly growing environmentally conscious consumer and spa markets. Entire sections of exhibitions and trade shows have been dedicated.

N. Theppornpitak, M. Udompataikul, T. Chalermchai, S. Ophaswongse, P. Limtanyakul, **Nitrogen plasma skin regeneration for the treatment of mild-to-moderate periorbital wrinkles: A prospective, randomized, controlled evaluator-blinded trial**, J Cosmet Dermatol. 2019 Feb;18(1): p. 163-168

Background: Nitrogen plasma skin regeneration is a novel device that produces heat to the skin, resulting in the production of new collagen. Because of lower energy with safer skin damage and lesser adverse effects who have high Fitzpatrick's skin type especially Thais, this technique is very interesting for clinical application for skin esthetic treatment. However, this treatment has yet been empirically studied as the treatment for mild-to-moderate periorbital wrinkles. Objectives: This study aimed to evaluate clinical efficacy of nitrogen plasma for the treatment of mild-to-moderate periorbital wrinkles. Methods: Eighteen volunteers were enrolled. Each volunteer was randomized to receive nitrogen plasma treatment on one side of periorbital wrinkles with three sessions at a three-week interval and compared with contralateral side without treatment. Photographic examination, skin wrinkle (SEw) score, melanin index, patients' satisfaction score, side effect, and pain score were reported. Results: At over fourteen weeks, all volunteers completed the study. Treatment with nitrogen plasma group had significantly better improvement for periorbital wrinkles score by Lemperle scale, skin wrinkle (SEw) score by Visioscan® VC 98, and the melanin index by Mexameter® than the control groups ($P = 0.004$, $P < 0.001$, $P < 0.001$, respectively). This study also showed significantly greater satisfaction score to favor the nitrogen plasma treatment group than the control group ($P < 0.001$). The short-term adverse effects included erythema, scaling, temporary hyperpigmentation, pruritus, and dryness. Conclusion: Nitrogen plasma skin regeneration is effective and safe for the treatment of mild-to-moderate periorbital wrinkles and darkening.

M. Augustin, D. Wilsmann-Theis, A. Körber, M. Kerscher, G. Itschert, M. Dippel, P. Staubach, **Positionspapier: Diagnostik und Therapie der Xerosis cutis / Diagnosis and treatment of xerosis cutis – a position paper**, Positionspapier / Position Paper, JDD 2018

Hintergrund und Rationale: Die Xerosis cutis (Synonym: Xerodermie, trockene Haut, hydrolipidarme Haut) ist mit > 10 Millionen Betroffenen nicht nur eine der häufigsten dermatologischen Diagnosen in Deutschland, sondern auch Leitsymptom vieler dermatologischer, internistischer und neurologischer Erkrankungen. Trotz der medizinischen Relevanz der topischen Basistherapie für die Xerosis cutis gibt es in Deutschland für ihr Management bisher keinen wissenschaftlich belegten Diagnostikund Therapiealgorithmus. Ziel: Dieses Positionspapier vermittelt Ärzten fachübergreifend einen an individuellen Symptomen orientierten, praxisnahen Leitfaden für die Prävention, Diagnostik und Therapie der Xerosis cutis. Methodik: Im Rahmen eines strukturierten Entscheidungsprozesses wurden von erfahrenen dermatologischen Experten zunächst praxisrelevante Fragestellungen definiert und systematisch aufgearbeitet. Auf der Basis von Evidenz und Expertenkonsens wurden daraus diagnostische und therapeutische Algorithmen mit Empfehlungen für die Praxis entwickelt und konsentiert. Ergebnis: Die Xerosis cutis kann grundsätzlich klinisch diagnostiziert werden. Auslöser und/oder Grunderkrankungen müssen abgeklärt und vermieden bzw. spezifisch behandelt werden. Bei der Wahl der geeigneten Basistherapie ist es wichtig, dass nicht nur die Hauthydratation verbessert, sondern auch die Barrierefunktion der Haut wiederhergestellt wird. Sie sollte daher aus einer Kombination von rückfeuchtenden und rückfettenden Inhaltsstoffen bestehen. Je trockener die Haut, desto lipidhaltiger sollte die Hautpflege sein (bevorzugt Wasser-in-Öl-Formulierungen). Die individuelle Auswahl der Inhaltsstoffe orientiert sich nach kausaler Prüfung an den Symptomen Schuppung (v.a. Urea), Fissuren/Rhagaden (v.a. Urea oder Dexpanthenol), Rötung (v.a. Licochalcone A) und Pruritus

(v.a. Polidocanol), sowie an der Lokalisation und dem Alter der Patienten. Inhaltsstoffe bzw. Inhaltsstoffkombinationen mit guter Studienevidenz sind zu bevorzugen. Die mit Abstand beste Evidenz bei der Xerosis cutis weist Urea auf, dessen Wirksamkeit in Kombination mit anderen natürlichen Feuchthalte-Komponenten und Ceramiden noch gesteigert werden kann. Zur Arbeitserleichterung am Patienten und zum besseren Erlernen wurde das Xerosimeter entwickelt, das die praktische Umsetzung der Diagnostik und Verlaufskontrolle, eine Klassifikation der Inhaltsstoffe und einen strukturierten Therapiealgorithmus enthält. Schlussfolgerung: Das hier vorgeschlagene strukturierte symptom- und evidenzorientierte Vorgehen mit Diagnostik- und Behandlungspfad soll für die Prävention und frühzeitige Behandlung der Xerosis cutis sensibilisieren. Damit können die Lebensqualität verbessert und Folgeerkrankungen verhindert werden.

Background and rationale: Xerosis cutis (also referred to as xeroderma, dry skin, asteatosis) affects more than 10 million individuals in Germany. It is among the most common dermatological diagnoses and a cardinal symptom of many dermatological, internal and neurological diseases. Even though it has been established that basic skin care plays a significant role in the management of patients with xerosis cutis, there are as yet no evidence-based algorithms for diagnosis and treatment. Objective: The present position paper provides physicians across all specialties with a practical, symptom-based approach to the prevention, diagnosis and treatment of xerosis cutis. Methods: Within a structured decision-making process, a panel of experienced dermatologists first defined questions relevant to everyday clinical practice, which were then addressed by a systematic review of the literature. Based on the evidence available as well as expert consensus, diagnostic and treatment algorithms were subsequently developed and agreed upon. Results: Xerosis cutis is generally diagnosed on clinical grounds. Possible trigger factors must be avoided, and comorbidities should be adequately and specifically treated. Suitable skin care products should be chosen with a view to improving skin hydration and restoring its barrier function. They should therefore contain both rehydrating and lipid-replenishing components. The “drier” the skin appears, the greater the lipid content should be (preferably using water-in-oil formulations). The choice of ingredients is based on a patient’s individual symptoms, such as scaling (e.g., urea), fissures/rhagades (e.g., urea or dexpanthenol), erythema (e.g., licochalcone A) and pruritus (e.g., polidocanol). Other factors to be considered include the site affected and patient age. Ingredients or rather combinations thereof for which there is good clinical evidence should be preferentially used. The best evidence by far is available for urea, whose efficacy in the treatment of xerosis is further enhanced by combining it with other natural moisturizing components and ceramides. The “xerosimeter” is a tool developed in an effort to facilitate patient management and for training purposes. It not only includes practical tools for diagnosis and follow-up but also a classification of ingredients and a structured treatment algorithm. Conclusion: The structured symptom- and evidence-based approach proposed herein contains a road map for diagnosis and treatment of xerosis cutis. It aims to raise awareness in terms of prevention and early treatment of this condition and may thus improve quality of life and prevent potential sequelae.

D. Tulina, A. Beguin, H. Pong, M. Del Mar Cabarbas, D. Klokol, M.K.S. Cha, M.B.F. Wong, **Evaluation of the in vivo cosmetic efficacy of the MF3 blue cell serum gel. One- and two-month test results**, J Cosmet Dermatol. 2018;17:193–202

Introduction: Skin is changing over time showing signs of aging: dryness, increase in visual and tactile roughness, decrease in collagen content and stiffness, and eventually formation of deep and surface wrinkles, and fine lines. Methods: Eight-week open experimental study was conducted to test efficacy of MF3Blue Cell Serum Gel. Main criteria to determine product efficacy by following skin biophysical techniques were as follows: skin moisturization, firmness, epidermal and dermal density, skin surface properties and sebum level, reduction in fine lines and wrinkles. Secondary criteria were as follows: participant’s opinion during study and product tolerance evaluation. Days 29 and 57 assessments included visual evaluation, skin biophysical techniques, and compliance check. The self-assessment questionnaires completed. Results: After week 8, obtained results showed very good hydration effect of test product, despite the fact being serum gel. Moisturizing increased continuously during study period. Important increases on skin firmness were observed which are in line with typicalanti-aging claims. Dermal density steady improvement noted especially after 4th week of study, and effect on deep skin layers was due to increase in collagen content and stiffness. Sebum regulation process was evidenced. Further significant roughness reduction in skin surface showed decrease or disappearance of fine lines and wrinkles. Products were well tolerated with no adverse events. Most of participants noticed visible improvement and increase in facial radiance, skin smoothness, and overall skin improvement. Conclusion: Twice daily application of MF3 Blue Cell Serum Gel led to significant improvement in skin hydration, firmness, dermal density, sebum regulation, roughness reduction, decrease or disappearance of fine lines and wrinkles.

C. Uhl, G. Lanzendörfer-Yu, **How effective is your anti-acne product?,** SPC December 2018

For assessing, treatment analysis and documentation, acne has to be either graded or lesion scoring has to be done. Both methods strongly depend on the skills of the examiner and bear high inter-individual deviations. Biophysical measurements using sebumetry, porphyrin fluorescence, and standardized photographic images of the face can overcome these disadvantages.Additionally, they can be used for comprehensive evaluation of the treatment protocol.

V. Mazzarello, M. Ferrari, P. Ena, **Werner syndrome: quantitative assessment of skin aging**, Clinical, Cosmetic and Investigational Dermatology 2018: 11, p. 397–402

Background: Werner syndrome (WS) is a rare autosomal recessive disorder characterized by premature aging in adults. Although not suffcient to diagnose WS, persistent short stature and alteration of the dentition are among the few early signs that appear at puberty and can lead to a suspected diagnosis. Objective: The study aimed at quantifying the signs of WS skin aging through biophysical parameters to fnd new parameters to be applied together with clinical observations in order to diagnose the disease early. Patients and methods: The skin disorders induced by the disease were studied using noninvasive techniques: Tewameter TM300, Corneometer CM825, Skin-pH-Meter PH900, Mexameter MX16, Visioscan VC98, and Cutometer MPA580. Twenty-four patients divided into young group, WS group, and elderly group were recruited for the study. Results: The WS skin is quite similar to aged skin, with some differences concerning the barrier function and skin elasticity; for instance, a WS patient of 30 years of age has the same skin roughness of a 50/60 years old subject with a more severe skin condition leading to higher dryness, high transepidermal water loss, and less distensibility correlating with skin indurations. Conclusion: In patients with WS, the biophysical parameters can quantify the damage induced on the skin by the disease. In order to stage the degree of the disease, biophysical parameters could be used in the future as a diagnostic procedure in the initial stages of the disease as they may reveal lesions not yet clinically perceptible or in advanced stages.

O. Qin, Y. Tan, W. Jiang, Q. Fu, Y. Xu, C. Jiang, **Non-invasive assessment of changes and repair dynamics post irritant intervention in skin barrier**, Int J Clin Exp Med 2018;11(5): p. 4490-4499

This study aimed to investigate the changes of skin conditions after interventions of sodium lauryl sulfate (SLS) and tape stripping (TAPE), and explore the correlation of parameters between different non-invasive tools. Twenty-three healthy volunteers were enrolled in this randomized, controlled study, and 4 evaluating skin surfaces on their left forearms were randomly divided into SLS, TAPE, flter, and control groups. Skin surfaces in SLS and TAPE groups were intervened by SLS and tape stripping respectively. Changes of skin conditions were recorded by noninvasive devices. SLS and TAPE both worsened the skin conditions according to the elevated ICD scores. Compared with control, the TAPE group showed increased transepidermal water loss (TEWL) values. Thicker epidermal thickness was observed in the TAPE group, while thinner cuticle thickness by RCM finally recovered to normal level. Roughness by OCT in TAPE declined first and then recovered, whereas reduced roughness was observed in VC98 detection. Blood flow volume detected by OCT was unchanged in TAPE, while flux by FLPI was raised. Compared to the filter group, SLS exhibited raised TEWL and decreased thickness data, while reduced epidermal thickness by OCT ultimately elevated. Roughness declined, while roughness by OCT finally recovered. Flux by FLPI decreased, whereas blood flow volume by OCT presented an instant reduction followed by a recovery. This study displays the changes of skin conditions post irritation, and discloses a positive correlation of flux parameters between OCT and FLPI as well as a positive correlation of moisture parameters between CM825 and VC98.

M.C. Kang, S. Yumnam, S.Y. Kim, **Oral Intake of Collagen Peptide Attenuates Ultraviolet B Irradiation-Induced Skin Dehydration In Vivo by Regulating Hyaluronic Acid Synthesis**, Int. J. Mol. Sci. 2018, 19, 3551

Collagen peptide (CP) has beneficial effects on functions of the skin, such as skin barrier function and skin elasticity, in vivo. However, there are few studies investigating the mechanism underlying the potential effects of CP in skin epidermal moisturization after ultraviolet B (UVB) irradiation. In this study, we examined whether orally-administered CP affects the loss of skin hydration induced by UVB irradiation in hairless mice. SKH-1 hairless mice were orally administered CP at two doses (500 and 1000 mg/kg) for nine weeks, and the dorsal skin was exposed to UVB. The potential effects of CP were evaluated by measuring the transepidermal water loss (TEWL), skin hydration, wrinkle formation, and hyaluronic acid expression in the dorsal mice skin. We found that oral administration of CP increased skin hydration and decreased wrinkle formation compared to the UVB-irradiated group. Treatment of CP increased the mRNA and protein expression of hyaluronic acid synthases (HAS-1 and -2) concomitant with an increased hyaluronic acid production in skin tissue. The expression of hyaluronidase (HYAL-1 and 2) mRNA was downregulated in the CP-treated group. In addition, the protein expression of skin-hydrating factors, filaggrin and involucrin, was upregulated via oral

administration of CP. In summary, these results show that oral administration of CP increases hyaluronic acid levels, which decreases during UVB photoaging. Therefore, we suggest that CP can be used as a nutricosmetic ingredient with potential effects on UVB-induced skin dehydration and moisture loss in addition to wrinkle formation.

M.O. deMelo, P.M.B.G. Maia Campos, **Characterization of oily mature skin by biophysical and skin imaging techniques,** Skin Research & Technology, 2018; 24: p. 386-395

Background: The skin is a complex biological system and may suffer change according to the environmental factors, as higher temperatures can increase sebum excretion, presenting oiliness and acne. These alterations can persist during the aging and provoke more changes in aged skin. In this study we evaluated the mature oily skin characteristics using biophysical and skin imaging techniques. Material and methods: Sixty healthy female subjects, aged between 39 and 55 years old were recruited and separated into 2 groups according to their skin type: normal/ dry and oily skin. The skin was evaluated in terms of stratum corneum water content, transepidermal water loss (TEWL) sebum content, dermis thickness and echogenicity, skin microrelief, and pores content. Results: The mature oily skin presented no significant differences when compared to the normal/dry skin on the stratum corneum water content and TEWL parameters. The sebum content was significantly higher on the oily skin group. The microrelief analysis showed an increase of skin roughness values in the oily skin and increase of scaliness in the normal/dry skin. The oily skin showed lower dermis echogenicity mainly in the frontal region and higher dermis thickness when compared to normal/ dry skin. Conclusion: The mature oily skin showed different characteristics from normal/dry skin in terms of sebum content, microrelief parameters, and dermis thickness. This way, the characterization of mature oily skin in an objective way is very important to development of dermocosmetic products for more effective treatments focused specially on this type of skin.

D. Martini, D. Angelino, C. Cortelazzi, I. Zavaroni, G. Bedogni, M. Musci, C. Pruneti, G.Passeri, M. Ventura, D. Galli, P. Mirandola, M. Vitale, A. Dei Cas, R.C. Bonadonna, S. Di Nuzzo, M.B. De Felici, D. Del Rio, **Claimed Effects, Outcome Variables and Methods of Measurement for Health Claims Proposed Under European Community Regulation 1924/2006 in the Framework of Maintenance of Skin Function**, Nutrients 2018, 10, 7

Evidence suggests a protective role for several nutrients and foods in the maintenance of skin function. Nevertheless, all the requests for authorization to use health claims under Article 13(5) in the framework of maintenance of skin function presented to the European Food Safety Authority (EFSA) have received a negative opinion. Reasons for such failures are mainly due to an insufficient substantiation of the claimed effects, including the choice of inappropriate outcome variables (OVs) and methods of measurement (MMs). The present paper reports the results of an investigation aimed at collecting, collating and critically analyzing the information with relation to claimed effects (CEs), OVs and MMs related to skin health compliance with Regulation 1924/2006. CEs, OVs and MMs were collected from both the EFSA Guidance document and from the authorization requests of health claims under Article 13(5). The critical analysis of OVs and MMs was based on a literature review, and was aimed at defining their appropriateness (alone or in combination with others) in the context of a specific CE. The results highlight the importance of an adequate choice of OVs and MMs for an effective substantiation of the claims.

N. Braun, S Binder, H Grosch, C Theek, J Ülker, H Tronnier, U. Heinrich, **Effect of microgravity on skin physiology: new findings,** IFSCC Congress, Munich, September 2018

The skin is the largest organ of the human body and has several functions, such as protection, thermal regulation, sensation and endocrine functions. Despite recorded skin problems in space and the fact that the skin is easily accessible and can be continuously examined by means of a large number of non-invasive test methods, investigations of the effects of space flight on skin are underrepresented so far. A first pilot study (SkinCare) was performed by Tronnier et al. on a single astronaut during a 6 month mission. Different skin compartments, namely the surface, epidermis and dermis were analyzed before, during and after the mission. Here, main skin physiological changes observed were a coarsening of the epidermis and a loss of skin elasticity confirmed by changes in the ultrasound picture on the skin. These changes appear to be reversible because after a year, the skin's condition returns to normal [1]. The aim of the present Skin B project was to validate these results on an increased number of astronauts with advanced devices and additional measurements. Therefore, measurements were carried out on 6 astronauts with respect to skin hydration, transepidermal water loss / barrier function and surface evaluation of the living skin in-orbit. Additional measured parameters on ground were skin elasticity, skin density and thickness as well as microcirculation. Thus, the Skin B experiment will complement the SkinCare experiment and aims to confirm the changes observed in the original experiment. However, the skin is not the only or primary focus of the project, but rather serves as a model for all organs covered

with epithelial and connective tissue. This study will help the astronauts to prepare for a long stay in space and to set up space travels, e.g. planned exploration of the moon and deeper space.

Q. Peijin, C. Jianjie, J. Lili, D. Gan, W. Yue, **Composition and diversity of microbial community of Chinese female facial skin from different age and its association with skin characteristics,** IFSCC Congress, Munich, September 2018

Skin is the largest organ of the human body. As the interface between the body and the external environment, skin is the first line to protect the human body against the pathogen invasion. Meanwhile human skin harbors a variety of commensals, including bacteria, fungi and viruses. Each area of human body hosts its unique microbial community. Many factors contribute to the structure and function of skin microbiome, for example the host, their age, genetic variation, hygiene, life style and it shifts according to the characteristics of the micro-environments. The adverse shifts might cause a dysbiosis state and it has been reported to be associated with skin disease, such as atopic dermatitis, acne and dandruff. Therefore, exploration of skin microbiome not only helps us understand the correlation between microorganisms and the skin physiological status, but also provide a new perspective to pathogenic factors and new therapeutic targets. In previous study, skin microbiota was demonstrated that varies from different body sites and individuals. However, the reports mainly focused on the Western people and limited study on Chinese skin microbiome. In preliminary work, researchers paid more attention on skin microbiome associated with skin disorders, especially in AD patients, while the relationship between descriptive skin-related characteristics of individual (like wrinkles, hydration, *etc.*) and skin microbiota is ambiguous. In this work, 34 Chinese female volunteers living in Shanghai were recruited for facial skin microbial community study. Skin samples were collected and Miseq gene sequencing platform was operated. To achieve overall and details of skin appearances, the skin types and characteristics were clinically graded by dermatologist and measured by instruments. The goal of this study is to characterize the composition and variability of the skin microbiota in health people divided into age groups. Moreover, the aim of study is to evaluate the association of the skin microbial distribution with skin physical and physiological properties and the interaction of microorganisms themselves. In our study, it is suggested that *Proteobacterium* is prevalent in elder group together with wrinkles. Additionally, higher trans-epidermal water loss is correlated with *S. aureus* and this may in turn to design a product to recover the skin microbiome balance. In addition, gain more knowledge about microbes interaction with each other is critical to design the skin care products with probiotics and prebiotics. These findings expand our insights in health skin microbiome and will be useful in clinical treatment near the further.

V.H. Pacagnelli Infante, J. Migliati, P.M.B.G. Maia Campos, **Why should I use sunscreen? The impact of lifestyleon the hydrolipidic, structural and morphological charecteristics of young men skin**, IFSCC Congress, Munich, September 2018

The consumption of cosmetics among men has grown in the last years. However there is some resistance to the use of these products due to the culture, sensory, perception and access for this audience to consume cosmetic products. Considering that the use of sunscreens is a public health issue and directly affects the quality of life, the objective of this study is to show the skin differences between two groups, one that uses sunscreen regularly and one that does not use, using biophysics and skin imaging techniques. Sixty men between 18 and 28 years old, phototypes II, III and IV were randomly selected and questioned about their photoprotection habits. Hydration, integrity of the stratum corneum (TEWL, Corneometer and VisioScan), amount of sebum (Sebumeter) and activity of the sebaceous glands (Sebufix) were made. We analyzed the amount of pores (Visioface), formation of erythema (Mexameter), ultrasound of the dermis (DermaScan C) in the frontal and malar regions and we obtained reflectance confocal microscopy images (RCM) for analysis of the quality of the epidermis and papillary dermis at the cellular level in the frontal region. Of the 60 participants, 24 regularly uses sunscreens (group A) and 36 were not (group B). When questioned about the reasons for not using sunscreen, group B mentioned that did not obtain family incentive and /or sunscreens was sticky or oily. Changes in the integrity of the stratum corneum were observed, with thickening of this layer of the epidermis and impairment of the barrier function with increase of TEWL and decrease of the hydration for group B. The granular layer of the epidermis is also thicker for this group. There was an increase in microrelief roughness for the same group. Moreover, there is also a higher activity of the sebaceous glands, with consequent greater number of pores for group B. Also, a decrease in the echogenicity ratio of the group B were observed, evidenced by the decrease of the dermoepidermal junction layer (related to the depth of the papillae), increase in pore diameter and worst collagen quality. We observed a disruption of the honeycomb pattern of the epidermis and the presence of polycyclic papillae for group B. This same group showed dilatation in the veins in the basal layer of the epidermis and a significant increase in erythema, evidencing signs of possible inflammation. The presented damages evidences the necessity of UVB photoprotection (more related to the damages in the integrity of the barrier) and UVA, too (damages in the region of the papillary dermis). The lifestyle influences the choices and their

consequences, showing that sun exposure can cause damage even early, especially in groups that present a certain cultural resistance to the use of cosmetics such as the male. Furthermore, we have shown that the damages of unprotected sun exposure happen in different layers of the skin, which increases the need to develop suitable sunscreens with UVA and UVB protection and with a good sensorial improving the adhesion of photoprotection among men.

G. Boyer, G. Bellemere, C. de Belilovsky, C. Baudouin, **Characterization of dry skin in vivo in a pediatric population. Application for evaluation of specific skin care products for normal and dry baby skin,** IFSCC Congress, Munich, September 2018

Dry skin is a common condition during childhood. Clinical scoring of dry skin includes tactile evaluation of the skin surface to assess roughness. It also includes visual examination of the appearance of the skin and for severe cases the presence of dander. To our knowledge, no instrumental evaluation of roughness has ever been performed to objectively score skin dryness in a pediatric population, nor to document the clinical efficacy of skin care products specifically developed to address dry skin condition. A study has been conducted on 80 subjects with normal or dry skin (as scored by dermatologists and pediatricians, 40 children each), aged from 1 day to 4 years. Roughness has been measured on the face using an innovative tribo-acoustic device. Topographic properties have also been measured in parallel using a Visioscan device to assess roughness through image analysis of skin surface. Measurements have been performed at T0 and after 21 days of daily face cream product application. Each group applied a cream designed for its skin type. Measurement of tribo-acoustic signal on skin surface shows that roughness is significantly higher in dry skin than in normal skin. No difference between normal and dry skin has been observed using Visioscan device. After 21 days of product application, significant improvement of both tribo-acoustic and topographic parameters has been observed on normal skin (respectively 8.6% and 12.7%) and also on dry skin (respectively 16.4% and 13.7%), suggesting global improvement of skin roughness following product application. This study shows that objective assessment of roughness, in particular sensorial approach like tribo-acoustic measurement, could be of great interest to characterize dry skin in a pediatric population and to demonstrate clinical efficacy of skin care products.

M. Dabrowska, A. Mielcarek, I. Nowak, **Evaluation of sex-related changes in skin topography and structure using innovative skin testing equipment,** Skin Res Technol. 2018; 24, p. 614-620

Background: Evaluation of skin condition on the basis of parametrization and objective measurements of the parameters has become obligatory. The aim of this study was to assess sex-related changes in skin topography and structure using the skin testing equipment. Materials and Methods: The study was carried out on the group of 40 volunteers (20 females and 20 males) of the mean age 24 ± 3 years. The skin parameters were measured using 3 devices: Visioscan® VC 98 (skin topography), Visioline® VL 650 (skin macro relief) and Ultrascan UC22 (ultrasound imaging of the skin). All measurements were performed on the inner part of the left forearm. Results: The skin parameters measured revealed significant differences in skin surface and structure between females and males. The skin of all women subjects was more homogenous in its structure with the presence of more abundant superficial skin lines and wrinkles in comparison to male skin. The higher number of skin furrows in the skin of women is in agreement with literature reports claiming that men's skin has lower number of wrinkles which are deeper and more pronounced. Ultrasound imaging of the skin indicated greater thickness and lower density of the dermis of men subjects compared to those of females. Conclusion: Non-invasive methods of skin testing using new and advanced equipment have provided a possibility of objective parametrization and evaluation of sex-related changes in skin topography and structure.

*U. Farooq, T. Mahmood, Y. Shahzad, A.M. Yousaf, N. Akhtar***, Comparative efficacy of two anti-aging products containing retinyl palmitate in healthy human volunteers,** J Cosmet Dermatol, 2018 Jun;17(3): p. 454-460

Background: No study yet described the comparative efficacy of two over-the-counter (OTC) anti-aging products in Asian subjects using the techniques involving analysis of living skin. Aim: We sought to evaluate the anti-aging efficacy of two commercial formulations containing retinyl palmitate using a high-resolution UVA video camera. Method: Total 11 healthy male volunteers, agreed to participate in this single-blind split-face design study with the mean age of 25.5 years. Every night, volunteers applied one type of cream on the left side and other type of cream on the right side of the face, as directed according to the study design for 60 days. Measurements of the parameters were taken at 0, 1st, 7th, 15th, 30th, and 60th day of study period using noninvasive UVA video camera Visioscan® VC98. Cream applied on right side of the face labeled as "R" and on the left side as "L." Results: Sixty-day use of the creams showed significant improvement in SELS parameters of the skin. Percent change in skin wrinkling (SEw) parameter calculated after 60 days was -6.68% after applying cream R and -

8.27% after applying cream L. Conclusion: We concluded that constituents in both creams have potentially influenced skin surface parameters, thus indicating that, these creams as a better option to lessen the effects of aging on facial skin on long-term application.

M.O. Melo, L. Kakuda, P.M.B.G Maia Campos, **Clinical Efficacy of a Multifunctional Cosmetic Formulation for Mature Oily Skin**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: The skin may change due to factors as high temperatures, increasing sebum excretion and presenting oiliness and acne. These alterations can persist during the aging and provoke more changes that influence the use of cosmetics. The objective of this study was to evaluate the clinical efficacy of a cosmetic product developed for the mature oily skin. Methodology: The clinical efficacy was evaluated on 30 participants aged between 39 to 55 years old with oily skin. The analyzed parameters were: stratum corneum water content, TEWL, sebum content and percentage, microrelief and dermis echogenicity. The analyses were performed on different regions of the face. A placebo formulation was also tested. Results and Conclusions: The developed formulation improved the sebum content and percentage, skin microrelief in terms of skin roughness and desquamation and dermis echogenicity. The biophysical and skin imaging techniques utilized in this study were useful to test the clinical efficacy of an effective formulation for mature oily skin.

E. Berardesca, S. Mortillo, N. Cameli, M. Ardigo, M. Mariano, **Efficacy of a shower cream and a lotion with skin-identical lipids in healthy subjects with atopic dry skin**, Journal of Cosmetic Dermatology, May 2018

Background: Atopic dermatitis is a chronic, pruritic inflammatory skin disease that adversely affects quality of life. Aims: The current study evaluates the efficacy of a shower cream and a lotion, each with skin-identical lipids and emollients, in the treatment of atopic dry skin of subjects with a history of atopic condition. Methods: In all, 40 healthy females with clinically dry skin on the lower legs were enrolled in the study and underwent 4 weeks of daily use of the shower cream and 2 additional weeks of both the shower cream and the body lotion. Subjects were evaluated at day 0, week 4, and week 6. Skin barrier function was assessed by Tewameter®, skin hydration by Corneometer®, smoothness and desquamation by Visioscan®, and stratum corneum architecture by reflectance confocal microscopy (RCM). The investigator assessed the degree of dryness, roughness, redness, cracks, tingling and itch, and subjective self-assessment evaluated the perception of skin soothing, smoothness, and softness. Results: Skin barrier function and skin moisture maintenance were significantly improved using the shower cream. The lotion with physiological lipids, together with the shower cream, also improved skin barrier function and moisture. Both the shower cream and the body lotion reduced clinical dryness, roughness, redness, cracks, tingling and itch, according to the dermatologist, and increased soothing, smoothness, and softness, according to the subjects of the study. Conclusion: The combination of a shower cream and a lotion with physiological lipids efficiently restores skin barrier function and increases skin hydration, becoming an effective skin-care option for patients with atopic dry skin.

M. Debrowska, A. Mielcarek, I. Nowak, **Evaluation of sex-related changes in skin topography and structure using innovative skin testing equipment,** Skin Research & Technology, April, 2018

Background: Evaluation of skin condition on the basis of parametrization and objective measurements of the parameters has become obligatory. The aim of this study was to assess sex-related changes in skin topography and structure using the skin testing equipment. Materials and Methods: The study was carried out on the group of 40 volunteers (20 females and 20 males) of the mean age 24±3years. The skin parameters were measured using 3 devices: Visioscan® VC 98 (skin topography), Visioline® VL 650 (skin macro relief) and Ultrascan UC22 (ultrasound imaging of the skin). All measurements were performed on the inner part of the left forearm. Results: The skin parameters measured revealed significant differences in skin surface and structure between females and males. The skin of all women subjects was more homogenous in its structure with the presence of more abundant superficial skin lines and wrinkles in comparison to male skin. The higher number of skin furrows in the skin of women is in agreement with literature reports claiming that men's skin has lower number of wrinkles which are deeper and more pronounced. Ultrasound imaging of the skin indicated greater thickness and lower density of the dermis of men subjects compared to those of females. Conclusion: Non-invasive methods of skin testing using new and advanced equipment have provided a possibility of objective parametrization and evaluation of sex-related changes in skin topography and structure.

P. Likhitthummaguna, P. Koonngamb, A. Seeremaspun, **Anti-aging effect of oral very high proline complex collagen (DERMOFIX®) on skin properties: a randomized, double-blind, placebo-controlled clinical study**

Taking collagen supplement to rejuvenate skin is now finding public favor due to antiaging trend.

Synthesizing collagen, the body needs a specific amino acid group –Proline, Hydroxyproline and Glycine called “Proline complex” to make a core structure of every type of collagen fiber in human body. DERMOFIX®, which is a new very high proline complex containing-collagen supplement, helps promoting collagen synthesis naturally leading to antiaging effects on skin properties as well as other collagen-containing organs. The objective is to study the anti-aging effects of the oral very high proline complex collagen (VHPCC) primarily on skin properties compared to placebo and commercially available collagen (CAV) in Thailand, and secondarily on knee joint. In this randomized, double blind, placebo-controlled clinical trial, 50 women aged 30-45 years old were randomized to receive the VHPCC 10 g, CAV 10 g or placebo 10 g once daily for 8 weeks. Six aging related skin properties, which are skin elasticity, hydration, melanin index, transepidermal water loss, smoothness and wrinkle were objectively measured at 0, 1, 2, 4, 8 weeks. Knee joint assessments, photo-shooting, blood tests for CBC, creatinine and *sirt1* gene expression level were evaluated before and after the study. Results: The VHPCC showed statistically significant improvement and gave faster effects than the CAV and placebo, in skin elasticity, hydration, melanin index, transepidermal water loss, smoothness and wrinkles. Most effects by VHPCC showed significant improvement since the first week while CAV showed improvement mostly at fourth or eighth week. Safety blood tests are normal in all groups. However, the Sirt1 gene expression did not increase in any groups. No adverse effect was reported throughout the study. Conclusion: The study demonstrated that the VHPCC (DERMOFIX®) supplement wasproved safe, gave much faster and more effective effects than CAV in anti-aging of skin properties, knee joints and collagen-containing organs.

T. Fujimura, Y. Shimotoyodome, T. Nishijima, K. Sugata, H. Taguchi, S. Moriwaki, **Changes in hydration of the stratum corneum are the most suitable indicator to evaluate the irritation of surfactants on the skin,** Skin Research and Technology 2017; 23: 97-103

Background/Purpose: Irritancy levels of surfactants on human skin have not been clarified completely. The relationships between skin damage and changes of skin properties caused by various surfactants were investigated using noninvasive measurements.

D. G. Mercurio, **Clinical scoring and instrumental analysis to evaluate skin types,** Clinical and Experimental Dermatology, 38, 302–309

Background. The biology of the skin is very complex, and there are a number of methods used to classify the different skin types. It is possible to measure or quantify the characteristics of the specific skin types, using a variety of techniques that can objectively evaluate the properties of the skin in a noninvasive manner.

Y. Xu, R. Ma, J. Juliandri, X. Wang, B. Xu, D. Wang, Y. Lu, B. Zhou, D. Luo, **Efficacy of functional microarray of microneedles combined with topical tranexamic acid for melisma - A randomized, self-controlled, split-face study**, Medicine 2017

To evaluate the efficacy of a functional microarray of microneedles (MNs) plus topical tranexamic acid (TA) for melasma in middleaged women in China. Thirty female subjects with melasma were enrolled in this study. The left or right side of the face was chosen randomly to be pretreated with a functional microarray of MNs, followed by topical 0.5% TA solution once per week for 12 weeks. The other half-face was the control, treated with a sham device plus topical 0.5% TA solution. At baseline and at weeks 4, 8, and 12 of treatment, clinical (photographic) evaluations and parameters determined by Visia were recorded. At baseline and week 12, patient satisfaction scores and the biophysical parameters measured by Mexameter were also recorded. Side effects were evaluated at baseline and at the end of the 12 weeks. In total, 28 women (93.3%) completed the study. The brown spots’ scores measured by Visia were significantly lower on the combined therapy side than on the control side at 12 weeks after starting treatment; there was no significant difference between sides at 4 or 8 weeks. After 12 weeks, melanin index (MI) decreased significantly in both 2 groups, and the MI was significantly less on the combined side at week 12. Transepidermal water loss, roughness, skin hydration, skin elasticity, and erythema index showed no significant differences between 2 sides at baseline, 4, 8, and 12 weeks after treatment. Physicians’ evaluations of photographs showed better results at week 12with combined therapy: >25% improvement was observed in the MNs plus TA side in 25 patients, and in the TA side in only 10 patients. Subjective satisfaction scores on both sides increased significantly. The participants were more satisfied with the results of the combined therapy side than the control side. No obvious adverse reactions were observed throughout the study. Combined therapy with a functional microarray of MNs and topical TA solution is a promising treatment for melasma.

R. Wanitphakdeedecha, W. Meeprathom, W. Manuskiatti, **A pilot study of treatment of striae distensae with variable square pulse Erbium: YAG laser resurfacing,** J Cosmet Dermatol, 2017 Dec;16(4): p. 466-470

Striae distensae (SD) are a frequent skin condition for which treatment remains a challenge. Various laser treatments have been employed to remove the epidermis and cause dermal wound and heating with subsequent dermal collagen remodeling. Objective: To determine the efficacy and safety of a variable square pulse Erbium: YAG (VSP Er:YAG) laser for the treatment of striae in skin phototypes III-IV. Methods: Twenty-one women with SD were treated monthly for 2 months with VSP Er:YAG laser resurfacing using a 7-mm spot size. One side of their striae was randomly treated with one pass of 400 mJ in short pulse (SP) mode with 50% overlapping and one pass of 2.2 J/cm^2 in smooth (SM) mode with nonoverlapping. The other side of their striae was treated with two passes of 400 mJ in SP mode with 50% overlapping. Objective and subjective assessments were obtained at baseline and 1-, 3-, and 6-month after treatment. Results: In both SP&SM and SP only group, volume of SD measured by Visioscan VC98 reduced significantly at 6-month follow-up visit (P=.017 and P=.034, respectively). There were no statistically significant differences in skin roughness (SER), skin smoothness (SESM), and surface measured by Visioscan VC98. Transient postinflammatory hyperpigmentation (PIH) is the common side effect found in patients with darker skin tone even in nonsun exposure areas and can last as long as 6 months. Conclusions: VSP Er:YAG laser resurfacing is a promising treatment option for SD. Lower fluence should be used in patients with darker skin phototype to avoid the risk of PIH. In addition, pre- and post-treatment with topical preparations for PIH prevention may be needed.

K. Bazela, R. Debowska, B. Tyszczuk, K. Rogiewicz, I. Eris, **Noninvasive Techniques for Anti-cellulite Product Efficacy Evaluation,** www.cosmeticsandtoiletries.com, December 2017

Cellulite is considered an endocrine metabolic microcirculatory disorder that causes interstitial matrix alterations and structural changes in subcutaneous adipose tissue. It is localized mainly on the thighs, buttocks and occasionally the abdomen, and it is characterized by an orange peel or cottage cheese appearance. Approximately 85% of women worldwide are concerned by cellulite. Although the cellulite pathogenesis is not fully understood, a variety of circulatory and structural changes have been identified that contribute to the orange peel appearance of the skin. First, the capillary networks of the dermis are impaired from the breakdown in blood vessel integrity, which causes fluid retention and clumping of engorged fat cells in the subcutaneous tissue. The aggregation of adipose cells and the growth of collagen fibrils further hamper microcirculation, leading to dermal metabolism reduction. Moreover, dermal thinning occurs in response to minimized protein synthesis and reduced degradation. Adipose cells isolated from nutrition and toxins removal swell to micronodules that finally agglomerate to macronodules. Cellulite is a concern for many women. Therefore, appropriate research to investigate treatment options and objective methods measuring its efficacy are warranted. The present study aims to evaluate the efficacy of an anti-cellulite product using noninvasive investigation techniques. The key skin condition parameters measured include moisturization, roughness and the thickness of subcutaneous tissue.

T. Tomova-Simitchieva, A. Lichterfeld-Kottner, U. Blume-Peytavi, J. Kottner, **Comparing the effects of 3 different pressure ulcer prevention support surfaces on the structure and function of heel and sacral skin: An exploratory cross-over trial,** International Wound Journal, 2017; p. 1–9

Special support surfaces are key in pressure ulcer prevention. The aim of this study was to measure the effects of 3 different types of mattresses (reactive gel, active alternating air, basic foam) on skin properties of the sacral and heel skin after 2 hours loading. Fifteen healthy females (median age 66 years) were included. Transepidermal water loss, skin surface temperature, erythema, stratum corneum hydration, epidermal hydration, skin extensibility, elastic function, and recovery as well as skin roughness parameters were measured under controlled room conditions before loading, immediately after loading, and 20 minutes postloading in the supine position on the different mattresses. The highest increases in transepidermal water loss, skin temperature, and erythema were observed for the foam mattress after loading, indicating higher deformation and occlusion. Cutaneous stiffness decreased in all 3 groups, indicating structural changes during loading. There was a substantial decrease of mean roughness at the heel skin in the foam group, leading to a flattening of the skin surface. Study results indicate that the type of support surface influences skin structure and function during loading. The gel and air mattress appeared to be more protective compared with the foam mattress, but the differences between the gel and air were minor.

J. Kottner, V. Kanti, G. Dobos, E. Hahnel, A. Lichterfeld-Kottner, C. Richter, K. Hillmann, A. Vogt, U. Blume-Peytavi, **The effectiveness of using a bath oil to reduce signs of dry skin: A randomized controlled pragmatic study,** International Journal of Nursing Studies 65 (2017), p. 17–24

Background: Dry skin (xerosis cutis) is increasingly recognized as a relevant health problem in daily life and in health and nursing care. The use of bath additives such as oils is common to reduce dry skin, but empirical evidence supporting this practice is limited. Objectives: The aim of this study was to investigate the effectiveness of using a bath oil additive in improving skin barrier function and

ameliorating dry skin in comparison to non-oil containing skin cleansers for bathing or showering. Design: Single centre randomized observer blind pragmatic parallel group trial. Settings: Outpatient/community care. Participants: Volunteers showing clinically mild to moderate dry skin recruited from the city of Berlin. Methods: Healthy children and adults were randomly assigned to use either a commercially available bath oil or to continue using their regular non-oil containing skin cleansers every other day over a study period of 28 days. Skin barrier parameters and the severity of dry skin were assessed at baseline and at two follow-up visits at the study centre. Transepidermal water loss was the primary outcome. Results: All sixty participants randomized completed the trial. Median age was 32.5 (IQR 8.3 to 69) years. At the end of study the mean transepidermal water loss in the intervention group was statistically significant lower compared to the control group (mean difference 1.9 (95% CI 3.1 to 0.8) g/m2/h). Stratum corneum hydration was statistically significantly higher in the intervention group at the end of the study. Skin surface pH and roughness were comparable in both groups and remained unchanged, while both groups showed a trend to improvement in dry skin symptoms Conclusions: This pragmatic trial provides empirical evidence that the regular use of the investigated bath oil is effective in improving the skin barrier function in children and adults with mild dry skin when used in routine skin care and supports its use as a basic element for the management of a broad spectrum of dry skin conditions.

U. Schlossberger, T. Jansen, **Wirksamkeit eines neuartigen transdermalen Applikationssystems in der Therapie von gealterter und chronisch lichtgeschädigter Haut**, Dermatologie am Alter Markt, Köln, Germany

In einer offenen Pilotstudie wurde die Wirksamkeit eines neuartigen transdermalen Applikationssystems (Dermadrop®, Omega Diagnostics GmbH, Reinbek), bei dem mit Hilfe von hochkonzentriertem Sauerstoff definierte Wirkstoffe wie Hyaluronsäure in die Dermis eingebracht werden, bei Frauen mit gealterter und chronisch lichtgeschädigter Haut untersucht. Die Applikation erfolgte nach einem standardisierten Protokoll konsekutiv in 3 Sitzungen im Abstand von 1 Woche in der Periorbital- und der Oberlippenregion. Die Evaluierung fand vor Therapiebeginn, dann wöchentlich jeweils vor der Applikation sowie 1 Woche nach der letzten Applikation statt. An festgelegten Meßpunkten kamen biophysikalische Methoden zur Bestimmung verschiedener Hautfunktionsparameter wie SELS-Verfahren (Visioscan®), Cutometrie und Corneometrie (Courage u. Khazaka, Köln) zur Anwendung. Die klinischen Befunde wurden im Verlauf mit Hilfe von digitaler Photographie dokumentiert und miteinander verglichen. Die objektiven Befunde wurden mit der subjektiven Probandenzufriedenheit, die anhand von standardisierten Fragebögen ermittelt wurde, korreliert. Die Ergebnisse der Studie geben erste Hinweise auf die Wirksamkeit des Dermadrop®-Verfahrens in der Therapie von gealterter und chronisch lichtgeschädigter Haut. Es handelt sich um ein neuartiges dermatologisch-ästhetisches Therapiesystem, das eine Penetration von unterschiedlichen Wirkstoffen nicht-invasiv und schmerzfrei in die Dermis ermöglicht. Weitere Untersuchungen zur Evaluierung der Wirksamkeit des transdermalen Applikationssystems bei verschiedenen Indikationen sind vorgesehen.

M.P. Wakeman, **An open-label forearm-controlled pilot study to assess the effect of a proprietary emollient formulation on objective parameters of skin function of eczema-prone individuals over 14 days,** Clinical, Cosmetic and Investigational Dermatology 2017:10, p. 275–283

Background: This study examines the effcacy of a new plant-based emollient and assesses product acceptability. Methods: Primary effcacy endpoints were improvement in transepidermal water loss, hydration, skin elasticity and frmness, erythema, and skin roughness and smoothness as measured using the versions of Tewameter, Corneometer, Cutometer, Mexameter, and Visioscan VC98, respectively. The cream was applied twice daily by 32 participants to an area of one forearm unaffected by eczema, while the same area of the other forearm was used as a control. Measurements were taken at day 0 and day 14. Secondary endpoints assessed the acceptability of the product. Results: At the end of 2 weeks, transepidermal water loss, hydration, skin elasticity and frmness, erythema, and skin roughness and smoothness improved. All changes were statistically signifcant (p<0.01). The rate of satisfaction with the emollient properties was 82%, and the rate of absorption into the skin was 88%. Results show that the emollient hydrates and repairs eczema-prone skin with high levels of acceptability.

N. Lall, N. Kishore, B. Fibrich, I.A. Lambrechts, **In vitro and In vivo Activity of Myrsine africana on Elastase Inhibition and Anti-wrinkle Activity**, Pharmacogn Mag, 2017 Oct-Dec;13(52): p. 583-589

Background: Myrsine africana (MA) is a plant traditionally used in South Africa to treat various diseases. Objective: The ethanolic extract of MA, was used for in vitro and in vivo studies to determine its elastase inhibitory activity. Materials and Methods: MA and its isolated compound, myrsinoside B, were tested in vitro for their elastase inhibitory activity. The MA extract was also evaluated for mutagenicity using two strains of Salmonella typhimurium (TA 98 and TA 100), microbial count, metal

analysis, and stability. In vivo studies included irritancy and wrinkle reduction trials using Visioscan and Visioface. Results: The leaf extract showed good elastase inhibition with a 50% inhibitory concentration (IC_{50}) of 28.04 µg/ml. Myrsinoside B inhibited the elastase enzyme at an IC_{50} of 4.68 ± 0.34 µg/ml. No colony growth observed during mutagenicity studies and it was concluded that MA ethanolic extract is a nonmutagen. MA extract was found to be a nonirritant during the patch test clinical trial. MA was found to contain negligible amounts of microorganisms and heavy metals. Gel cream containing MA crude extract was found to be stable for 2 years when kept at temperatures below 30°C. In clinical trials (in vivo), it was found that the test product containing 5% ethanolic extract of MA was effective in reducing wrinkles after application 2 times a day for 14 days and 28 days compared to the placebo aqueous cream. Conclusion: MA is effective in reducing the appearance of wrinkles. Summary: This is a first time report of the elastase inhibitory potential of Myrsine africana and myrsinoside B and the anti-wrinkle potential of Myrsine africanaMyrsine africana ethanolic extract effectively inhibited the elastase enzymeMyrsine africana was effective in in vivo studies to reduce the appearance of wrinkles after 14 days.

U. Magnet, C. Urbanek, D. Gaisberger, E. Tomeva, E. Dum, A. Pointner,A.G. Haslberger, **Topical equol preparation improves structural and molecular skin parameters**, Int J Cosmet Sci, 2017 Oct;39(5): p. 535-542

Objective: Equol has been shown to improve skin health and regeneration, due to its antioxidative, phytoestrogenic and epigenetic characteristics. The effects of a topical intervention on skin structure, telomere length and epigenetic markers in skin cells were analysed. Methods: Sixty-four participants were divided in four groups and three of them treated topically with the following: emulsion with Equol powder (Isoflavandiol-E-55-RS®); emulsion with microencapsulated Equol (Vesisorb® Isoflavandiol-E-55-RS®) and an emulsion with lecithin (Vesisorb® placebo). A control group of 6 volunteers did not receive any intervention. The active compound was a 0.5% equol-racemate. For 58 participants, all samples were collected. Structural analysis, molecular analysis and questionnaires were performed at the start of the study and after 8 weeks of intervention, twice a day. Structural skin parameters were analysed by Visioscan® VC 98 and Cutometer® dual MPA 580. Molecular analyses from epidermal cells collected by skin stripping of the forehead included telomere length and LINE-1 methylation, following DNA extraction, bisulfite conversion and qPCR as well as high-resolution melting curve analysis. Effects of nutrition and lifestyle habits were evaluated with a standardized food and lifestyle questionnaire. Results and Discussion: The surface analysis showed significant improvements in skin roughness, skin texture and skin smoothness after both interventions. Cutometer® dual MPA 580 measurement revealed improvement of skin firmness and elasticity parameters for both preparations. A decrease in mean LINE-1 methylation (n.s.) and telomere length (sign. $P < 0.05$) was observed in the sample group with age. In the treated groups, significantly longer telomeres were observed after intervention. Whether changes in telomere length reflect changes in the regulation of telomerase, epigenetic interactions or turnover of keratinocytes needs further research. Stability and availability of preparations in skin seems to be high as not many significant differences in the activity of pure or encapsulated substances were seen. Conclusion: The results of this study indicate that equol has beneficial effects on structural as well as molecular skin parameters and encourages further investigations to decipher the epigenetic regulation of skin ageing and interactions of equol.

J. Zhang, W. Hou, S. Feng, X. Chen, H. Wang, **Classification of facial wrinkles among Chinese women,** The Journal of Biomedical Research, 2017 31(2): p. 108–115

It is generally recognized that Caucasians and Asians have different skin aging features. The aim of this study was to develop a facial wrinkle grading scale for Chinese women. Standard photographs were taken of 242 Chinese women. Six sets of 0 to 9 wrinkle scales with reference photographs and descriptions were selected, including grading scales for resting and hyperkinetic crow's feet, frontalis lines, glabellar frown lines, and nasolabial folds. To identify the scale by objective quantitative measurement, skin surface measurements from the Visioscan® VC98 were used. To test the reliability and validity of our wrinkle scale, a multi-rater consensus method was used. A double-blind, randomized, vehicle-controlled 12-week study was conducted to use this clinical photo-score to evaluate the efficacy and safety of Centella triterpenes cream® in treating crow's feet. A newly developed 10-point photographic and descriptive scale emerged from this study. The final atlas of these photographs contained a total of 6 sets with 10 pictures each. From 0 to 9, surface evaluation of smoothness (SEsm) parametric measurements decreased progressively, indicating that the scale increased inversely. Weighted kappa coefficients for intra-assessor were between 0.75-0.87. The overall Kendall's coefficient is 0.86 on the first rating and 0.87 on the second rating. Thirtysix volunteers were recruited and 35 subjects completed a 12-week trial. Clinical photo-score by investigator showed a significant difference ($P < 0.05$) between the treatment side and control side after 4 weeks. Use of these scales in clinical settings to evaluate facial wrinkles in Asians individuals is recommended.

M. Khurram Waqas, B.A. Khan, N. Akhtar, F. Chowdhry, H. Khan, S. Bakhsh, S. Khan, A. Rasul, **Fabrication of *Tamarindus indica* seeds extract loaded-cream for photo-aged skin: Visioscan® studies,** Adv Dermatol Allergol 2017, XXXIV (4): p. 339–345

Introduction: Intracellular and extracellular oxidative stress triggered by free radicals promotes skin aging, which is designated by atypical pigmentation and wrinkles. The consumption of antioxidants is an efcacious measure to avert symptoms involved in skin aging. Aim: The current research was commenced to explore the anti-aging potential of antioxidants present in *Tamarindus indica* seeds extract. Material and methods: *Tamarindus indica* seeds extract was obtained by concentrating the ethanolic extract of seeds. The antioxidant activities of the extract were measured by nitric oxide radical scavenging assay, 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay, hydroxyl radical scavenging assay and superoxide radical scavenging assay. Formulation comprising 4% of the concentrated extract of seeds was formulated by loading it in the internal aqueous phase of water-in-oil (W/O) cosmetic emulsion. The base, used as control, consisted of the same emulsion but without loading *Tamarindus indica* seeds extract. The cosmetic emulsions were applied to the cheeks of 11 healthy male volunteers for duration of 12 weeks. Both base and formulation were assessed for their antioxidant effects on different skin parameters i.e. skin moisture contents, elasticity and surface evaluation of living skin (SELS). Results: The formulation showed statistically signifcant ($p \leq 0.05$) and the base showed insignifcant ($p > 0.05$) effects on skin elasticity and skin moisture contents. There is a signifcant decline in SELS, skin scaliness (SEsc), skin wrinkles (SEw), skin smoothness (SEsm), and skin roughness (SEr) parameters after application of the formulation. Conclusions: Topical application of the cosmetic emulsion entrapped with *Tamarindus indica* seeds extract containing various antioxidants exerts potential skin antiaging effects.

S. Ueda, M. Tanahashi, Y. Higaki, K. Iwata, Y. Sugiyama, **Ingestion of Coffee Polyphenols Improves a Scaly Skin Surface and the Recovery Rate of Skin Temperature after Cold Stress: A Randomized, Controlled Trial,** J Nutr Sci Vitaminol (Tokyo), 2017;63(5): p. 291-297

Coffee polyphenols (CPPs) derived from coffee beans have beneficial effects on blood pressure and vascular endothelial function. In addition, CPPs suppress ultraviolet light induced erythema. However, the effects of CPPs on dry skin and cutaneous vascular function have not been clarified. We investigated the effects of CPPs on dry skin and the recovery rate (RR) of skin temperature after a cold-stress test as a measure of vascular function in subjects with visible scaliness in a double-blind, placebo-controlled, randomized study. The subjects were divided into two groups, the CPP group and the Placebo group. In the CPP group, the subjects ingested a beverage containing 297.8 mg CPPs every day for 4 wk. The degree of skin dryness was assessed quantitatively using a Visioscan to evaluate skin scaliness and smoothness. A subjective evaluation using a visual analog scale (VAS) of skin smoothness was also used. As a result, the scaliness and smoothness of cheek skin was significantly improved after 4 wk in the CPP group compared to the Placebo group. The improvements of the VAS score on 'skin smoothness' and the RR were also observed in the CPP group but the difference was not statistically significant. However, when the CPP group was divided into subgroups of high RR and low RR, the improvement of the RR was significant in the low RR subgroup. In conclusion, our results suggest that CPPs improve skin scaliness and play a role in cutaneous blood flow regulation after cold stress.

S. Mac-Mary, J.-M. Sainthillier, P. Humbert, **Mesure instrumentale de l'hydratation cutanée**, EMC - Cosmétologie et Dermatologie esthétique, June 2017

L'eau joue un rôle fondamental dans les propriétés physiques de la peau en permettant d'assurer sa solidité, sa flexibilité et une perméabilité minimale pour que l'eau endogène puisse jusqu'à la surface cutanée activer les enzymes responsables de la desquamation. Dans la couche cornée, elle est fixée sur des substances hydrosolubles et hygroscopiques intracellulaires appelées *natural moisturizing factors*. Cette eau représente l'aspect statique de l'hydratation cutanée.

N. Cameli, M. Mariano, I. Cordone, E. Abril, S. Masi, M.L. Foddai, **Autologous Pure Platelet-Rich Plasma Dermal Injections for Facial Skin Rejuvenation: Clinical, Instrumental, and Flow Cytometry Assessment**, Dermatol Surg. 2017 Jun;43(6): p. 826-835

Background: Platelet-rich plasma (PRP) is an emerging treatment in dermatology recently proposed for skin rejuvenation. Objective: To evaluate the efficacy and safety of autologous pure PRP dermal injections on facial skin rejuvenation, investigating the cellularity of PRP samples. Material and Methods: Twelve patients underwent 3 sessions of PRP injection at 1-month intervals. The clinical and instrumental outcomes were evaluated before (T0) and 1 month (T1) after the end of treatment by means of transepidermal water loss, corneometry, Cutometer, Visioscan, and Visioface. A flow cytometry characterization on PRP and peripheral blood (PB) samples was performed. Results: Clinical and patient

evaluation showed improvement of skin texture. Skin gross elasticity, skin smoothness parameters, skin barrier function, and capacitance were significantly improved. No difference between PRP and PB lymphocyte immunological asset was observed. A leukocyte population (mainly CD3) and neutrophils depletion were documented in all the PRP samples. Conclusion: This instrumental study demonstrated that PRP poor in leukocytes can provide objective improvements in skin biostimulation. Flow cytometry showed no variability among the PRP samples using a reproducible separation system and a low content in proinflammatory cells. Although a pilot study, it may be helpful for future investigations on PRP cellularity.

N. Cameli, **Platelet-rich plasma injections show efficacy in facial skin biostimulation**, Dermatologic Surgery, June 2017, Volume 43, Issue 6, p. 826–835

Background: Platelet-rich plasma (PRP) is an emerging treatment in dermatology recently proposed for skin rejuvenation. Objective: To evaluate the efficacy and safety of autologous pure PRP dermal injections on facial skin rejuvenation, investigating the cellularity of PRP samples. Materials and Methods: Twelve patients underwent 3 sessions of PRP injection at 1-month intervals. The clinical and instrumental outcomes were evaluated before (T0) and 1 month (T1) after the end of treatment by means of transepidermal water loss, corneometry, Cutometer, Visioscan, and Visioface. A flow cytometry characterization on PRP and peripheral blood (PB) samples was performed. Results: Clinical and patient evaluation showed improvement of skin texture. Skin gross elasticity, skin smoothness parameters, skin barrier function, and capacitance were significantly improved. No difference between PRP and PB lymphocyte immunological asset was observed. A leukocyte population (mainly $CD3^+$) and neutrophils depletion were documented in all the PRP samples. Conclusion: This instrumental study demonstrated that PRP poor in leukocytes can provide objective improvements in skin biostimulation. Flow cytometry showed no variability among the PRP samples using a reproducible separation system and a low content in proinflammatory cells. Although a pilot study, it may be helpful for future investigations on PRP cellularity.

V. Raikou, A. Varvaresou, I. Panderi, E. Papageorgiou, **The efficacy study of the combination of tripeptide-10-citrulline and acetyl hexapeptide-3. A prospective, randomized controlled study,** J Cosmet Dermatol, 2017 Jun;16(2): p. 271-278

Background: Bioactive peptides have beneficial effects on the skin. Objective: We investigated to evaluate the effect of acetyl hexapeptide-3 and tripeptide-10 citrulline and the possible synergism between these two peptides. Methods: Twenty-four healthy volunteers were randomized to receive combination of acetyl hexapeptide-3 with tripeptide-10 citrulline (Group G1), tripeptide-10 citrulline (Group, G2), acetyl hexapeptide-3 (Group G3), or neither peptide (Group G4) for 60 days. Skin properties evaluated included skin microtopography, parameters cR2 and cR3, and transepidermal water loss (TEWL) using a skin visioscan and a tewameter, respectively. Results: After 20 days, the measurements between G1 and G2 groups (cR2 P=.045, cR3 P=.044), G2 and G3 groups (cR2 P=.017, cR3 P=.017), G3 and G4 groups (CR2 P=.022), and G2 and G4 groups (cR3 P=.028) from baseline were significant. After 60 days, measurements between groups G1 and G3 (cR2 P=.016, cR3 P=.025), groups G2 and G3 (cR2 P=.044, cR3= P=.044), and groups G1 and G4 (cR2 P=.025) were significant. After 20 days, changes in TEWL between groups G1 and G3 (P=.03), groups G2 and G3 (P=.045), and groups G3 and G4 (P=.025) were significant. After 40 days, changes between groups G2 and G3 (P=.028) and groups G3 and G4 (P=.01) from baseline were significant. Conclusion: Our results confirm the antiwrinkle activity of acetyl hexapeptide-3. A significant decrease in TEWL with acetyl hexapeptide-3 treatment is observed. We provided clinical evidence for the antiwrinkle efficacy of tripeptide-10 citrulline and possibly TEWL. The underlying mechanism by which these two peptides can act synergistically was not clear in this study.

Xi Li, C. Yuan, L. Xing, P. Humbert, **Topographical diversity of common skin microflora and its association with skin environment type: An observational study in Chinese women**, Scientific Reports, (2017) 7:18046

This study evaluated cutaneous microbial distribution, and microbial co-occurrence at different body sites and skin environments in Chinese women (39.6 ± 11.9 years, N= 100) during the winter season. Microbial distribution (*Propionibacterium acnes*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Lactobacillus*, Pseudomonadaceae, and *Malassezia furfur*), association with biomarkers (antimicrobial peptides: LL-37, β-defiensins [HBD-2, HBD-3]), and claudin-1) and skin biophysical parameters (transepidermal water loss, pH, skin scaliness and roughness, sebum and hydration levels) were also determined. Skin sites (glabella [GL], hand-back [HB], interdigital web-space [IS], antecubital fossa [AF], volar forearm [VF], back [BA]) were classified as normal, oily or dry based on two-step cluster analysis and exposed or unexposed (uncovered or covered by clothes, respectively) based on seasonal apparel. Pseudomonadaceae and *Staphylococcus aureus* had the highest and lowest detection rate

respectively at all sites. Cluster analysis identified skin sites as ‘normal’ (HB, BA, AF, VF), ‘dry’ (IS) and ‘oily’ (GL). Bacterial alpha diversity was higher in exposed (HB, IS, and GL) compared with unexposed sites (BA, AF and VF). Co-occurrence of *Staphylococcus aureus* with any of the other five microorganisms was lower in dry and oily skin versus normal skin. Skin exposure, biophysical/barrier profile and biomarkers were found to be associated with bacterial distribution and co-occurrence.

A. Thiemann, M. Salmina-Petersen, S. Grone, J. Jdnichen, **For Blemish-free Skin,** C0SSMA 4, 2017, p. 36-40

Dr. Straetmans' experience in alternative cosmetic preservation, especially with the company’s Dermosoft Antimicrobials, led to the development of the range Dermosoft Decalact, a series of cosmetic raw materials with proven efficacies against skin disorders caused by certain microorganisms.

M. Cocera, R. Saldana, G. Rodriguez, L. Barbosa-Barros, O. Lopez, **Multi-target delivery to eliminate dark spots,** PERSONAL CARE EUROPE, April 2017, p. 137 - 142

Skin pigmentation results from the synthesis and distribution of melanin in the skin. Increased melanin production is a result of either UV exposure or various disorders characterised by the appearance of dark spots on the skin. These dark spots, also called age spots, are permanent and increase over time with ageing, being one of the main concerns of middle-aged women all over the world, and especially in Asia.

Interview with G. Mildau, **The Challenge of Proving Claims,** COSSMA 3 I 2017, p. 48-51

Regulations: Cosmetic claims are a complex topic. Which ones are legal and when do they go too far? This is part II of our interview with the organiser of the Cosmetic Days in Karlsruhe where 140 experts discussed all the ins and outs of the topic.

P. Asawaworarit, S. Chuanchaiyakul, N. Kamanamool, T. Piyavechvirat, M. Udompataikul, **The Comparative Study of Topical Therapy on Striae Alba between a Herbal Extract Cream and 0.1% Tretinoin Cream in Adolescence,** J Med Assoc Thai, 2017 Jan;100(1): p. 93-99

Background: Striae are commonly developed in adolescence as a result of active growth spurt. Although they create little physical health issue, they are cosmetic concerns to the patients. Effective striae treatment can help improve their mental health and personality. Objective: To compare the effects of a herbal extract cream and 0.1% tretinoin cream in the treatment of striae alba. Material and Method: Forty eight participants aged between 10 - 19 years old, with striae alba at their thighs were randomized into two groups. Each group was separately treated with 0.1% tretinoin and herbal extract for 16 weeks. The width, length and surface roughness of the lesions were assessed including histological evaluation and participants’ satisfaction. Results: Thirty nine participants completed the study after 16 weeks. Compared to initial lesions, the striae width was reduced by 9.01% ($p = 0.002$) in tretinoin group and 13.09% ($p<0.001$) in herbal extract group. The length was reduced by 9.54% in tretinoin group ($p<0.001$) and 8.73% in herbal extract group ($p<0.001$). The surface roughness assessed by Visioscan VC98 was reduced by 13.70% in tretinoin group ($p = 0.036$) and 17.24% in herbal extract group ($p<0.001$). From H&E staining, the mean difference of epidermal thickness was 4.79±7.15 microns in tretinoin group and 14.22±16.98 microns in herbal extract group. The mean difference of collagen amount was 13.75±6.02 units in tretinoin group and 6.60±4.92 units in herbal extract group. From Masson trichrome staining, the mean difference of collagen amount was 6.75±3.50 units in tretinoin group and 12.20±7.73 units in herbal extract group. From Verhoff van Gieson staining, the mean difference of elastin amount was 2.25±3.30 units in tretinoin group and 5.40±4.16 units in herbal extract group. There was no statistical significant difference between two groups in histological evaluation. The herbal extract caused irritant contact dermatitis only 4.55% in contrast to 72.73% from the tretinoin group. Most participants from both groups had moderate to high satisfaction according to the efficacy of their treatments. Conclusion: The herbal extract cream is as effective as 0.1% tretinoin cream in the treatment of striae alba. As tretinoin can cause skin irritation, the herbal extract can be a better alternative treatment.

K.C. Lee, J. Dretzke, L. Grover, A. Logan, N. Moiemen, **A systematic review of objective burn scar measurements,** Lee et al. Burns & Trauma (2016) 4:14

Abstract: Background: Problematic scarring remains a challenging aspect to address in the treatment of burns and can significantly affect the quality of life of the burn survivor. At present, there are few treatments available in the clinic to control adverse scarring, but experimental pharmacological anti-scarring strategies are now beginning to emerge. Their comparative success must be based on objective measurements of scarring, yet currently the clinical assessment of scars is not carried out systematically and is mostly based on subjective review of patients. However, several techniques and devices are being introduced that allow objective analysis of the burn scar. The aim of this article is to

evaluate various objective measurement tools currently available and recommend a useful panel that is suitable for use in clinical trials of anti-scarring therapies.

M. Kanlayavattanakul, N. Lourith, P. Chaikul, **Jasmine rice panicle: A safe and efficient natural ingredient for skin aging treatments**, Journal of Ethnopharmacology, Volume 193, 4 December 2016, p. 607-616

Ethnopharmacological relevance: While rice is one of the most important global staple food sources its extracts have found many uses as the bases of herbal remedies. Rice extracts contain high levels of phenolic compounds which are known to be bioactive, some of which show cutaneous benefits and activity towards skin disorders. This study highlights an assessment of the cellular activity and clinical efficacy of rice panicle extract, providing necessary information relevant to the development of new cosmetic products. Materials and methods: Jasmine rice panicle extract was standardized, and the level of phenolics present was determined. *In vitro* anti-aging, and extract activity towards melanogenesis was conducted in B16F10 melanoma cells, and antioxidant activity was assessed in human skin fibroblast cell cultures. Topical product creams containing the extract were developed, and skin irritation testing using a single application closed patch test method was done using 20 Thai volunteers. Randomized double-blind, placebo-controlled efficacy evaluation was undertaken in 24 volunteers over an 84 d period, with the results monitored by Corneometer® CM 825, Cutometer® MPA 580, Mexameter® MX 18 and Visioscan® VC 98. Results: Jasmine rice panicle extract was shown to have a high content ofp-coumaric, ferulic and caffeic acids, and was not cytotoxic to the cell lines used in this study. Cells treated with extract suppressed melanogenesis *via* tyrosinase and TRP-2 inhibitory effects, which protect the cell from oxidative stress at doses of 0.1 mg/ml or lower. The jasmine rice panicle preparations (0.1-0.2%) were safe (MII=0), and significantly ($p<0.05$) increased skin hydration levels relative to baseline. Skin lightening, and anti-wrinkle effects related to skin firmness and smoothness were observed, in addition to a reduction in skin wrinkling. Improvements in skin biophysics of both 0.1% and 0.2% extracts were showed to be comparable ($p>0.05$). Conclusions: Jasmine rice panicle extract having high levels of phenolics shows cutaneous benefits as the basis for skin aging treatments, as indicated through *in vitro* cytotoxicity assessments and skin testing in human subjects.

S. Sawatzky, M. Schario, A. Stroux. L. Lunnemann, T. Zuberbier, U. Blume-Pevtavi, N. Garcia Bartels, **Children with Dry Skin and Atopic Predisposition: Outcome Measurement with Validated Scores for Atopic Dermatitis,** Skin Pharmacol Physiol. 2016:29,31: p. 148-56

Background: Dry skin is a common skin condition in childhood. Few studies exist investigating the influence of daily skin care on dry skin in infants at risk of developing atopic dermatitis (AD). We aimed to assess the effect of skin care on dry skin in this special cohort using validated scores for AD and analysis of skin microtopography. Methods: 43 children were randomized to group **1** (G1) and group 2 (G2) and 22 infants to group 3 (G3). During 16 weeks, G1 and G3 applied daily a plant-based emollient and G2 a petrolatum-based emollient. The core outcome was assessed by Severity Scoring of Atopic Dermatitis (SCORAD) and Patient-Oriented SCORing Atopic Dermatitis (PO-SCORAD). The influence on the parents' life was evaluated by a questionnaire and microtopography by Visioscan® VC 98. Results: The SCORAD index declined significantly until week (W) 16 in all groups (p 0.041). The sleeplessness score analyzed by PO-SCORAD was highly reduced after W12 in G1 and after W16 in G2 ($p < 0.030$). The influence on the parents' anxiety was reduced in G3 at W12 and W16 ($p = 0.016$). The Visioscan parameter scaliness strongly diminished at W4 ($p < 0.049$) and W16 (p 0.013) in all groups. Conclusions: This trial demonstrates improved skin conditions and sleep following daily emollient application in infants and children having dry skin and being at risk of AD. Especially parents of infants showed a reduced fear that their children might develop AD. Further studies are required to investigate the preventive effect ofdaily emollient therapy in this special cohort evaluating the outcome measures used in this trial.

A. Abdul Karim, A. Azlan, A. Ismail, P. Hashim, S.S. Abd Gani, B.H. Zainudin, N.A. Abdullah, **Efficacy of cocoa pod extract as antiwrinkle gel on human skin surface**, J Cosmet Dermatol. 2016 Sep;15(3): p. 283~95

Objective: Cocoa pods are abundant waste materials of cocoa plantation, which are usually discarded onto plantation floors. However, due to poor plantation management, the discarded cocoa pods can create suitable breeding ground for Phytophthora palmivora, which is regarded as the causal agent of the black pod disease. On the other hand, cocoa pods potentially contain antioxidant compounds. Antioxidant compounds are related to the protection of skin from wrinkles and can be used as functional cosmetic ingredients. Therefore, in this study, cocoa pods were extracted and to be used as active ingredients for anti-wrinkles. Methods: The active compounds in cocoa pod extracts (CPE) were screened using liquid chromatography mass spectrometry (LC-MS). Fibroblast cells were used to determine the effective concentration of CPE to maintain the viability for at least 50% of the cells (EC50

). The gel was tested by 12 panelists to determine the efficacy of CPE in gel form using Visioscan to reduce skin wrinkles and improve skin condition. Results: CPE was detected to contain malic acid, procyanidin B1, rosmarinic acid, procyanidin C1, apigenin, and ellagic acid, all of which may contribute to functional cosmetic properties of CPE. The EC50 value of cocoa pod extracts was used to calculate the amount of CPE to be incorporated into gel so that the formulated product could reach an effective concentration of extract while being non-intoxicant to the skin cell. The results showed that CPE is potential ingredient to reduce wrinkles. Skin wrinkles reduced at 6.38 ± 1.23% with the application of the CPE gel within 3 weeks and significantly improved further (12.39 ± 1.59%) after 5 weeks. The skin hydration increased (3.181 ± 1.06%) after 3 weeks of the CPE gel application. Conclusion: Flavonoid compounds in CPE contributed to the functional cosmetic properties of CPE. The CPE which is nontoxic to skin cells help to reduce wrinkles on skin after 3 weeks of application. CPE can be used as the active ingredients in antiwrinkle products, and prolonged application may result in significant visual changes to the naked eyes.

M. Mendes Fossa Shirata, P.M. Berardo Gonçalves Maia Campos, **Importance of texture and sensorial profle in cosmetic formulations development,** Surg Cosmet Dermatol 2016;8(3): p. 223-30

Introduction: The evaluation of the clinical effcacy of cosmetic formulations in real conditions of use is indispensable and the correlation of these results with texture and sensory profle analyses is necessary because impacts directly in the continuity of cosmetic treatment. Objective: The evaluation and correlation of the texture and sensorial profle, and clinical effcacy of cosmetic formulations containing alfafa oligosaccharides, cassava polysaccharides and sunscreens. Methods: It was evaluated the texture and sensorial profle, and clinical effcacy of formulations through biophysical and imaging analysis techniques. Results: The methods presented a good correlation, because formulation added with suncreens and active ingredients provided better spreadability and sensorial properties. The assessment of clinical effcacy was coherent with the sensory analysis once the "skin smoothness" parameter could be proven with the increase of hydration and improvement of skin microrelief. Conclusions: The application and correlation of the used techniques enabled the defnition and obtainment of a formulation with sensory acceptance and proven clinical effcacy in the improvement of texture and skin hydration. Thus, this study provides contribution in dermatological area, once an appropriate sensory favors the adhesion to the use of the product and the consequent treatment success.

C. Trojahn, **Struktur- und Funktionsparameter zur Quantifizierung der Hautalterung,** Dissertation Juni 2016 Charité Berlin

Die Hautalterung wird durch intrinsische und extrinsische Faktorenverursacht. Um strukturelle und funktionelle Veränderungen während der Hautalterung quantitativ zu untersuchen, sind reliable und valide Parameterunerlässlich. Im Rahmen dieser Arbeit wurden die Reliabilität und Validitätverschiedener Parameter zur Quantifizierung der Oberflächentopographie und Dyspigmentierung in verschiedenen Altersgruppen untersucht. Außerdem wurden Zusammenhänge zwischen biophysikalisch gemessenen und klinisch bewerteten Parametern berechnet. Schließlich wurden für die Nutzung der optischen Kohärenztomographie (OCT) neue Parameter entwickelt um strukturelle Unterschiede zwischen junger und alter Haut zu quantifizieren.

A.I. Arshad, S.H. Khan, N. Akhtar, **Formulation Development of Topical Cream loaded withAnanas Comomus Extract: in vivo Evaluation for Changes in Skin barrier Function using Biophysical Techniques**, Acta Pol Pharm. 2016 Mar-Apr;73(2): p. 485-94

The prime objective of current investigation was to develop a topical skin care cream (w/o) loaded with Ananas comosus extract versus placebo control, and evaluated non-invasively for changes in skin barrier function i.e., epidermal hydration levels and transepidermal water loss (TEWL), on healthy human volunteers. Active cream carrying 2% extract of Ananas comosus in the internal phase of w/o emulsion was prepared while placebo contained no extract. Stability assessment of both creams was performed at various storage conditions 8, 25, 40 degrees C, 40 degrees C + 75% RH (relative humidity) and 50 degrees C. Effects on epidermal hydration and TEWL were observed by applying active cream at one side and placebo on the other side of face by 11 healthy human volunteers during 12 weeks period using Corneometer MPA5 and Tewameter MPA5. Results indicated that both creams (active and placebo) remained stable at all storage conditions. All samples manifested non-Newtonian, shear thinning behavior with increasing shear rate, whereas statistical interpretation indicated that effects of active cream were superior than placebo, as it significantly ($p = 0.05$) improves the epidermal hydration levels up to 56.74% and reduces TEWL up to -73.19% at the end of study period compared to baseline value. The surface evaluation of living skin (SELS) parameters SEr, SEsc, SEsm, SEw were also assessed and indicated a significant ($p = 0.05$) reduction. Conclusively, creams loaded with Ananas

comosus extract exhibit better physicochemical stability and represent a propitious improvement in skinbarrier function, used as a functional moisturizing and anti-aging ingredient in topical skincare products.

M.Z. Helmi Rozaina, A. Ahmad, A. Idris, C.F. Low, M.E. Abdul Wahid, **The antioxidant effect of Beackea frutescence microemulsions dietary supplements on skin absorption studies**, Acta Biomaterialia Odontologica Scandinavica, 2016 Vol. 2, No. 1, p. 86–92

Objective: To study the effect of two different microemulsions containing Beackea frutescence supplements composed of nerolidool, selenium and vitamin E on absorption effect related to skin health and skin aging. Materials and methods: A total of 39 volunteers with normal and healthy skin were divided into three groups (n ¼ 13) and supplemented for a period of 12 weeks. Group 1 received a mixture of lutein (3 mg/day), lycopene (3 mg/day), a-tocopherol (10 mg/day), selenium (75 lg/day) and b-nerolidool (4.8 mg/day) and Group 2 was supplemented with a mixture of b-nerolidool (4.8 mg/day), lycopene (6 mg/day), selenium (75 lg/day) and a-tocopherol (10 mg/day). Group 3 was the placebo control. Wrinkling, smoothness, scaling and roughness of the skin were determined by Surface Evaluation of Living Skin (Visioscan). Results: Upon supplementation, serum levels of selected nerolidool increased in both groups. Skin thickness and density were determined by ultrasound measurements. A significant increase for both parameters was determined in the serum groups. Roughness and scaling were improved by the supplementation with antioxidant micronutrients. In the placebo group, no changes were found for any of the parameters. Conclusion: Beackea frutescence microemulsion supplements have shown significant change in the texture of human skin as well as scaling, wrinkling, smoothness and roughness were improved by the supplementation.

K. Asaoka, S. Endo, Y. Suzuki, S. Komuro, T. Nemoto, M. Kaku, **Hand hygiene using a new hand-cleansing formulation without sanitizers: Effect on Staphylococcus aureus removal and recovery of properties against skin damage**, American Journal of Infection Control 44 (2016) p. 129-132

Background: Staphylococcus aureus is known to form a biofilm and colonize on damaged skin of the hands. We investigated changes in the quantity of S aureus on the hands and changes in skin damage when using a hand-cleansing formulation with potassium oleate but without a sanitizer (formulation A), which is highly effective in removing S aureus biofilm and causes minimal skin damage. Material and Methods: The participants (14 medical staff members) used 2 types of hand-cleansing formulations (formulations A and B), each for 4 weeks. S aureus of the hands was cultured from swab samples on agar plates. Surface of hands was measured using an ultraviolet light microscope. Results and Discussion: The quantity of S aureus after using formulation A for 4 weeks was io108 ± 005 CFU/mL, a statistically significant decrease from the quantity of S aureus (io159 ± 019 CFU/mL) just before use (P = .029). Also, dryness of hand surfaces decreased. With formulation B, the quantity of S aureus didnot significantly change from before to after use (P > .05). This presumably occurs because formulation A gently removes S aureus biofilm. Conclusions: Formulation A removed S aureus from the hands of participants, and skin damage on the hands improved.

A. Formann, **Eine Interventionsstudie mit dem Nahrungsergänzungsmittel Pycnogenol® und dessen physiologische und molekular-genetischen Auswirkungen auf postmenopausale Frauen,** Dissertation an der medizinischen Faltät der Heinrich-Heine-Universität, Düsseldorf, 2016

Die Haut ist mit einer Fläche von circa 1,5 bis 2 m² das größte Organ des menschlischen Körpers.

T. Venter, L.T. Fox, M. Gerber, J.L. du Preez, S. van Zyl, B. Boneschans, J. du Plessis, **Physical stability and clinical efficacy of Crocodylus niloticus oil lotion**, Revista Brasileira de Farmacognosia 26 (2016), p. 521–529

The stability and the anti-ageing, skin hydrating and anti-erythema effects of a commercialized Crocodylus niloticus Laurenti, 1768, Crocodylidae, oil lotion was determined. The lotion was stored at controlled conditions over six months during which several stability tests were performed. For the clinical efficacy studies lotion was applied on volar forearm skin (female volunteers) and compared to a liquid paraffin-containing reference product. Skin hydrating and anti-ageing effects were determined with a Corneometer®, Cutometer® and Visioscan®, following single (3 h) and multiple applications (12 weeks). The Vapometer® and Mexameter® were utilized to determine this lotion's anti-erythema effects on sodium lauryl sulfate irritated skin. The lotion demonstrated good stability over 6 months. The reference product increased skin hydration and decreased skin wrinkles to a larger extent than the C. niloticus lotion after a single application, whereas the C. niloticus lotion decreased skin scaliness better than the reference product. During the long-term study, the reference product overall increased skin hydration

more than the C. niloticus lotion, whereas C. niloticus lotion increased skin elasticity to a larger extent than the reference product. C. niloticus lotion increased skin wrinkles and decreased skin scaliness over 12 weeks. Compared to non-treated, irritated skin, C. niloticus lotion demonstrated some potential anti-inflammatory characteristics.

G.W. Nam, J.H. Baek, J.S. Koh, J.K. Hwang, **The seasonal variation in skin hydration, sebum, scaliness, brightness and elasticity in Korean females,** Skin Research and Technology 2015; 21: 1-8

Background/purpose: Age, gender, regional, and ethnic differences influence skin conditions. The purpose of this study was to obverse the effects of enviroments, especially the air temperature, relative humidity, air pressure, duration of sunshine, and percipitation on skin and the seasonal variation in skin hydration, sebum, scales, brightness, and elasticity in Korean females.

G. Piérard, D. Khazaka, G. Khazaka, **Sunscreen remanence on the skin: a noninvasive real time in vivo spectral analysis assessing the quenching of specular ultraviolet A light reflectance,** Journal of Cosmetic Dermatology, 15,3-9

Background**:** Under specific light illumination, particularly ultraviolet radiation (UVR), the skin produces both specular light reflectance and, possibly, specific fluorescent emission. A quenching effect of fluorescence is observed following the application of sunscreens active against UVA radiations. Aims: To assess noninvasively in a real-time process, the potential sunscreen remanence/substantivity after application on the skin. Methods: The Visiopor(®) device was used in a real-time procedure after application of sunscreens to the skin. A quenching effect of follicular fluorescence due to bacterial porphyrins was evaluated at 30-min intervals. The Visioscan(®) device was used as a distinct UVA emitter in a control procedure of spectral analysis of specular UVR emission and reflectance by dermal fibers. Results: Under UVA-1 irradiations, facial skin produced different patterns of specular UVR reflectance and fluorescent emission as well. The porphyrin-related follicular fluorescence was instantly abated by UVA blockers present in suncare products. The potential sunscreen remanence/substantivity was assessed by the follicular and interfollicular fluorescence recurrence all along the next hours.

G. Dobos, A. Gefen, U. Blume-Peytavi, J. Kottner, **Weight-bearing–induced changes in the microtopography and structural stiffness of human skin in vivo following immobility periods,** Wound Rep Reg (2015) 23; 37-43

Abstract: Pressure ulcers (PUs) are injuries to the skin and underlying tissues, caused by sustained deformations and occur frequently in aged patients. Skin microtopography and stiffness affect the interaction of skin with contact surfaces contributing to PU development. We simulated immobility in 20 healthy females (mean age 69.9 years). Skin microtopography and stiffness were measured at the PU predilection sites before and after loading. Skin roughness decreased at the heels by 18.1% after 90 minutes (p50.022), but remained unchanged at the sacrum and the upper back. Structural elasticity and elastic deformations increased at all skin areas; changes over time were significant at the sacrum (p50.005) and the heel, (p50.002). The residual skin deformation increased at all skin areas after loading significantly at the sacrum (32.0%, p50.013) and upper back (20.6%, p50.007). The structural “biological” elasticity of the skin decreased significantly at the upper back after loading, but remained unchanged at the heels. All skin changes recovered after unloading. Results indicate that prolonged loading causes structural skin changes in humans in vivo in PU predilection sites. The pathogenesis of PUs is different at the heels, the sacral and upper back skin.

F. Hashmi, C. Wright, C. Nester, S. Lam, **The reliability of non-invasive biophysical outcome measures for evaluating normal and hyperkeratotic foot skin**, Journal of Foot and Ankle Research (2015) 8:28

Background: Hyperkeratosis of foot skin is a common skin problem affecting people of different ages. The clinical presentation of this condition can range from dry flaky skin, which can lead to fissures, to hard callused skin which is often painful and debilitating. The purpose of this study was to test the reliability of certain non-invasive skin measurement devices on foot skin in normal and hyperkeratotic states, with a view to confirming their use as quantitative outcome measures in future clinical trials. Methods: Twelve healthy adult participants with a range of foot skin conditions (xerotic skin, heel fissures and plantar calluses) were recruited to the study. Measurements of normal and hyperkeratotic skin sites were taken using the following devices: Corneometer® CM 825, Cutometer® 580 MPA, Reviscometer® RVM 600, Visioline® VL 650 Quantiride® and Visioscan® VC 98, by two investigators on two consecutive days. The intra and inter rater reliability and standard error of measurement for each device was calculated. Results: The data revealed the majority of the devices to be reliable measurement tools for normal and hyperkeratotic foot skin (ICC values > 0.6). The surface evaluation parameters for skin: SEsc and SEsm have greater reliability compared to the SEr measure. The Cutometer® is sensitive to

soft tissue movement within the probe, therefore measurement of plantar soft tissue areas should be approached with caution. Reviscometer® measures on callused skin demonstrated an unusually high degree of error. Conclusions: These results confirm the intra and inter rater reliability of the Corneometer®, Cutometer®, Visioline® and Visioscan® in quantifying specific foot skin biophysical properties.

C. Trojahn, G. Dobos, A. Lichterfeld, U. Blume-Peytavi, .J. Kottner, **Characterizing Facial Skin Ageing in Humans: Disentangling Extrinsic from Intrinsic Biological Phenomena,** BioMed Research International, Volume 2015

Facial skin ageing is caused by intrinsic and extrinsic mechanisms. Intrinsic ageing is highly related to chronological age. Age related skin changes can be measured using clinical and biophysical methods. Te aim of this study was to evaluate whether and how clinical characteristics and biophysical parameters are associated with each other with and without adjustment for chronological age. Twenty-four female subjects of three age groups were enrolled. Clinical assessments (global facial skin ageing, wrinkling, and sagging), and biophysical measurements (roughness, colour, skin elasticity, and barrier function) were conducted at both upper cheeks. Pearson's correlations and linear regression models adjusted for age were calculated.

L. Phetcharat, K. Wongsuphasawat, K. Winther, **The effectiveness of a standardized rose hip powder, containing seeds and shells of *Rosa canina*, on cell longevity, skin wrinkles, moisture, and elasticity,** Clinical Interventions in Aging 2015:10, p. 1849–1856

Objective: To evaluate the effects of a rose hip powder (Hyben Vital®) made from seeds and shells on cell senescence, skin wrinkling, and aging. Methods: A total of 34 healthy subjects, aged 35–65 years, with wrinkles on the face (crow's feet) were subjected to a randomized and double-blinded clinical study of the effects of the rose hip powder, as compared to astaxanthin, a well-known remedy against wrinkles. During the 8-week study, half of the participants ingested the standardized rose hip product, while the other half ingested astaxanthin. Objective measurements of facial wrinkles, skin moisture, and elasticity were made by using Visioscan, Corneometer, and Cutometer at the beginning of the study, after 4 weeks, and after 8 weeks. Evaluation of participant satisfaction of both supplements was assessed using questionnaires. In addition, the effect of the rose hip preparation on cell longevity was measured in terms of leakage of hemoglobin through red cell membranes (hemolytic index) in blood samples kept in a blood bank for 5 weeks. Signifcance of all values was attained with *P*#0.05. Results: In the double-blinded study, the rose hip group showed statistically signifcant improvements in crow's-feet wrinkles (*P*,0.05), skin moisture (*P*,0.05), and elasticity (*P*,0.05) after 8 weeks of treatment. A similar improvement was observed for astaxanthin, with *P*-values 0.05, 0.001, and 0.05. Likewise, both groups expressed equal satisfaction with the results obtained in their self-assessment. The rose hip powder further resulted in increased cell longevity of erythrocyte cells during storage for 5 weeks in a blood bank. Conclusion: Results suggest that intake of the standardized rose hip powder (Hyben Vital®) improves aging-induced skin conditions. The apparent stabilizing effects of the rose hip product on cell membranes of stored erythrocyte cells observed in this study may contribute to improve the cell longevity and obstructing skin aging.

M. Kanlayavattanakul, N. Lourith, **An update on cutaneous aging treatment using herbs**, Journal of Cosmetic and Laser Therapy, 17:6, p. 343-352, May 2025

Skin aging is caused by several factors. Ultraviolet (UV) exposure as well as oxidative stress elevates inflammatory mediators causing degradation of the extracellular matrix, which is regarded as the major cause of skin wrinkles, one of the signs of aging. Topical applications of active ingredients protect against dermal photodamage and scavenge radicals that can delay skin aging. Matrix metalloproteinase inhibitors against degradation of collagen, elastin, and hyaluronan are the key strategy to combat cutaneous aging. In addition, active ingredients with the efficacy to enhance extracellular matrix production, including those with UV protection efficacy, play an important role in protecting the skin from aging. Naturally derived compounds for combating skin wrinkles are gaining more interest among the consumers as they are perceived to be milder, safer, and healthier. This article, therefore, briefly addresses the causes of skin aging and extensively summarizes on herbs appraisal for skin wrinkles treatment. Therefore, delaying aging of skin using the functional herbs would maintain the individual 's appearance with high esthetic and psychosocial impacts.

L. Tadlock, M. Winterscheid, N. Koski, S. Rapaka, M. Kearney, K. Wisuri, K. Ortblad, **Assessment of the efficacy of a sonic device and pedicure regimen through clinical measures of skin roughness and smoothness, JAAD,** May 2015, Volume 72, Issue 5, Supplement 1, p. AB22

Dry, rough skin on the soles and heel of the feet are a common problem …

M.S Schario, **Kinder mit trockener Haut und atopischer Prädisposition: Hautbarriere, Hautpflegeregime und Reliabilität und Validität von Rauheits- und Hautoberflächenparametern verschiedener Messverfahren**, Dissertation an der Klinik für Dermatologie, Venerologie und Allergologie der Medizinischen Fakultät Charité – Universitätsmedizin Berlin, 2015

Hintergrund: Die Integrität der Hautbarriere ist für die Prävention und Therapie der atopischen Dermatitis (AD) von großer Bedeutung. Aktuelle Ergebnisse lassen vermuten, dass in der Primärprävention eine tägliche Hautpflege ab dem Säuglingsalter die Manifestationsrate der AD reduzieren könnte. Entsprechende Empfehlungen oder Leitlinien für Kinder mit trockener Haut und atopischer Prädisposition fehlen jedoch. In dieser Promotionsarbeit wurden die hautphysiologischen Parameter dieser Zielgruppe evaluiert und die Effekte zweier unterschiedlicher Hautpflegeregime auf die Hautbarriere in einer prospektiven, randomisierten Interventionsstudie untersucht. Methode: Es wurden ein Pflegeregime auf Pflanzenbasis (PB) und eines auf Petrolatumbasis nach dem Deutschen Arzneimittel-Codex (DAC) gewählt. Die Quantifizierung der Barrierefunktion erfolgte an unterschiedlichen Körperregionen mittels nichtinvasiver, standardisierter Methoden. Die Hautoberfläche wurde mittels VisioScan® VC 98 charakterisiert. Bisher gibt es nur vereinzelt Studien zu PRIMOSlite oder VisioScan® VC 98 und Kindern mit trockener Haut und atopischer Prädisposition. Gleichzeitig bestand Forschungsbedarf zur Reliabilität und Validität der Messungen, so dass zusätzlich die Hauttopographie an vier verschiedenen Arealen am Unterarm von Erwachsenen mit diesen beiden Methoden untersucht wurde. Ergebnisse: Die Hautfunktionsparameter der Kinder mit trockener Haut und atopischer Prädisposition zeigten Besonderheiten im Vergleich zu hautgesunden und Kindern mit AD. Beide Pflegeregime verbesserten den Hautzustand, was sich in der klinischen Beurteilung quantifiziert durch SCORing Atopic Dermatitis (SCORAD) zeigte. Am Ende der Studie waren in der PB-Gruppe die Werte für die Stratum Corneum Hydratation (SCH) signifikant höher und die Werte für den transepidermalen Wasserverlust (TEWL) signifikant niedriger als in der DAC-Gruppe. Die Gruppenunterschiede wurden nur anhand 3 der Hautfunktionsparameter, nicht jedoch in der klinischen Beurteilung der Haut, erkennbar. Die Untersuchungen der Methoden PRIMOSlite und VisioScan® VC 98 zeigten, dass beide Verfahren zuverlässige und valide Messwerte produzieren. Die Hauttopographie des volaren Unterarms ist von distal nach proximal und kontralateral vergleichbar. Der Vergleich der Rauheitsparameter von Kindern und Erwachsenen zeigt einen altersabhängigen Anstieg der Rauheitsparameter. Die netzartige Struktur der Hautoberfläche wurde anhand der VisioScan® VC 98-Bildaufnahmen von Kindern und Erwachsenen analysiert. Die Anzahl der geschlossenen Polygone pro mm2 (NCP/mm2) wurde bestimmt und mit den Rauheitsparametern korreliert. Der Parameter NCP/mm^2 sinkt mit dem Alter und charakterisiert andere Eigenschaften der Haut als die Rauheitsparameter. Schlussfolgerung: Die Ergebnisse zeigen, dass Kinder mit trockener Haut und atopischer Prädisposition von einer geeigneten täglichen Pflegeintervention profitieren und dass zur präzisen Beurteilung der Hautbarriere klinische Scores durch biophysikalische Methoden ergänzt werden sollten. Die Erkenntnisse aus den Untersuchungen zur Hauttopographie geben wichtige Hilfestellungen für den Einsatz der Messmethoden in der klinischen Forschung und Hinweise, dass der Parameter NCP/mm2 zukünftig in klinischen Studien oder epidemiologischen Erhebungen Anwendung finden könnte. Durch eine differenzierte und frühzeitige Beurteilung der Hautbarrierefunktion und durch eine adäquate Pflegeintervention kann die Hautbarriere von Kindern mit trockener Haut und atopischer Prädisposition stabilisiert und das Risiko der Entwicklung einer AD reduziert werden.

C. Uhl, D. Khazaka; **Claims and measurement methods for hair and scalp;** Personal Care March 2015

Hair diversity (style, shape, growth pattern or colour) is one of the most important features to define us physically. Therefore it is no surprise that the market of hair care products with a value of US$39 billion is one of the most important sectors in the complete area of cosmetic products. Hair care products for women are the most frequently bought and used cosmetic products of all. Shampoos and conditioners are leading in the field. For men, hair care is the most important and favoured sector of all cosmetics.

Hand- und Hautschutz, Publikation der Berufsgenossenschaft Rohstoffe und Chemische Industrie, Januar 2014

J. Kottner, L. Ludriksone, N.G. Bartels, U. Blume-Peytavi, **Do Repeated Skin Barrier Measurements Influece Each Other's Results? An Explorative Study,** Skin Pharmacology and Physiology 2014; 27:90-96

Abstract: Background: Biophysical skin measurement techniques are widely used to quantify the skin barrier function. In clinical research usually several parameters are subsequently measured in the same skin areas. In this study, possible interfering effects of subsequent measurement procedures on transepidermal water loss (TEWL), stratum corneum hydration (SCH) and skin surface pH were

investigated. Methods: An exploratory study was conducted. Twelve young (mean age 32.9 ± 7.2 years) and 12 elderly (mean age 68.3 ± 2.5 years) subjects without any skin diseases were enrolled. The parameters TEWL, skin surface pH, SCH, sebum content, and surface evaluation of living skin were obtained successively in pairs from 4 contralateral volar forearm skin areas.

G.E. Piérard, C. Piérard-Franchimont, S. Piérard, **Visioscan-Driven ULEV Method,** Non Invasive Diagnostic Techniques in Clinical Dermatology; Springer Berlin Heidelberg 2014; ISBN 978-3-642-32108-5

Introduction: Melanocytes and their melanins govern the phototype-related color palette of the skin. Indeed, the color palette of the skin largely depends on the molecular nature and amount of melanins (eumelanin and pheomelanin) and on the size, shape, and distribution of melanosomes produced by melanocytes and transferred into keratinocytes. Such combinations define what could be called the individual melanotype. The epidermal melanin unit refers to a microscopic functional entity composed of one single melanocyte and its adjacent keratinocytes into which the melanosomes are transferred. Chronic ultraviolet (UV) light exposures represent positive stimulatory signals to the epidermal melanin units. In such instance, both the active melanocytes are increased in number, and each individual melanocyte is stressed to produce more melanins. In addtion, melanosome transfer from melanocytes to adjacent kerationocytes is boosted through the intervention of the protease-activated receptor 2 [1].

X. Li, C. Galzote, X. Yan, L. Li, X. Wang, **Characterization of Chinese body skin through in vivo instrument assessments, visual evaluations, and questionnaire: influences of body area, inter-generation, season, sex, and skin care habits,** Skin Research and Technology 2014; 20: 14-22

Background/Purpose: The varying influence of mutiple factors (e.g., aging, sex, season, skin care habits) on skin structure and function necessitates study within ethnic groups to fully characterize their skin. Methods: Men and women aged 40-50 years (n=43) and their consanguineous same sex-children, aged 18-25 years (n=43), living in Chengdu, China were enrolled in this single center, non-interventional study. Volunteers attended two study visits (summer, 2010 and winter, 2011) at which dermatologists measured transepidermal water loss (TEWL), skin hydration, sebum secretion, fine lines/roughness, melanin/erythema, termperature, and color, and clinically graded participants‘ skin.

C. Trojahn, M. Schario, G. Dobos, U. Blume-Peytavi, J. Kottner, **Reliability and validity of two in vivo measurements for skin surface topography in aged adults,** Skin Research and Technology 2014; 0: 1–7

Background: The non-contact optical methods phaseshift rapid in vivo measurement of skin (PRIMOS) and surface evaluation of living skin (SELS) are widely applied for measuring skin surface topography. The aims of the present study were to evaluate reliability and validity of these methods and to compare skin roughness intraindividually. Methods: SELS and PRIMOS measurements were performed on four skin areas of the left and right volar forearms in 12 healthy elderly subjects. Reliability and correlations were analyzed for Visioscan_ and PRIMOS roughness parameters. Student’s t-tests for estimating differences between contralateral volar forearm sites were applied.

C. Trojahn, G. Dobos, M. Schario, L. Ludriksone, U. Blume-Peytavi, J. Kottner, **Relation between skin micro-topography, roughness, and skin age,** Skin Research and Technology 2014; 0: 1–7

Background: The topography of the skin surface consists of lines, wrinkles, and scales. Primary and secondary lines form a network like structure that may be identified as polygons. Skin surface roughness measurements are widely applied in dermatological research and practice but the relation between roughness parameters and their anatomical equivalents are unclear. This study aimed to investigate whether the number of closed polygons (NCP) per measurement field can be used as a reliable parameter to measure skin surface topography. For this purpose, we analysed the relation between skin surface roughness parameters and NCP in different age groups. Methods: Images of the volar forearm skin of 38 subjects (14 children, 12 younger, and 12 older adults) were obtained with the VisioScan VC98. The NCP was counted by three independent researchers and selected roughness parameters were measured. Interrater reliability of counting the number of closed polygons and correlations between NCP, roughness parameters, and age were calculated.

B. Tyszczuk, B. Szczepanik, R.K. Mlosek, S. Malinowska, R. Debowska, K. Rogiewicz, I. Eris, **The high frequency ultrasound as a tool for the assessment of anti-cellulite treatments efficacy,** IFSCC 2014 Paris

Cellulite is nowadays a common aesthetical defect, which affects most of women worldwide. Taking into consideration the size of this phenomenon cosmetic industry is searching a new ways of fighting against it and new diagnostic tools and methods to measure anti-cellulite therapy‘s efficacy.

Unfortunately reliable monitoring of anti-cellulite treatment still remains a problem. However, new diagnostic techniques such as high frequency ultrasound (HFultrasound) imaging can be useful tool for the assessment of cellulite-reducing efficacy of cosmetics therapy.

L.T. Fox, J. du Plessis, M. Gerber, S. van Zyl, B. Boneschans, J.H. Hamman, **In Vivo skin hydration and anti-erythema effects of Aloe vera, Aloe ferox and Aloe marlothii gel materials after single and multiple applications**, Phcog Mag 2014;10: p. 392-403

Objective: To investigate the skin hydrating and anti-erythema activity of gel materials from Aloe marlothii A. Berger and A. ferox Mill. in comparison to that of Aloe barbadensis Miller (Aloe vera) in healthy human volunteers. Materials and Methods: Aqueous solutions of the polisaccharidic fractions of the selected aloe leaf gel materials were applied to the volar forearm skin of female subjects. The hydration effect of the aloe gel materials were measured with a Corneometer® CM 825, Visioscan® VC 98 and Cutometer® dual MPA 580 after single and multiple applications. The Mexameter® MX 18 was used to determine the anti-erythema effects of the aloe aterial solutions on irritated skin areas. Results: The A. vera and A. marlothii gel materials hydrated the skin after a single application, whereas the A. ferox gel material showed dehydration effects compared to the placebo. After multiple applications all the aloe materials exhibited dehydration effects on the skin. Mexameter ® readings showed that A. vera and A. ferox have anti-erythema activity similar to that of the positive control group (i.e. hydrocortisone gel) after 6 days of treatment. Conclusion: The polysaccharide component of the gel materials from selected aloe species has a dehydrating effect on the skin after multiple applications. Both A. vera and A. ferox gel materials showed potential to reduce erythema on the skin similar to that of hydrocortisone gel.

J.Y. Park, T.G. Lee, J.Y. Kim, M.C. Lee, Y.K. Chung, W.J. Lee, **Acellular Dermal Matrix to Treat Full Thickness Skin Defects: Follow-Up Subjective and Objective Skin Quality Assessments**, Arch Craniofac Surg Vol.15 No.1, 2014, p. 14-21

Background: There are several options for replacement of the dermal layer in full thickness skin defects. In this study, we present the surgical outcomes of reconstruction using acellular dermal substitutes by means of objective and subjective scar assessment tools. Methods: We retrospectively reviewed the medical records of 78 patients who had undergone autologous split-thickness skin graft with or without concomitant acellular dermal matrix (CGDerm or AlloDerm) graft. We examined graft survival rate and evaluated postoperative functional skin values. Individual comparisons were performed between the area of skin graft and the surrounding normal skin. Nine months after surgery, we compared the skin qualities of CGDerm graft group (n=25), AlloDerm graft group (n=8) with skin graft only group (n=23) each other using the objective and subjective measurements. Results: The average of graft survival rate was 93% for CGDerm group, 92% for AlloDerm group and 86% for skin graft only group. Comparing CGDerm grafted skin to the surrounding normal skin, mean elasticity, hydration, and skin barrier values were 87%, 86%, and 82%, respectively. AlloDerm grafted skin values were 84%, 85%, and 84%, respectively. There were no statistical differences between the CGDerm and AlloDerm groups with regard to graft survival rate and skin functional analysis values. However, both groups showed more improvement of skin quality than skin graft only group. Conclusion: The new dermal substitute (CGDerm) demonstrated comparable results with regard to elasticity, humidification, and skin barrier effect when compared with conventional dermal substitute (AlloDerm).

K.H. Yoo, T.R. Kwon, S.Y. Kim, Y.S. Song, Y.S. Cheon, Y.M. Kim, I.K. Yeo, E.J. Ko, K. Li, M.N. Kim, B.J. Kim, **Observation of in vivo morphologic changes after carbon dioxide ablative fractional laser in a mouse model using noninvasive imaging modalities and comparison with histologic examination**, Photochem Photobiol. 2014 Nov-Dec;90(6): p. 1423-1426

Ablative fractional carbon dioxide (CO2) lasers have been widely used for several types of cosmetic dermatosis. A number of previous studies have evaluated this technique in animals or human beings by observing morphologic changes using an invasive modality such as skin biopsy. In this study, we assessed in vivo skin changes after CO2 ablative fractional laser treatment in a mouse model using noninvasive imaging modalities (Folliscope(®) and Visioscan 98(®)), and each results was compared with data from histologic examination. An ablative fractional CO2 laser was applied with different pulse energy between 7 to 35 mJ/microspot. As results of above methods, we also confirmed that the CO2 ablative fractional laser generated injuries with increasing width and depth with increasing pulse energy. Although numerous papers have described application of this laser in vivo skin specimens, our study evaluated the feasibility of using relative noninvasive imaging modalities for assessing the outcome of laser ablation. Based on our data, we suggest that these technologies may be useful alternative modalities for assessing laser ablation that are easier to perform and less invasive than skin biopsy.

W. Almeida Ciancaglio Garbossa, D. Garcia Mercurio, P.M.B.G. Maia Campos, **Shikimic acid: a potential active principle for skin exfoliation**, Surg Cosmet Dermatol 2014;6(3): p. 239-47

Introduction: Organic acids are widely used in cosmeceutic-based skincare due to their exfoliation and cell renewal related effects. A star anise derivative known as shikimic acid is an example. Objectives: To evaluate the antioxidant activity of shikimic acid and the clinical efficacy of dermocosmetic preparations containing 3% of this active principle. Methods: The antioxidant activity was assessed through an in vitro method. Formulations of gel, gel cream, and a 3% solution of the acid were sequentially dispensed and preliminarily subjected to stability and sensory analysis. The clinical study was performed through non-invasive biophysical and skin imaging techniques. Results: The shikimic acid showed antioxidant potential. All formulations were found to be stable and the addition of shikimic acid improved the sensory analysis of the gel and gel cream. In the clinical assessment, the gel and the solution showed significant alterations in microrelief and in the parameters linked to skin exfoliation. However, the gel cream formulation did not show such an effect, suggesting the importance of the vehicle for the effectiveness of the cosmeceutics. Conclusions: Shikimic acid can be considered an active principle with good potential for application in dermocosmetic formulations aimed at exfoliation and improvement of the skin's microrelief.

A. Ali, N. Akhtar, F. Chowdhary, **Enhancement of human skin facial revitalization by moringa leaf extract cream**, Postep Derm Alergol 2014; XXXI, 2: p. 71–76

Introduction: Solar ultraviolet exposure is the main cause of skin damage by initiation of reactive oxygen species (ROS) leading to skin collagen imperfection and eventually skin roughness. This can be reduced by proper revitalization of skin enhancing younger and healthier appearance. Aim: To evaluate the skin facial revitalization effect of a cream formulation containing the *Moringa oleifera* leaf extract on humans. Material and methods: Active cream containing 3% of the concentrated extract of moringa leaves was developed by entrapping in the inner aqueous phase of cream. Base contained no extract. Skin revitalizing parameters, i.e. surface, volume, texture parameters and surface evaluation of the living skin (SELS) were assessed comparatively after application of the base and active cream on human face using Visioscan® VC 98 for a period of 3 months. Results: Surface values were increased by the base and decreased by the active cream. ffects produced for the base and active cream were signifcant and insignifcant, respectively, as observed in the case of surface. Unlike the base, the active cream showed signifcant effects on skin volume, texture parameters (energy, variance and contrast) and SELS, SE*r* (skin roughness), SE*sc* (skin scaliness), SE*sm* (skin smoothness), and SE*w* (skin wrinkles) parameters. Conclusions: The results suggested that moringa cream enhances skin revitalization effect and supports anti-aging skin effects.

B. Eberlein, J. Huss-Marp, F. Pfab, R. Fischer, R. Franz, M. Schlich, M. Leibl, V. Allertseder, J. Liptak, M. Kriegisch, R. Hennico, J. Latotski, C. Ebner von Eschenbach, U. Darsow, J. Buters, H. Behrendt, R. Huber, J. Ring, **Influence of alpine mountain climate of Bavaria on patients with atopic diseases: studies at the Environmental Research Station Schneefernerhaus (UFS - Zugspitze) – a pilot study**, Clinical and Translational Allergy 2014, 4:17

Mountain and maritime climate therapy takes advantage of specific climatic conditions to treat chronic allergic diseases. It was the aim of the study to investigate effects of a 5 day sojourn on atopic diseases at the highest German mountain. In this pilot study 18 patients with grass pollen-induced rhinoconjunctivitis, atopic ezcema or asthma and 11 non-allergic controls were included. Skin physiology parameters, changes of the respiratory and nasal functions, subjective symptoms and blood parameters were measured during a 5-day observation period in the Environmental Research Station Schneefernerhaus (UFS) at the moderate altitude mountain region (Zugspitze; 2650 m alt.) compared to a low altitude area (Munich; 519 m alt.). Several of the skin physiology parameters changed significantly during the observation period (decrease of skin hydration, increase of skin smoothness, skin roughness, skin scaliness and pH-value). In patients with atopic eczema, the SCORAD (Severity Scoring of Atopic Dermatitis) and the scores of the DIELH (Deutsches Instrument zur Erfassung der Lebensqualität bei Hauterkrankungen) did not change significantly. Histamine induced itch decreased significantly. Parameters of nasal function did not change significantly. Several lung parameters showed a slight, but statistically significant improvement (forced expiratory volume in one second/volume capacity [FEV1/VC], peak expiratory flow [PEF], maximum expiratory flow at 50% of vital capacity [MEF 50], maximal mid-expiratory flow between 25% and 75% of vital capacity [MMFEF 25/75]), whereas the vital capacity (VC) decreased significantly. ECP (eosinophil cationic protein) in the serum and parameters of blood count changed significantly. These results show that the benefit of a moderate altitude mountain climate sojourn over a period of 5 days differs in depending on the atopic disease. Especially asthma parameters and itching of the skin improved. It would be interesting to assess the parameters during longer observation periods in alpine climate.

M. Farwicka, T. Köhlera, J. Schilda, M. Mentela, U. Maczkiewitza, V. Paganic, A. Bonfiglic, L. Riganoc, D. Bureikb, G.G. Gauglitz, **Pentacyclic Triterpenes from *Terminalia arjuna* Show Multiple Benefits on Aged and Dry Skin**, Skin Pharmacol Physiol 2014;27: p. 71–81

Background: Pentacyclic triterpenoids improve epidermal barrier function and induce collagen production. Here, their effects on cutaneous aging by means of objective instrumental measurements were elucidated. Methods: Reconstituted human epidermis, cultivated keratinocytes and fibroblasts were incubated with *Terminalia arjuna triterpenes* (*T. arjuna* bark extract), and mRNA and protein expression of various genes was determined using microarray analysis, qRT-PCR and ELISA techniques. Clinical efficacy of *T. arjuna* bark extract versus vehicle control cream was elucidated in 30 patients and transepidermal water loss (TEWL), skin hydration and elasticity were measured. Another 30 female patients in their postmenopausal phase were treated with a similar regime, and skin sebum content, cutaneous blood microcirculation and skin density/echogenicity were assessed. Results: Incubation with T. arjuna triterpenes increased FGF-2, TSP-1, TGF-β and CTGF expression, and VEGF secretion in vitro. Elevated lactate dehydrogenase release upon sodium dodecyl sulphate challenge was reversed by the application of *T. arjuna* bark extract. *T. arjuna* bark extract decreased TEWL, improved skin moisturization, reduced scaliness and led to significantly improved skin elasticity. Also, increases in blood microflow and skin sebum contentas well as improved skin thickness/echogenicity were noted on postmenopausal skin, resulting in visible reduction of sagging skin on the jowls as demonstrated by digital photography. Conclusion: *T. arjuna* bark extract appears as an innovative active ingredient that exerts versatile antiaging properties in vitro and in vivo.

G.E. Piérard, T. Hermanns-Lê, S.L. Piérard, L. Dewalque, C. Charlier, C. PiérardFranchimont, P. Delvenne, **In vivo skin fluorescence imaging in young Caucasian adults with early malignant melanomas,** Clinical, Cosmetic and Investigational Dermatology 2014:7 p. 225–230

Background: Human cutaneous malignant melanoma (CMM) is an aggressive cancer showing a dramatic worldwide increase in incidence over the past few decades. The most prominent relative epidemiological increase has been disclosed in young women. The aim of the study was to assess the effects of chronic sun exposures in order to rate the extend of melanocytic stimulations in the vicinity of CMM. Methods: The study was designed to evaluate the melanin distribution and density using ultraviolet light illumination. The present study was performed on surgical excision specimens of thin CMM lesion removed from the upper limbs of 55 Caucasian adults (37 women and 18 men). Two control groups comprised 23 men and 21 women of similar ages who had mediumsize congenital melanocytic nevi, also present on the upper limbs. The peritumoral skin was scrutinized using a Visioscan® VC98 device, revealing the faint mosaic melanoderma (FMM) pattern that grossly indicates early signs of chronic photodamage in epidermal melanin units. Results: The median extent of relative FMM was signifcantly higher in the CMM male group. By contrast, the CMM female group showed a reverse bimodal distribution in FMM size. Only 12/37 (32.5%) of the CMM female group had an increased FMM size, whereas 25/37 (67.5%) of females with CMM had a global FMM extent in the normal range, relative to the controls. Conclusion: Thin CMM supervening in young women appear unrelated to repeat photoexposure. Other mechanisms are possibly involved.

M.S.B Kriegisch, **Einflüsse des alpinen Hochgebirgsklimas auf Parameter allergischer Erkrankungen: Untersuchungen an der Umweltforschungsstation Schneefernerhaus (UFS - Zugspitze),** Dissertation am ZAUM – Zentrum Allergie und Umwelt der Technischen Universität München, Germany, 2013

Definitionsgemäß wird die Atopie als familiär auftretende Überempfindlichkeit von Haut und Schleimhaut gegenüber Umweltstoffen beschrieben, die mit einer erhöhten Immunglobulin E-Bildung und/oder einer veränderten unspezifischen Reaktivität assoziiert ist. Sie stellt ein heterogenes Syndrom dar und manifestiert sich in unterschiedlichsten Organen, wobei die allergische Rhinokonjunktivitis, das atopische Ekzem und das Bronchialasthma die häufigsten Manifestationen darstellen. Diese drei Erkrankungen, die auch als atopische Trias bezeichnet werden, treten sowohl gleichzeitig als auch nach einander auf, wobei das atopische Ekzem als Erstmanifestation im Kindesalter überwiegt. Im Rahmen des „Etagenwechsels“ kann sich aus dem atopischen Ekzem sowohl ein Bronchialasthma als auch eine allergische Rhinokonjunktivitis entwickeln.

F. Fanian, S. Mac-Mary, A. Jeudy, T. Lihoreau, R. Messikh, J.-P. Ortonne, J.-M. Sainthillier, A. Elkhyat, A. Guichard, K.H. Kenari, P. Humbert, **Efficacy of micronutrient supplementation on skin aging and seasonal variation: a randomized, placebo-controlled, double-blind study,** Clincal Interventions in Aging Journal, 14 November 2013

Background: Several studies have confirmed dramatic changes in skin surface parameters during the winter months. Although there are many studies supporting the positive effects of topical

treatment, there are no published studies demonstrating the effects of oral supplementation in the prevention of negative skin changes during winter. The purpose of this study was to evaluate the efficacy of an oral micronutrient supplement in preventing the negative effects of winter weather on skin quality using noninvasive biometrologic instruments.
Methods: This study included 80 healthy female volunteers aged 35–55 years with phototype II–IV skin. Randomization was balanced. Two tablets of a micronutrient supplement (Perfectil® Platinum) or placebo were administered once daily for 4 months. The volunteers were examined at baseline, after 4 months, and 6 weeks after termination of treatment (month 5.5). The evaluation included skin microrelief by Visioscan® as the main outcome, and the secondary outcomes were results on standard macrophotography, skin tension by Reviscometer®, skin high-frequency ultrasound, and self-assessment.

D.G. Mercurio, T.A.L. Wagemaker, P.M:B.G Maia Campos, **Effects of sun exposure habits on skin aging: a multivariate analysis**, ISBS, Milan 15-16.10.2013

Summary: Skin exposure to ultraviolet (UV) radiation is related with molecular, morphological, structural and clinical changes on the skin, which characterizes photoaging. However, there are few studies that correlate sun exposure habits and objective measurements using biophysical and skin image techniques. Thus, the aim of this study was to evaluate the influence of the sun exposure habits on the biophysical and morphological characteristics of aged skin using multivariate analysis. For this, 40 healthy female volunteers (aged between 18- 30 or 40-65 years) filled a questionnaire concerning their sun exposure and protection habits during different periods of their lives. The characterization of the skin of dorsal and volar forearms was performed using objective measurements by biophysical and skin image techniques in terms of transepidermal water loss, direct measurement of the skin topography, viscoelasticity, dermis thickness and echogenicity, and structure and morphology of the epidermis by in vivo Reflectance Confocal Microscopy. Principal Component Analysis (PCA) of the values of each parameter was used to visualize the relationship between variables and groups. According to the PCA analysis, the sun exposure habits are directly related to increased dermis thickness, reduced echogenicity and elasticity.

A. Dzwigalowska, A. Solyga-Zurek, R.M. Debowska, I. Eris, **Preliminary study in the evaluation of anti-aging cosmetic treatment using two complementary methods for assessing skin surface,** Skin Research and Technology 2013; 19: 155-161

Background/purpose: One of the constantly developing fields in the area of cosmetology is the analysis of the efficacy of cosmetic products. Various instrumental techniques are available nowadays to evaluate changes in skin surface and measure anti-wrinkle activity. The aim of our study was to present and confront two methods of the analysis of skin surface, Primos and Visioscan, regarding their applicability in evaluating anti-wrinkle properties of cosmetic formulations and treatments. Methods: The study was performed on women, taking part in anti-wrinkle cosmetic treatments. Various skin aging parameters were analyzed, including skin surface changes. The results obtained with Visioscan and Primos were compared regarding their usefulness in anti-wrinkling properties assessment.

Y. Gao, X. Wang, S. Chen, S. Li, X. Liu, **Acute skin barrier disruption with repeated tape stripping: an in vivo model for damage skin barrier,** Skin Research and Technology 2013; 19: 162-168

Purpose: To establish a model of standardized acute barrier disruption, investigate the response of normal human to repeated tape stripping, and analyze the change of damaged skin with non-invasive examination techniques for skin, such as TEWL and squamometry. Methods: Repeated tape stripping with corneofix was applied on three different anatomical sites, the measurement of TEWL was performed on the baseline and after every 5 strips. Then the samples of corneofix were analyzed using Visioscan VC98 and squamometry.

T. Hermanns-Lê, C. Piérard-Franchimont, G.E. Piérard, **Scrutinizing skinfield melanin patterns in young Caucasian women,** 2013 Informa Healthcare UK

In humans, melanocytes and their melanin production are responsible for the phototype-related skin color. Two chemically distinct types of melanins are present in the skin, namely an insoluble black-brown eumelanin and an alkali soluble red-yellow phaeomelanin. The microenvironment within the melanosomes where these pigments are formed is critically important. Indeed, the varied skin hues depend largely on the chemical nature, amount and distribution of melanin pigments produced in melanosomes and transferred to keratinocytes. The overall system appears organized in each epidermal melanin (EMU) corresponding to a functional entity composed of a single melanocyte and its related neighbor keratinocytes into which melanosomes are transferred [1].

G.E. Pierard, C. Franchimont, P. Delvenne, **The thousand and one facets of actinic keratosis**, Dermatology Laboratory and Clinical Research, Nova Biomedical; ISBN: 978-1-62808-106-0

Introduction: Actinic (or solar) keratosis (AK) is a common photoinduced neoplasm. It is a biologically benign condition. However, it represents the initial clinical step of a disease continuum observed on chronically photodamaged skin leading to a peculiar type of invasive squamous cell carcinoma (SCC). This cancer has limited metastatic potential [1], and is tentatively more specifically named “actinic carcinoma” (AC). When considering AK, the older terms “senile keratosis” and “senile keratoma” have been abandoned as clinical designations because the age of the individual is not an essential feature.

N. Potekaev, O. Zhukova, **Evaluation of Safety and Efficacy of the Maximus™ System for Facial Wrinkles**, Journal of Cosmetics, Dermatological Sciences and Applications, 2013, 3, p. 151-156

Introduction: There is a growing demand for non-invasive methods with no down time and minimal risk for facial skin rejuvenation and treatment of wrinkles. The Maximus system, based on TriLipo technology, combines radiofrequency and Dynamic Muscle Activation (DMA). We evaluated the safety and efficacy of the Maximus™ system for the treatment of facial wrinkles. Methods: Twenty women received 8 weekly treatments for facial wrinkles using the Maximus system. Treatment efficacy was assessed by comparing pre- and post-treatment photographs, assessing skin characteristics using the 3D Visioscan system, assessing skin microtopography using the DUB ultrasonic scanning system, assessing microcirculation conditions of facial skin using Laser Doppler Flowmetry (LDF) and subjective evaluation of skin improvement. Results: No adverse events were observed. Following the treatments, positive changes in skin flakiness (scaliness), roughness, smoothness and wrinkles were demonstrated using Visioscan. A thickening of the epidermal-dermal layer and increased structural homogeneity were observed by ultrasound, hyperechogenicity was increased and areas of hypoechogenicity reduced. Microcirculation was improved, corresponding with a positive trend for improved skin characteristics. Conclusions: The Maximus system powered by the TriLipo technology is a non-invasive, effective, safe, and virtually painless treatment for reduction of wrinkles and facial skin rejuvenation.

A. Atif, N. Akhtar, Haji M. Khan, **Enhancement of Human Cheek Skin Texture by Acacia Nilotica Bark Extract Cream**, Tropical Journal of Pharmaceutical Research June 2013; 12 (3): p. 323-327

Purpose: To evaluate the effect of a topical application of a cream formulation containing extract of Acacia nilotica bark extract on human cheek skin texture. Methods: A cream containing 3 % concentrated extract of Acacia nilotica bark was developed by entrapping the extract in the internal aqueous phase of the cream having strong antioxidant activity. A similar cream but without the extract was also prepared. Each of the formulations was applied to thecheeks of 11 human volunteers for a period of three months. Both cream formulations were assessed, using Visioscan VC 98, for various parameters including texture parameters (energy, contrast and variance) as well as for skin roughness (Ser), skin scaliness (SEsc), skin smoothness (SEsm) and skin wrinkles (Sew). Results: Unlike the cream base, the extract cream exhibited steady, significant improvement in skin parameters over the 3-month period of application. Images showed visible improvement of the overall skin appearance and reduction of fine lines by the extract cream. Furthermore, skin texture (variance and contrast) and SELS (SEr, SEsc, SEsm and SEw) parameters showed significant decline ($p < 0.05$) and the texture parameter of energy showed significant increase ($p < 0.05$). Conclusion: Our findings indicate that the cream containing 3 % Acacia nilotica bark extract possesses anti-aging effect and improves skin surface appearance.

K. Myer, H. Maibach, **Stratum corneum evaluation methods: overview,** Skin Research and Technology 2013; 19; 213-219

Background/purpose: The stratum corneum serves as a main barrier for the skin, minimizing water loss and regulating absorption of substances. Because of its surface location, it is readily available for analysis. Consequently, many techniques are amenable to investigating its content and function. Here, we review the methods employed to evaluate the stratum corneum and its function. Methods: We reviewed Pubmed and Embase search results for ‘stratum corneum, ‘method, ‘methods, ‘technique, ‘and ‘evaluation’ and extracted pertinent articles that discussed ways to examine the stratum corneum and its constituents. Results: Traditional and novel methods vary by accuracy, ease of use, time requirements, cost, invasiveness, and equipment requirements.

M. Schweitzer, K. Stang, **A Physiological Experiment for Skin Research on ISS**, Kayser-Threde GmbH 2013 & DLR

SKIN-B is an experiment set for non-invasive investigation of changes of skin hydration, skin barrier function and skin surface structure of astronauts before, after, and during space flight. Professor Dr. Heinrich and Dr. Nicole Gerlach from Derma Tronnier, Institute for Experimental Dermatology at

Witten-Herdecke University, hope to derive conclusions from the data on the effects of weightlessness on the astronaut's skin, inner organs, and on physiological changes to the skin to be expected during long-term missions. In comparison to the precursor experiment SkinCare (2006) the experiment set has been substantially improved by Kayser-Threde: An enhanced ultra-violet camera was chosen to obtain sharper images. Operation was made easier since the experiment can now be operated from a space station laptop via USB ports and with a software adapted for this specific purpose. Use of the ISS board laptop also allows experiment data to be transferred to Earth directly.

N. Gerlach, H. Grosch-Rafalski, M. Wiebusch, U. Heinrich, H. Tronnier, **Skin physiological experiments in space,** Poster Dermatronnier Experimental Dermaltology

Over the duration of a long-term microgravity space flight, human bodies undergo dramatic changes. Impairments due to circulatory and vestibular disturbances of the equilibrium are the prevalent medical side effects astronauts suffer from. These are followed by dermatological problems. The effects of microgravity on skin reported by crewmembers are slow healing of contusions and lacerations, dryness and cracking as wells as rashes and itchiness.

Controlled usage study to evaluate efficacy of an anti-aging product, Lifeline Skin Care Information 2013

The purpose of this study is to evaluate the performance of an anti-aging eye cream product intended to increase skin firmness and reduce the appearance of fine lines, wrinkles and crow's feet in the peri-orbital area when tested over a 28 and 56 day period. Wrinkle assessment was conducted instrumentally using a Visioscan image analysis system. Elasticity and viscoelastic properties of the skin were measured as a function of flexibility and firmness employing a Cutometer. In addition product effectiveness was subjectively evaluated using panelist self-assessment via questionnaire responses.

C. Uhl, D. Khazaka, **Techniques for globally approved skin testing,** Personal Care April 2013

In efficacy testing and claim support for cosmetic products, objective measurement systems became indispensable long ago, especially since subjective clinical assessments are often prone to bias and inter-observer variation. Without suitable instrumentation it is close to impossible to determine what a product is really doing for the skin. Those objective measurement methods and subjective evaluations are mutually dependent. No measurement can be performed without the subjective evaluation of the results by the user of such instrumentation. However, a pure subjective evaluation of the skin without appropriate measurement techniques is not able to achieve accurate results either. This relationship becomes clearer when looking for example at skin colour measurements. Subjectively, the human brain cannot process slight changes in colour, especially when the colours are not viewed side by side, but at different points in time. Instrumental measurement however will clearly detect such slight changes. The achieved result must then be interpreted in context with the expected outcome or the hypothesis. For this, you will always need a knowledgeable and experienced person because 'a fool with a tool is still a fool', as the late Albert Kligman used to say. This relationship between objective measurement and subjective evaluation is not only true for the determination of differences in skin colour, but also for all other skin measurement parameters important for the cosmetic industry.

J.W. Choi, S.H. Kwon, C.H. Huh, K.C. Park, S.W. Youn, **The influences of skin visco-elasticity, hydration level and aging on the formation of wrinkles: a comprehensive and objective approach,** Skin Research & Technologie, 2013 Feb;19(1): p. 349-55

Background: Various skin parameters including skin visco-elasticity and hydration level affect the formation of wrinkles. Objective: The aim of this study was to investigate the comprehensive and objective relationship between age, skin visco-elasticity, hydration level, and the occurrence of wrinkles using bioengineering equipments for the first time. Methods: A total number of 97 healthy women were included in this study. Age, Fitzpatrick skin type, skin mechanical parameters obtained with Cutometer(R0~R9), hydration level measured with Corneometer, as well as wrinkle parameters (SEsm, SEr, SEsc, and SEw) assessed with Visioscan, were analyzed with the Pearson's correlation test. Results: The skin fluidity (R6) increased while the elastic recovery ratio (R7) decreased with the age. The wrinkle parameter (SEw) also increased with the age. The higher skin hysteresis values (R4 and R9) coincided with the higher SEw values. Skin hydration significantly lowered the hysteresis (R9), the wrinkles (SEw), and the depth of wrinkle furrows (R3mr). Conclusion: The elderly have less elastic skin and more wrinkles. Skin hysteresis most closely related with the degree of wrinkles. Drier skin showed more wrinkles and deeper furrows, with wider intervals. On the basis of these objective findings, we propose several skin parameters associated with wrinkles, and hypothesize the mechanism of wrinkle generation.

M. Estanqueiro, G. Bossolani, M.H. Amaral, J. Conceicao, D. Santos, J.M. Sousa Lobo, J.B. Silva,

C.S.F. Gomes, **Characterizing and Evaluating the Effectiveness of Volcanic Pumice Exfoliants,** Cosmetics & Toiletries magazine Vol. 127, No. 11 November 2012

Human skin, more specifically facial skin, periodically needs a deep cleansing to remove not only the oily particles resulting from secretions, but also dead skin caused by desquamation of the epidermis. Cleansers are designed to remove dirt, sewat, sebum and oils from the skin, which helps to promote normal exfoliation and thereby rejuvenates the skin. However, the use of cleansers can lead to a reduction in the level of the natural moisturizing factor (NMF) of skin. Factors that reduce the water content can lead to changes in skin's viscoelasticity. Further, harsh cleansers such as soaps can induce dryness, leading to scaly and rough skin. These effects may be much more severe during winter months when the air is cold and dry.

M. Farwick, J. Schild, M. Mentel, U. Maczkiewitz, T. Köhler, **Cyanidium caladarium algae extract: a multifunctional anti-aging cosmetic ingredient with profound in vitro activity on epidermal stem cells and dermal fibroblasts,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The presented studies show unique and multifunctional anti-aging activity of an aqueous Cyanidium caladarium algae extract enriched in 4 aminobutyric acid (GABA). Activities were demonstrated in different in vitro cell culture models, and further substantiated in an in vivo cosmetic study. In order to elucidate the molecular mechanism of the Cyanidium caladarium extract, several in vitro assays were conducted on different skin cell culture models. The extract proved to be highly effective on all in vitro models employed, including stem cell-like epidermal keratinocyte progenitor cells, human dermal fibroblasts and reconstituted epidermis models. Results from in vitro gene expression experiments suggest that Cyanidium caladarium extract exerts several beneficial nutritional and protective effects on the molecular level, thereby promoting (i) maintenance of the skin's stem cell potential, (ii) overall strengthening of the dermal extracellular matrix architecture, and (iii) protection from UV-induced stress.

D. Tamburic, I. Macijauskaite, R. Parton, S. Williams, **Assessing the efficacy of high-flavanol cocoa extract: does higher concentration work better?**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

It is well documented that antioxidants have a range of positive effects on human skin. However, there is a problem with their delivery to the site of action, an issue shared with most topical actives. Due to their chemical nature, antioxidants are also inherently unstable ingredients.

L. Heider, R. Graf, S. Anazli, S. Hitzel; **Natural and bio-mimetic approaches to influence ageing,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Skin ageing, an ongoing and complex process, is influenced by many factors.
Most of the involved aspects can be categorized as photo ageing or external ageing and the chronological ageing or intrinsic ageing. However any type of ageing can also be of dramatic impact on histological skin changes. The following table lists the various ageing types their origin.

N. Waranuch, S. Maphanta, W. Wisuitiprot, **Effect of microparticles containing green tea extract on facial skin improvement,** ISBS Copenhagen 2012

To clinically evaluate an effectiveness of skin cream containing green tea extract loaded chitosan microparticles for facial wrikle treatment. Method: Tewnty-nine volunteers were randomly assigned to aplly skin cream containing 1% green tea extract loaded chitosan microparticles (GT-Cs) and a placebo cream on each of their half faces for 8 weeks. Skin elasticity was evaluated by using Cutometer and the photographs of each half faces were also compared. Skin moisture and skin irritation were determined by Corneometer and transepidermal water loss (TEWL) respectively.

T. Hermanns-Lê, K. Al Rustom, C. Piérard-Franchimont, G.E. Piérard, S. Piérard, **Le "cheetah-look" Le phenotype guépard, face cache de la pigmentation mélanique innée du visage,** DERM ACTU No° 131 Mai-Juin 2012

Au niveau du visage, trois types principaux de pigmentation physiologique peuvent être distingués. On identifie d'une part des mélanoses zonales ethniques comme la pigmentation orbitaire. D'autre part, le territoire facial peut comporter des zones mélaniques discrètes limitées par des lignes de démarcation coedifiées qui donnent un effet de "tigre-look" sous éclairage en lumière ultravieolette. Enfin, des mouche-tures relativement régulières, peuvent parsemer le visage, contribuant à un "cheetah-look" très particulier sous lumière ultraviolette. La lampe de Wood est un outil ancestral permettant des observations dans un spectre relativement étroit de lumière ultraviolette. Cet équipementcentenaire a fait l'objet de transformations techniques nombreuses pour aboutir à des cameras de type Visioscan et Visiopor (C+K electronic, Cologne).

J.H. Kim, B.Y Kim, J.W. Choi, S.O. Kim, H.S. Lee, K.C. Park, S.W. Youn, **The objective evaluation of the severity of psoriatic scales with desquamation collecting tapes and image analysis**, Skin Research and Technology, May 2012; 18: p. 143–150

Background: Assessment of psoriatic scales is important to determine the severity of psoriasis. However, there are very limited numbers of objective, quantitative and observerindependent tools for measuring the severity of psoriasis. Objective: To determine whether the bioengineering parameters of the psoriatic scale can be used to assess the severity of psoriasis instead of the psoriatic severity index of scales (PSIs) score. Methods: Thirty-four patients with psoriasis were included. A representative lesion from each patient was selected and bioengineering parameters were measured using the Corneofixs. Simultaneously, the severity of the scales was assessed by the PSIs score using clinical photographs of the lesions. In addition, skin color and elasticity parameters were also measured using the Colorimeters, the Mexameters and the Cutometers. Results: Statistical differences in the scale parameters were observed between the PSIs 2 and 3 scores. Among the scale parameters, the percent area and area in mm2 were negatively correlated with the PSIs score. In addition, the Colorimeters a, b parameters and the Cutometers R9 parameters were significantly correlated with the PSIs score. Conclusions: The results of this study showed that the severity of psoriatic scales could be measured objectively using the Corneofixs.

Marine ingredients focus: a look at marine products, Personal Care, April 2012

The sea holds a huge amount of power and influence in the minds of humans. At once mysterious, alluring and terrifying, Earth's oceans also represent the birthplace of all life, both plant and animal, and are increasingly becoming a rich source of medical and personal care ingredients. In personal care, the popularity of marine-derived cosmetic ingredients is not only due to their efficacy, but also the connotations they come with. Consumers associate the sea with purity and freshness, two extremely important characteristics for personal care products, and skin care in particular. This is a deeply-ingrained association that has lead people to use sea flora as a skin care ingredient for many centuries as well as in soap, cleansers, and more recently shaving foams and shampoos.

M. Mateu, C. Davi, E. Canadas, A. Soley, R. Delgado, **Effective ingredients from marine biotechnology,** Personal Care, April 2012, p. 53-57

Cosmetic scientists are developing new ways to identify new natural sources, which enable innovative compounds with excellent cosmetic properties such as firming, restructuring, moisturising or anti-wrinkles. Biotechnology encompasses the use of microoranisms to come up with novel active ingredients that fulfil two of the demands that are leading trends in the cosmetic industry: natural and sustainable. Besides, complex molecules can be obtained, which otherwise would be impossible due to technical or economic limitations. Our approach is to take advantage of biotechnology to develop cosmetic ingredients which are naturally occurring in non-genetically modified organisms, through sustainable production while preserving the invironment, since there is no harvesting nor extracting from nature.

N. Gerlach, M. Herling, U. Heinrich, H. Tronnier, **Kosmetisch-dermatologische Wirksamkeit und Verträglichkeit einer Dexpanthenol-haltigen Fußcreme,** Kosmetische Medizin 3.12

Mit der Dexpanthenol-haltigen Fußcreme steht eine Fußpflege zur Verfügung, die zur Pflege der trockenen und empfindlichen Haut entwickelt worden ist. Sie zeichnet sich durch eine sehr gute feuchtigkeitsanreichernde Wirkung aus und trägt gleichzeitig zu einer Stabilisierung der Hautbarriere bei. Durch die pflegenden Eigenschaften konnten die Hautrauigkeit und Hautschuppigkeit deutlich gemildert werden und eine übermäßige Hornhaut wurde reduziert. Die pflegenden Eigenschaften, die gute Wirksamkeit und sehr gute Verträglichekeit der Dexpanthenol-haltigen Fußcreme spiegelten sich in der hohen Zufriedenheit und Akzeptanz der Probanden wieder.

A. Marini, S. Grether-Beck, T. Jaenicke, M. Weber, C. Burki, P. Formann, H. Brenden, F. Schönlau, J. Krutmann, **Pycnogenol® effects on skin elasticity and hydration coincide with increased gene expressions of collagen type I and hyaluronic acid synthase in women**, Skin Pharmacol Physiol., 2012;25(2): p. 86-92

Introduction and objectives: In recent years there has been an increasing interest in the use of nutritional supplements to benefit human skin. Molecular evidence substantiating such effects, however, is scarce. In the present study we investigated whether nutritional supplementation of women with the standardized pine bark extract Pycnogenol® will improve their cosmetic appearance and relate these effects to expression of corresponding molecular markers of their skin. Materials and methods: For this purpose 20 healthy postmenopausal women were supplemented with Pycnogenol for 12 weeks. Before, during and after supplementation, their skin condition was assessed (i) by employing non-invasive, biophysical methods including corneometry, cutometry, visioscan and ultrasound analyses and (ii) by

taking biopsies and subsequent PCR for gene expression analyses related to extracellular matrix homeostasis. Results: Pycnogenol supplementation was well tolerated in all volunteers. Pycnogenol significantly improved hydration and elasticity of skin. These effects were most pronounced in women presenting with dry skin conditions prior to the start of supplementation. The skin-physiological improvement was accompanied by a significant increase in the mRNA expression of hyaluronic acid synthase-1 (HAS-1), an enzyme critically involved in the synthesis of hyaluronic acid, and a noticeable increase in gene expression involved in collagen de novo synthesis. Conclusions: This study provides skin-physiological and for the first time molecular evidence that Pycnogenol supplementation benefits human skin by increasing skin hydration and skin elasticity. These effects are most likely due to an increased synthesis of extracellular matrix molecules such as hyaluronic acid and possibly collagen. Pycnogenol supplementation may thus be useful to counteract the clinical signs of skin aging.

B.A. Khan, N. Akhtar, K. Waseem, T. Mahmood, A. Rasul, M. Iqbal, S.-U. Zaman, **Visio Scan® VC98, Corneometer MPA 5 and Tewameter MPA 5**, African Journal of Pharmacie and Pharmatologie Vol. 6(3), p. 225-227, 22 January, 2012

Human skin is the largest exposed area of our body. There are number of physiological changes which may occur in response to internal or external sources. Biophysical techniques have been extensively employed to study any changes in human skin physiology. Usually these bioengineering techniques are equipped with non-invasive probes. Visioscan, Corneometer and Tewameter are the most widely used techniques in the characterization parameters of skin physiology, like skin hydration, transepidermal water loss and skin wrinkles. This research covers all aspects of these parameters, in skin analysis.

J. Kottner, M. Schario, N.G. Bartels, E. Pantchechnikova, K. Hillmann, U. Blume-Peytavi, **Comparison of two in vivo measurements for skin surface topography,** Skin Research and Technologie 2012; 0:1-7

Skin surface characteristics like roughness, scaliness or wrinkles are important diagnostic signs and outcomes in dermatological and cosmetological practice and research. Besides visual inspection and application of clinical scores more objective quantifications gained a lot of attention during the last decades. ‘Traditional‘ methods include the preparation of skin replicas with subsequent application of optical or mechanical profilometry. Limitations of these methods are possible inhomogeneities, bubbles or artifacts of the replicas, possible interactions between the skin surface while generating the replicas and long drying times.

Increased Skin Hydration with FLORAESTERS® 30 and FLORAESTERS K-100® Jojoba in a Shaving Cream, Poster Floratech 2012

Floraesters 30 and Floraesters K-100 Jojoba, alone and in combination, increased skin hydration over the vehicle which only included 1% aloe vera.

R. Graf, K.-A. Reiffen, S. Anzali, U. Heinrich, H. Tronnier, H. Driller, F. Pfluecker, **In Vivo Anti-Aging Efficacy of a Cyclic Peptide Composition,** IFSCC Magazine 1, 2012, p. 23-27

Aging affects the composition and morphological structure of the different compartments of the skin. Integrins, as an important family of transmembrane receptors, play a key role in cell-matrix interactions and are involved in cell signaling. Binding of specific ligands within the extracellular matrix to these receptors is a crucial step to maintain a vital tissue structure. For this reason a selective cyclip peptide containing an arginine-glycine-aspartic acid (RGD) sequence was designed for cosmetic application. The objective of the present work was to evaluate the binding efficiency of different RGD peptides to specific integrins.

G. Mayeux. E. Xhauflaire-Uhoda, G.E. Piérard, **Patterns of aluminium hydroxychloride deposition onto the skin,** Skin Research and Technology, 2011

The normal stratum corneum (SC) is nearly impermeable except for some small size xenobiotics and a minute amount of water evaporating from its surface. This property supports the concept of a diffusional barrier function that may be weakened in some conditions. The remarkable barrier effect results from the highly organized structure of the SC. The predominant route for water passage is though to reside in the intercorneocyte path composed of a complex mixture of lipids structured in rigid bilayer arrays. In practice, the measurement of transepidermal water loss (TEWL) is performed at rest in a cool environment in order to assess this physiological process. Under physical or emotional stress, TEWL is severely altered by sweating.

G. Szepetiuk, S. Pierard, C. Piérard-Franchimont, M. Caucanas, P. Quatresooz, G.E. Piérard, **Recent trends in specular light reflectance beyond clinical fluorescence diagnosis,** Eur. J. Dermatol. 2011; p. 157-161

Under specific light illumination, particularly ultraviolet (UV) and near-UV light stimulation, the skin produces both specular light reflectance and, possibly, specific fluorescent emission. These properties offer diagnostic clues and disclose some peculiar functions of the skin. A series of superficial infections (erythrasma, some tinea capitis types, tinea/pityriasis versicolor, dermatophytoses, etc.) and pilosebaceous follicles enriched in *Propionibacterium spp* show fluorescence. This latter characteristic is downgraded or lost while on some anti-acne treatments. A quenching effect of fluorescence is observed following the application of sunscreens.

C. Piérard-Franchimont, P. Quatresooz, G.E. Piérard, **Specular light reflectance of flakes in seborrhoeic dermatitis of the scalp: a pilot study;** Experimental dermatology 2011, p. 1-4

Seborrhoeic dermatitis and dandruff are common scalp conditions. In this study, we set out to explore a new method for rating both the severity of the scalp condition and the efficacy of scalp-care compounds. Scalp flakiness was sampled for 40 volunteers using adhesive-coated clear discs, with image analysis used to quantify the specular light reflectance (SLR) of the flakes. Two ultraviolet (UV)-emitting charge-coupled device cameras (Visioscan VC98 and Visiopor PP34) were used. SLR clearly highlighted the flakiness with high contrast against a black background, and the recorded appearance could be conveniently submitted to the image-analysis system for quantification. In conclusion, SLR under UV illumination highlights scalp flakiness, allowing objective measurements.

G.E. Piérard, S. Seité, A. Rougier, P. Quatresooz, **Anlaytic assessment under ultraviolet light of actinic lentigines under bleaching treatment,** Journal of Cosmetic Dermatology, 10, 2011, p. 104-109

Actinic (solar) lentigines are melanitic tumors frequently developed during photoaging on the dorsum of the hands. Bleaching (whitening) agents are commonly offered to fade their darker aspect. In general , regular colorimetric methods show poor sensitivity to disclose any bleaching effect. The present randomized controlled study on 24 women was designed to objectively assess the clinical efficacy of a combination of bleaching agents on actinic lentigines. In the endeavour of improving sensitivity. The ultraviolet light-enhanced visualization (ULEV) method was used to derive analytical measurements of lentigo areas and darkness

P. Quatresooz, F. Henry, P. Paquet, G.E. Piérard, **Photoaging under recreational sunbeds,** Skin Research and Technology 2011, 17; p. 309-313

Photoaging refers to light-induced changes in the skin that are superimposed to the alterations of intrinsic chronologic aging. Photoaging is induced by non-ionizing electromagnetic radiations, and is recognized by the combination of mottled skin melanoderma (MSM), coarse wrinkles, loss of skin firmness and solar elastosis. These changes are primarily due to chronic solar radiations. In addition, the importance of exposures to artificial sources of restricted light wavelengths is steadily increasing for lifestyle purposes in affluent cultural societies. The tanning bed procedure poses problems particularly in conditions of unsupervised and non-medical use.

G.E. Piérard, C. Piérard-Franchimont, P. Quatresooz, **Field melanin mapping of the hairless scalp,** Skin Research and Technology 2011, p. 1-5

Skin pigmentation may be altered in different ways by a variety of physiological and pathological conditions. The gross manifestations of such alterations are more frequent on sunexposed skin than on light-shielded areas. There are two ways in which white light is transformed into coloured light by interaction with skin chromophores. Light absorption by the skin commonly transforms light into other forms of energy. Scattering including reflection, refraction and diffraction redirect some segments of the incident light wavelengths. In clinical and experimental settings, a controlled procedure for recording optical imaging is mandatory for comparative purposes.

G.E. Piérard, C. Piérard-Franchimont, P. Humbert, **Bioimpact of EGFR antagonists on the pilosebaceous follicles,** Eur J Dermatol 2011, p. 1-4

Cancer patients under targeted chemotherapy to the epidermal growth factor receptor (EGFR) frequently suffer from unusual skin adverse events. In the past, these changes were globally qualified as a rash. Our aim was to assess objectively by non invasive bioinstrumentation some early structural and functional skin changes associated with EGFR inhibitor treatment. A series of 27 cancer patients aged 58-66 years were assessed using two ultraviolet light emitting CCD cameras, Visioscan and Visiopor. Assessments were performed on the foreheads at inclusion and therefore at weekly intervals for 2 months at most. No topical treatment was applied during the assessment period.

A. Wojcik, E. Budzisz, H. Rotsztejn, **Skin surface lipids and their measurements**, Post Dermatol Alergol 2011; XXVIII, 6: 498-505,

On the surface of the corneal layer there is a skin lipid coat, which is a mixture of sebum secreted by sebaceous glands and epidermal lipids synthesized by keratinocytes. The mixture of these substances mixed with the secretion of sweat glands makes up water in oil (W/O) emulsion, called a hydrolipid coat. It acts as a barrier and regulates processes of absorption and skin penetration of substances soluble in water and fats [1, 2].

M. Streker, **Randomisierter Halbseitenvergleich eines hyaluron-säurehaltigen Gels nach intradermaler Injektion mittels neuartigen Injektorsystems an Gesicht, Hand und Dekolleté**, Dissertation zur Erlangung des Doctor philosophiae (Dr. phil.) an der Universität Hamburg, Fachbereich Chemie, Studiengang Kosmetikwissenschaft, Juni 2011

In der heutigen westlichen Gesellschaft werden ärztliche Interventionen zur Erhaltung eines jünger wirkenden äußeren Erscheinungsbildes immer häufiger nachgefragt und wahrgenommen. Zurückzuführen ist die zunehmende Akzeptanz kosmetischer und chirurgischer Behandlung bei mobilen und gesunden Menschen im mittleren und höheren Alter auf die Diskrepanz zwischen einem jünger erlebten Lebensgefühl und dem gleichzeitig unvermeidlich alternden Körper.

A. Rasul, N. Akhtar, **Formulation and in vivo evaluation for anti-aging effects of an emulsion containing basil extract using non- invasive biophysical techniques**, DARU 2011 19 (5), p. 344-350

Background and the purpose of study: Skin aging is a complex process induced by constant exposure to ultraviolet (UV) irradiation and damages human skin. UV generates reactive oxygen species leading to collagen deficiency and eventually skin wrinkling. Basil contains a number of phenolics and favonoids which possess antioxidant properties. The aim of this study was to formulate and investigate the antiaging potential of a cream containing Basil extract. Methods: A single blinded study was conducted using non-invasive methods. Formulation containing 3% of the concentrated extract of Basil was developed by entrapping in the inner aqueous phase of w/o emulsion and base contained no extract. Both creams were stored at different storage conditions of 8°C, 25°C, 40°C and 40°C+ 75% relative humidity to predict their stabilities. The formulation and base were evaluated for their effects on various skin parameters i.e., moisture and transepidermal water loss (TEWL), volume, energy and surface evaluation of the living skin (SELS). Results: Significant effects ($p \leq 0.05$) were observed for both creams in the case of TEWL. The base showed insignificant ($p \leq 0.05$) while formulation showed significant effects on skin moisture. Volume, SELS SEr (skin roughness), SEsc (skin scaliness), SEsm (skin smoothness), SEw (skin wrinkles) parameter showed significant decline while texture parameter of 'Energy' showed significant increase. Conclusion: The results statistically indicated that the active formulation containing extract of Basil exert antiaging effects when applied topically.

P.M. Campos, D.G. Mercurio, M.D. Gianeti, A.T. Nobrega, **In vitro antioxidant activity and clinical efficacy of cosmetic formulation containing chamomile extract,** FAPESP

Botanical extracts have attracted great interest in the cosmetic area due to its rich composition and medicinal properties. Among these extracts, it can be mentioned the Matricaria chamomilla L. extract, which has been commonly used in cosmetics. Chamomile extract has being well studied once it presents therapeutic properties in terms of pharmacological applications. Various studies showed that chamomile have soothing, antiallergic, antioxidant and antiinflamatory effects. All of these properties are given by chamomile richest composition of organic components. It es added to the cosmetic formulations to provide skin moisturizing and smoothness.

A. Thibodeau, P. Jacobs, S. Amari, **Biomimetic ingredient offers formulation benefits,** Personal Care, March 2011, p. 115-118

The hydrolipidic film covers the surface of the skin and actively contributes to the skin surface smoothness and the skin barrier function. We have developed a biomimetic ingredient of the hydrolipidic film as per its fatty acid profile. Ethylhexyl olivate (INCI nomenclature) brings clinical benefits for numerous parameters and rheology advantages to the formulation. One single application of a formulation containing 3% ethylhexyl olivate was shown to significantly increase skin hydration (+12.2%, $p<0.05$), barrier function (+16.7%, $p<0.05$), visco-elastic properties (+6.7%, $p<0.05$) and skin surface profilometry (+11.2%, $p<0.05$) for up to eight hours. In another experiment, ethylhexyl olivate was compared to 10 different oil/emollients and ranked third for the viscosity enhancement and second for spreadability index on skin. Thanks to its molecular composition, ethylhexyl olivate creates a subtle veil naturally integrating itself within the hydrolipidic film and significantly improving skin sensorial properties.

Ethylhexyl olivate stands as a key tool for formulation chemists while positively acting on skin physiological features as well as on sensorial properties.

A. Thibodeau, P. Jacobs, S. Amari, **Olive oil fatty acids: positive effects for the skin,** Personal Care, March 2011, p. 51-57

From the activity of B&T over the last 20 years we have collected vast knowledge of the effects of olive oil fatty acids on the skin showing positive benefits by reinforcing the effectiveness of the hydrolipidic film supporting the skin barrier function. In this paper we take three olive oil derivatives (Olivem 1000, Sensolene and Olivem 900) having different formulation functions and show how the olive oil fatty acids can provide positive effects on the skin in cosmetic applications.

A. Thibodeau, **Anti-aging Skin Care Benefits of Saccharina longicruris Extract,** Cosmetics & Toiletries, Vol. 126, No. 3/March 2011

Skin appearance and functionality are affected by a complex combination of factors including both genetic, i.e. intrinsic, and actinic, i.e. extrinsic or environmental. Indeed, genetic and actinic factors act together to modulate the expression of key genes involved in skin homeostasis. Intrinsic aging is genetically regulated and follows a chronological clock inside of cells, while environmental factors such as UV exposure, humidity and air pollutants are responsible for actinic aging. Together, genetic and actinic aging target important metabolic pathways in skin cells that trigger the signs of aging such as skin roughness and wrinkling. At a molecular level, it has been demonstrated that collagen synthesis is reduced in aged skin cells and in cells damaged by UV radiation.

C. Yuan, X.-M. Wang, Y.-M.Tan, L.J. Yang, Y.-F. Lin, P.-L. Wu, **Effects of sunscreen on human skin's ultraviolet radiation tolerance**, Journal of Cosmetic Dermatology, Volume 9, Issue 4, p. 297-301

Purpose: To observe the alteration ultraviolet radiation (UVR) of skin's tolerance after its exposure to the small dose of UVR under the protection of sunscreen. Methods: Eleven subjects who applied sunscreen were exposed to 0.75 dose minimal persistent pigment darkening (MPPD) and minimal erythema dose (MED) by the Phototherapy Unit for 4 weeks. Each week their MPPDs and MEDs were measured by solar simulator. Meanwhile, SPECTCOLOMETER and VISIOSCAN VC98 were used to detect the test areas and control areas. Results: The values of MPPD and MED increased signiÒcantly after the exposure to UVR. But there were no visible changes on the surface of skin's texture. Conclusion: With the protection of sunscreen, the UVR tolerance of skin was greatly increased after the skin's exposure to the small dose UV.

G. Szepetiuk, C. Piérard- Franchimont, P. Quatresooz, G.E. Piérard, **Comment j'explore ...la peau par le photodiagnostic utilisant la fluorescence cutanée et son imagerie fonctionnelle,** Rev Med Liège 2010; 65 : 9 : p. 521-526

Résumé: Sous l'effet d'une stimulation lumineuse adéquate, la peau émet une fluorescence particulière. Cette propriété peut être mise à profit à titre diagnostique ou indicatif d'une fonction particulière de la peau. Diverses infections superficielles (érythrasma, pityriasis versicolor, teignes,…) révèlent une fluorescence parfois intense. Les follicules pilo-sébacés renfermant des propionibactéries apparaissent fluorescents. Cette propriété est perdue lors de certains traitements anti-acnéiques. Elle est masquée par des crèmes solaires. Les zones (pré)néoplasiques préparées pour la photothérapie dynamique deviennent fluorescentes. Certains marqueurs de la couche cornée, comme la pyranine, émettent une fluorescence, propriété permettant de mesurer l'activité de renouvellement de l'épiderme.

Ultra Eye Serum™ – Clinical study, Xeridian Skincare, Product information

The Ultra Eye Serum™ is a translucent, amber, aqueous gel that addresses several dimensions of skin aging.

V. Mahler, **Rizinuswachsperlen – eine icht irritierende Alternative zu reibemittelhaltigen Handreinigern,** KOM Newsletterservice Volume 1, Issue 8, September 2010

Zur Entfernung starker Industrieverschmutzungen (Öl, Fett, Ruß, Metallstaub, Graphit etc.) werden bislang Handreiniger mit abrasiven Bestandteilen wie Walnussschalenmehl, Sand oder Kunststoffmehle eingesetzt. Diese Reibekörper stehen jedoch aufgrund ihrer Materialeigenschaften im Verdacht Hautirritationen herbeizuführen. Als Alternative zu abrasiven Reibekörpern wurden Schmutzlösekörper aus hydriertem Rizinusöl (Active Soft Pearls) entwickelt. Durch ihre polare Oberfläche werden hartnäckige Verschmutzungen bei der Reinigung gelöst und entfernt. Ziel der vorliegenden Studie war es, unter standardisierten Bedingungen die in vivo Effekte von reibekörperhaltigen und reibemittelfreien Waschlösungen auf die menschliche Haut zu untersuchen.

M. Choi, J.-W. Choi, S.-Y. Lee, S.-Y. Choi, H.-J. Park, **Low-dose 1064-nm Q-switched Nd: YAG laser**

for the treatment of melisma, Volume 21 (4) Informa Healthcare, Jul. 1, 2010

Abstract Background: Melasma is a common acquired pigmentary disorder which is sometimes hard to treat with conventional methods. Various kinds of modalities have been applied for the treatment of melasma but none shows constantly good results. Objectives: In this study, we would like to know the effect of low-dose 1064 -nm Q-switched Nd:YAG laser (QSNYL) on melasma and want to evaluate the changes of skin after laser treatment. Methods: Twenty melasma patients were enrolled. Two regions were evaluated from each patient; a total of 40 sites. The 1064-nm QSNYL at fluences of 2.0–3.5 J/cm 2 was used to treat the whole face, including the melasma lesions. The fluence was adjusted individually and increased until erythema was developed on the laser-treated area. The treatment was performed five times with a 1-week interval. Non-invasive measuring methods, including a chromatometer, mexameter, cutometer, visioscan and a corneometer, were used before and after treatment.

W.L. Billhimer, J. Woodford, D. Butcher, K. Epplen, T. Neufarth, D. Houston, J. Bowman, **Objective Evaluation of Moisturizer Effect on Skin Sensitivity and Barrrier Integrity During Continued Insult Pressure,** ISBS 2010 Buenos Aires, Argentina

Demonstrating the ability of a moisturizer to reduce skin sensitivity as it helps restore barrier integrity is a key part of product claims substantiation. Typical measures of sensitivity usually rely on subjective self-assessments while monitoring barrier disruption using TEWL during optimum seasonal periods for severe dry skin. This presentation introduces an objective, continuous skin insult model for evaluating moisturizer treatment effect on skin sensitivity and barrier integrity irrespective of season. This study evaluated the impact of two skin moisturizers on barrier integrity, neural sensitivity and surface texture during continued insult pressure. The formulas were evaluated in a randomized, double blind, two period crossover design using an exaggerated forearm wash model. Normal, healthy female volunteers were enrolled in this 5 week study. To damage the skin, during the first 4 days, subjects participated in standardized, exaggerated forearm washes (4x/day) on both arms. This was followed by 10 days of washing both arms twice a day to maintain the damage. During this period, the assigned product was applied to one arm (3x/day) to assess its efficacy while the other arm served as a control.

P.M.B.G. Maia Campos, M.D. Gianeti, D.G. Mercurio, L.R. Gaspar, **Assessment of Protective Effects of Cosmetics with UV-Filters, Vitamins, Ginkgo Biloba and Red Alga Extracts using Biophysical and Skin Image Techniques,** ISBS 2010 Bueno Aires, Argentina

The combination of UV filters with antioxidant substances and natural extracts with biological activity in terms of photoprotection can provide unique benefits to the skin, by increasing its protection against UV radiation and also by improving skin conditions. Thus, the aim of this study was the assessment of protective effects of cosmetic formulations containing UV-filters, vitamins, *Ginkgo biloba* and red alga *Porphyra umbilicalis* extracts by biophysical and skin image techniques. For this purpose, an emulsion was supplemented or not (F) with *Ginkgo biloba* extract (FG), or red alga *Porphyra umbilicalis* extract (FA), or the combination of these extracts and vitamins A, E and C (FGAV). These formulations were submitted to preliminary studies for the evaluation of Sun Protection Factor (SPF), which were carried out on a group of human volunteers according to the COLIPA methodology After that, the formulations were applied on 10 human volunteers' forearm skin, followed by the analysis of their effects using biophysical and skin image techniques. This evaluation was done in terms of transepidermal water loss (TEWL) (Tewameter® TM 210), water content of the stratum corneum (Corneometer® CM 825), viscoelastic properties (Cutometer® SEM575), skin microrelief (Visioscan® VC 98) and the dermal thickness (Dermascan C®). The measurements were done before and after a 30 day-period of daily applications.

C. Selem, N. Delic, **Sphagnum Magellanicum Peat. Characterization and Proposal for Cosmetics Uses,** IFSCC 2010 Buenos Aires, Argentina

This paper focuses on the characterization of Spagnum Magellanicum peat, its properties and the different uses in cosmetic products. Studies were conducted to analyze the organic, inorganic and microbiological content of this material. The results determined that it is an important source of poliphenols with antioxidant capacity. It has anti-inflammatory action and is safe in contact with skin. It has germicide properties. Humic substances have a large capacity to retain multivalent ions forming metalorganic complexes acting as a natural organic sequestrant. Because the intensity of UV light absorption it can be used in the formulation of coloured sunscreen emulsions and taking into account the other properties tested in the development of others cosmetic products. Considering the results obtained we found that Sphagnum Magellanicum peat has interesting properties for being used in the cosmetic industry coupled with the benefit of this raw material which has the important property of being natural and organic.

S.M. Bertucci, L.S. Freitas, L.R. Gaspar, D.G. Mercurio, M.D. Gianeti, P.M. Maia Campos, **Efficacy of Cosmetic Formulations Containing Green Tea and Ginkgo Biloba Extracts-Pre-Clincal and Clinical Studies,** IFSCC 2010 Buenos Aires, Argentina

This research aims to evaluate the effects of cosmetic formulations containing green tea (*Camellia sinensis*) and/or *Ginkgo biloba* glycolic extracts by histopathological and histometric studies and also to evaluate the immediate and long-term effects on human skin using biophysical techniques and skin image analyses. The pre-clinical efficacy evaluation was performed by the application of the formulations on the dorsum of hairless mice once a day for 5 days. For the clinical studies, formulations under study were applied to the forearm skin of 48 volunteers, which was evaluated by biophysical techniques and skin image analyses according to the following parameters: stratum corneum water content, transepidermal water loss (TEWL), skin elasticity and viscoelastic-to-elastic ratio and skin micro-relief, before (basal values) and after 3 hours (immediate effects), 15 and 30 days (long term effects). The histological analysis showed the formulations containing green tea extract, alone or in combination with the *Ginkgo biloba* extract, provoked significant enhancement in viable epidermis thickness and in the number of cell layers, suggesting a moisturizing effect and an induction of cell renewal. The clinical efficacy studies showed that the extracts under study had a moisturizing effect and also acted synergistically on skin viscoelastic-to-elastic ratio, related to hydration of deeper epidermal layers.

M.R. Pena Ferreira, P.C. Costa, F.M. Bahia, **Efficacy of anti-wrinkle products in skin surface appearance: a comparative study using non-invasive methods,** Skin Research and Technology 2010; 16; p. 444-449

Age has a huge influence on skin roughness; with increasing age, the number of collagen and elastine fibers is reduced and elasticity decreases significantly. Pharmaceuticals and cosmetics, environmental factors and lifestyle have an important effect on skin. In this study, the efficacy of 12 commercial anti-wrinkle products was evaluated using a direct non-invasive method to measure the skin surface morphology. Four clinical parameters surface evaluation of the living skin (SELS) (Ser, Sesc, Sesm and Sew) were evaluate using Visioscan VC 98. Two hundred and forty-eight healthy female volunteers, aged between 30 and 70 years, were chosen for this study. The duration of treatment was 28 days. Skin microrelief, parameters were evaluated using the Visioscan VC 98 – SELS 2000 from Courage + Khazaka.

T. Pavicic, C. Contini, P. Liekfeld, **Dermokosmetika gegen Hautalterung,** GD-Gesellschaft für Dermopharmazie e.V. 22.März 2010

Mit zunehmender Lebenserwartung und Aktivität bis ins hohe Alter wachsen die Erwartungen an ein länger währendes jugendliches Aussehen. Eine gezielte kosmetische Prävention bringt neben der Verbesserung des persönlichen Lebensgefühls auch sozio-ökonomische Vorteile im Sinne einer Vorbeugung krankhafter Hautveränderungen mit sich. Die zunehmende medizinische Bedeutung dermokosmetischer Produkte gegen Hautalterung betrifft Industrie, Medizin und Handel hinsichtlich Herstellung, Aufklärung und Produktauswahl. Zur Prävention und Milderung der Alterserscheinungen der Haut sollten Kosmetika Verwendung finden, deren Qualität gesichert ist, das heißt, galenische Eigenschaften, erwünschte und unerwünschte Wirkungen sollen hinreichend untersucht und dokumentiert sein.

M. Mangues, J.M. Garcia-Anton, A. Calvillo, C. Curreno, **Assessment of new skin brightening agents;** Personal Care, November 2009, p. 31–36

Exogenous causes, particularly chronic ultraviolet light exposure, are a common factor in pigment abnormalities such as melasma, solar lentigines (or age spots), freckling, mottled pigmentation, and ephelides. There are numerous internal and external stresses that affect human skin pigmentation. Exposure to certain drugs and chemicals as well as the existence of certain disease states can result in hyperpigmentation. Post-inflammatory pigmentation, another skin hiperpigmentation disorder, usually develops after resolution of inflammatory skin eruptions like acne, contact dermatitis or atopic dermatitis.

M. Udompataikul, P. Sripiroj, P. Palungwachira, **An oral nutraceutical containing antioxidants, minerals and glycosaminoglycans improves skin roughness and fine wrinkles,** IFSCC Magazine, Vol. 12, No. 4 / 2009, p. 422

Various nutraceuticals (dietary supplements) are claimed to have cutaneous antiageing properties, however, there are limited number of research studies supporting these claims. The objective of this research was to study the efffectiveness of an oral nutraceutical containing antioxidants, minerals and glycosaminoclycans on cutaneous ageing. In this double-blind, placebo-controlled trial, 60 women aged 35-60 years were randomized to receive oral dietary supplement (n=30) or placebo (n=30), once daily for 12 weeks.

L. Sousselier, C. Camuzat, **White biotechnology: new source of ingredients,** Personal Care, September 2009

White biotechnology has been used for millennia for the preparation of bread and alcoholic drinks. Sumerians had mastered alcoholic fermentation, for the manufacture of beer, 4,000 years AD. Nowadays, white biotechnology is used for several applications. In the pharmaceutical sector it is used for the production of antibiotics such as famous Penicillin, and it is used for energy in bioethanol production.

M. Farwick, U. Maczkiewitz, P. Lersch, T. Falla, S. Grether-Beck, J. Krutmann, **An ECM-derived Tetrapeptide to Counterbalance ECM Degeneration,** Cosmetics & Toiletries; Vol. 124, No. 6/June 2009

The extracellular matrix (ECM) is the structural backbone of many tissues, especially the skin, and represents a main target for cosmetic applications. ECM proteins are believed to play a pivotal role in cellular migration, proliferation and gene regulation during wound healing. Fragments from ECM constituents have been found capable of stimulating ECM biosynthesis to compensate for tissue destruction. Their mechanisms have been implicated in wound healing, skin aging and skin's response to UV irradiation.

K. Bazela, A. Dzwigalowska, E. Kazmierczak, R. Debowska, K. Rogiewicz, I. Eris, **Corrective make-up cosmetics – the study of efficacy and camouflage effect,** 18th EADV Congress, Berlin, 2009

Corrective make-up can be applied to hide the skin imperfections accompanying numerous skin diseases. The aim of this study was to evaluate the efficacy and camouflage effect of corrective make-up in patients with pigmentary disorders, acne and pre-rosacea. Corrective fluid foundation efficacy was tested on 20 subjects and applied once a day for 4 weeks. The skin moisturization, oil content and elasticity were measured using Multiprobe Adapter System MPA 5 probes.

K. Bazela, R. Debowska, B. Tyszczuk, E. Kazmierczak, K. Mlosek, A. Nowicki, I. Eris, **Evaluating the efficacy of anti-cellulite cosmetic products skin ultrasonography and skin condition analysis,** 18th EADV Congress, Berlin, 2009

Cellulite is currently considered to be an endocrinemetabolic microcirculafory disorder that causes interstitial matrix alterations and structural changes in subcutaneous tissue. It affects thousands of women of any age worldwide. Our study aimed to evaluate the efficacy of an anti-cellulite cream-gel.

W. Manuskiatti, R. Wanitphakdeedecha, S. Siriphukpong, **Treatment of punched out atrophic and rolling acne scars in skin phototypes III, IV, and V with variable square pulse erbium: YAG laser resurfacing,** JAAD March 2009Volume 60, Issue 3, Supplement 1, p. AB196

Treatment of acne scars remains a challenge, especially in dark skinned individuals.

D. Khazaka, C. Uhl, **More than 2 decades of bioengineering for efficacy testing and product recommendation,** Household and Personal Care TODAY, No. 1/2009

Due to high competition in the cosmetic and growing customer expectations, in the past two decades there has been a continuous development of new cosmetic products with more efficient ingredients covering new effects on the skin. Simultaneously to this, there was an increasing demand for new measuring techniques to substantiate the new product claims. The field of skin bioengineering has consequently been immensely enriched in the last years by inventing new physical and optical measurement methods for all kind of skin parameters.

Interventionsstudie „Hautschutz" - Vergleichende Untersuchung zur Überprüfung der Wirksamkeit von Hautschutzpräparaten im Rahmen des dreistufigen Hautschutzplanes – Gefährdungsanalyse und Schutzmaßnahme, BGFA Report, Dezember 2008

Zur primären sowie sekundären Prävention von beruflich bedingten Hauterkrankungen zählt – neben dem Tragen von Schutzhandschuhen – der Hautschutz in Form von Hautmitteln (Hautschutz-, Hautreinigungs-, Hautpflegepräparate). In Deutschland nehmen Berufskrankheiten (BK)-Anzeigen im Bereich der Haut nach wie vor einen Spitzenplatz ein. Ausreichende und belastbare Studien zur Wirksamkeit von Hautmitteln fehlen bislang. Ein objektivierbarer Wirksamkeitsnachweis von Hautmitteln unter den tatsächlichen Arbeitsplatzbedingungen liegt somit bis jetzt noch nicht vor.

M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia, **Assessment of Age-Related Differences in Skin Surface, Hydration, Sebum and pH,** IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. It is composed of two main layers: the epidermis and the dermis. The stratum

corneum is the outermost layer of the epidermis and is the most important in terms of protection against damage and aesthetic appearance of the skin. The hydrolipidic film of the stratum corneum, which consists mainly of sebum excreted by the sebaceous glands and moisture components excreted with sweat, protects the skin from drying out, keeps it supple and due to the natural acid protection barrier it prevents the penetration of harmful external substances.

U. Heinrich, B. Garbe, H. Tronnier, **In Vivo Assessment Of Ectoin: A Randomized, Placebo-Controlled Clinical Trial,** IFSCC Barcelona 2008

The objective of this study was to determine the anti-aging properties of Ectoin with special regard to its compatibility and efficacy. For this purpose 104 voluntary female participants were included in a monocentric, randomized, double-blind application test. Moisturizing properties, skin surface structure and skin elasticity were tested, comparing Ectoin (2 %: Treatment B) to a reference emulsion (Treatment A) versus an untreated control. None of all treated participants showed side effects during the study.The gained results of this study display that the natural cell protection concept of Ectoin is transferable to skin care

M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia, **Study of the Inter-Relations between Skin Surface Parameters, Hydration, Sebum and pH***,* IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. Several biophysical techniques are commonly used to study the skin properties and to measure the in vivo skin effects of cosmetics, topical medicaments and chemical irritants [2,3]. The Corneometer® (a capacitance method) measures skin hydration, the Sebumeter® (a photometric method) measures the sebum of the skin and the Skin-pH Meter® (a potenciometric method) measures the pH of the skin [4]. The Visioscan® VC98 connected to the software SELS (Surface Evaluation of the Living Skin) can measure several skin surface parameters [5]. This apparatus consists of a special b/w video sensor chip with very high resolution, an objective and an UVA-light source.

G. Lemos Anconi, P.M.B.G. Maia Campos, **Stability and Clinical Efficacy of Cosmetic Formulations Containing Different Peptides,** IFSCC Barcelona 2008

Wrinkles, as a sign of skin aging, have an important social impact, especially because of longer lifetimes and more frequent social relationships; consequently, they are an important factor influencing our way of communication. Wrinkles represent the more evident outcome of cutaneous ageing. Their onset is linked to a variety of events, resulting from both chrono- and photoageing. Both *intrinsic* (hormones, racial and genetic factors, oxidative stress, systemic disease) and *extrinsic* (temperature, air pollution, smoke, alcohol) factors worsen skin condition. However, wrinkles deriving from skin texture, or micro-relief, modification afflict women more than all other wrinkles as signs of ageing in the common mind.

*S.H. Pérez Damonte, C.L. Selem, C. Groisman***, Bi-Functional Study of Ion Calcium in the Skin,** IFSCC Barcelona 2008

The Calcium ion has an important function in the skin. Its gradient plays a role in regulating epidermal growth and differentiation *in-vivo.* In the intact epidermis, the extra cellular calcium content is low in both, malpighi and spinosum strata, but increases from the inner to the outer layer of the stratum granulosum [1]. Also, the calcium ion participates in the formation of the epidermal desmosomes, fibroblasts and keratinocytes, which provide the integrity and firmness of the skin [2]. All of these factors are important for the correct function of the epidermal barrier.

S.H Pérez Damonte, A.M. Martín, M. E. Daraio, **Safety Assessment for Nickel in Cosmetics,** IFSCC Barcelona 2008

Many environmental chemicals produce contact hypersensitivity or local inflammatory responses in the skin. Nickel released from metal objects is well known as a sensitizing agent in humans. Since the initial damage caused by nickel remains to be the leading cause of skin disorders such as allergic contact dermatitis worldwide, the aim of this study is to investigate if the content of nickel in cosmetics could produce such reactions.

P.M. B.G. Maia Campos, F. Bueno de Camargo Junior, S.M. Bertucci, E. Esteves de Oliveira; G. Lemos Anconi; L. Rigo Gaspar, **Clinical efficacy of cosmetic formulations containing *Myrtus communis* extract,** IFSCC Barcelona 2008

The Research & Development of cosmetic products that are able to act in skin ageing alterations has been a challenge in Cosmetic area. This way, a great number of botanical extracts have been proposed as active ingredients for anti-ageing cosmetic development. *Myrtus communis* is a plant rich in polysaccharides, essential oils, flavonoids, among other substances. Some studies showed that its

different hydroalcoholic extracts have a potent antioxidant activity mainly due to the presence of polyphenols *Myrtus communis* leaves hydrolyzed extract has been proposed as cosmetic ingredient with anti-ageing properties because it is rich in galacturonic acid, ramnose, galactose, glucose, xylose and fructose.

L.R. Gaspar, F.B. de Camargo Jr., M.D. Gianeti, P.M.B.G. Maia Campos, **Evaluation of the Safety and Efficacy of Cosmetic Formulations Containing *Saccharomyces cerevisae* Extract and Vitamins,** IFSCC Barcelona 2008

There are many substances frequently used in anti-aging products due to their moisturizing, photoprotective and skin barrier effects and among them we can point out vitamin A, C and E derivatives. Vitamin A palmitate acts on epithelization and on abnormal keratinization [1]. Vitamin E acetate is a free radical scavenger and can reduce DNA damage and keratinocytes death (sunburn cell formation) [2,3] and also can enhance stratum corneum hydration and reduce skin roughness [4]. Tetra-isopalmitoyl ascorbic acid (VC-IP) releases vitamin C in physiological conditions and enhances cellular tolerance against UVB and reactive oxygen species as well as reduces the production of interleukin-1a and prostaglandin E2 [5].

M. Wegmann, P. Lersch, H.H. Wenk, S.K. Klee, U. Maczkiewitz, M. Farwick, **Protective Effects Of Turmerones From Curcuma Longa Against UVB-Induced Oxidative Stress – Upregulation Of Cellular Defence Systems,** IFSCC Barcelona 2008

The human epidermis represents the largest interface of the body that is constantly in close contact to the environment. Therefore, it is especially vulnerable to oxidative stress, which in turn leads to oxidation of cellular macromolecules such as proteins, lipids and nucleic acids. In order to counteract these harmful effects and consequently ensure the redox status of the cell, a plethora of defence mechanisms exists. Fuelled by new research, activities and expression of enzymes of the anti-oxidative defence line is better understood. Two major players during aging and anti-oxidative stress mechanisms are the thiol redox systems driven by gluthathione peroxidase (GPX1) and thioredoxin reductase (TXNRD1) [1]. Both systems require redox equivalent in the form of NADPH to restore their full anti-oxidative potential [2,3]. This in-turn is generated by another enzyme named NAD(P)H dehydrogenase (NQO1) that generates NADPH from oxidized NADP+ by consuming ATP [4]. While the thioredoxin and the glutathione systems neutralize harmful products emerging from the oxidation and peroxidation of bio-macromolecules the defense of reactive oxygen species (ROS) such as hydrogen peroxide which are responsible for most of the oxidative stress on cells exposed for example to UV-irradiation depend on the catalase system. This enzyme eliminates hydrogen peroxide by catalyzing its decomposition to water and oxygene [5].

H. Tronnier, M. Wiebusch, U. Heinrich, **Change in Skin Physiological Parameters in Space - Report on and Results of the First Study on Man,** Skin Pharmacol Physiol 2008; 21: p. 283-292

Astronauts often show skin reactions in space. Systematic tests, e.g. with non invasive skin physiological test methods, have not yet been done. In an interdisciplinary cooperation, a test series with skin physiological measurements was carried out before, during and after a long-term mission in the International Space Station. The hydration of the stratum corneum (Corneometer), transepidermal water loss (Tewameter), and the surface structure of the skin (SkinVisiometer) were measured. In order to record cutaneous states, the suction elasticity was measured (Cutometer), and an ultrasound measurement with 20 MHz (DermaScan) was also made. In addition, one measuring field of the two inner forearms was treated with a skin care emulsion. There were indications of a delayed epidermal proliferation of the cells, which would correspond to the clinical symptoms. Hydration and TEWL values are improved by respective skin care. On the cutaneous level, the elasticity measurements and the ultrasound picture showed results which correspond to a significant loss of elasticity of the skin. Further examinations are necessary to validate these preliminary results.

C. Huh, M. Choi, S. Lee, S. Kim, Y. Park, B. Kim, H. Park, S. Choi, S. Youn,K. Park, **Low dose 1064nm Q-switched Nd:YAG laser for the treatment of melisma,** Abstract; EADV Paris 09/2008

Background : Melasma is a common acquired pigmentary disorder that is known for its recalcitrance to the conventional treatment. Although Q-switched Nd: YAG laser (QSNYL) is widely used for the treatmemt of melasma, little has been published regarding its effect. Objectives: In this study, we would like to know the effect of low dose 1064nm QSNYL (MedLite C6, HOYA Conbio, CA) on the treatment of melasma objectively.

U. Heinrich, B. Garbe, H. Tronnier, W. Stahl, C. Moore, M.J. Arnaud, **Supplementation with green tea extract improves skin physiological parameters,** Abstract, EADV Paris 09/2008

Background: The objective of the study was to determine changes in skin parameters during

the intake of a beverage rich in green tea extract. The detection of hydration properties, transepidermal water loss (TEWL), changes of skin surface (SELS), skin elasticity, skin thickness and density as well as serum analyses were determined during the study. Methods: Hydration measurements were carried out with the Corneometer CM 825 prior to and during the study. Transepidermal water loss (barrier function of the skin) was measured with the Tewameter, skin surface (SELS) with the Visioscan and skin elasticity with the Cutometer (Courage & Khazaka Electronics, Cologne, Germany).

H. Tronnier, M. Wiebusch, U. Heinrich, **Skin physiological parmeters in space – results of the European long-term mission in the ISS (ASTROLAB),** Abstract, EADV Paris 09/2008

Background: Since in weightlessness many astronauts report skin problems like dryness, itching, tendency to get injured, impaired wound healing etc., a "Skin Care" program was initiated for the ASTROLAB Mission of ESA (European Space Agency). It was carried out by a consortium with different tasks.

R.M. Debowska, A. Dzwigalowska, M. Szubert, K. Rogiewicz, I. Eris, B. Pander, **Efficacy evaluation of re-modelling face care product,** Abstract, EADV Paris 09/2008

Background: Skin ageing is an important and interesting topic of study. It results from the combination of intrinsic ageing and photoageing, which is due to the environmental influence. The cosmetic industry creates and develops for the ageing population constantly improving products. Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial effects of application of the re-modelling face cream containing an anti-wrinkle peptide, vitamin E, proteins from sweet almonds and peach oil.

D. Bürkle, **Die Haut der Astronauten- Erstes kommerzielles ISS-Experiment aus NRW,** http://www.wdr.de/themen/wissen/astronomie/blick_ins_all/raumfahrt/060701.jhtml

Auf der Raumstation ISS, zu der Thomas Reiter am 1. Juli startet, wird er viele Experimente durchführen. Mit seiner eigenen Haut wird er für den ersten Versuch herhalten, den Unternehmen aus NRW in Auftrag gegeben haben. Wie viele Falten während seines sechs Monate langen Aufenthalts auf der Internationalen Raumstation ISS dazugekommen sind, wird Thomas Reiter am Ende ganz genau wissen. Alle zwei Wochen holt der deutsche Astronaut einige Messgeräte aus den Regalen der Raumstation, testet damit den Wasserverlust seiner Haut und kontrolliert, ob neue Fältchen dazugekommen sind.

P. Humbert, **Klinische Anti-Aging-Studie mit Lubex anti-age® day und Lubex anti-age® night,** Permamed und University of Besancon 2008

In einer monozentrischen klinischen Studie wurde die Anti-Aging-Wirkung von Lubex anti-age über drei Monate bei Frauen im Alter zwischen 45 und 60 Jahren mit mittelstark lichtgealterter Haut im Gesicht und Décolleté geprüft und belegt. Als Grundlage wurden hautphysiologische Messungen durchgeführt, das Hautbild wurde fotografisch dokumentiert und durch Dermatologen im Doppelblindverfahren bewertet.

*U. Heinrich, M. Herling, S. Binder, N. Gerlach, H. Tronnier***, Evaluation of the efficacy of skin surface parameters by image analysis with the SELS – method,** Poster Dermatronnier, Germany, 2008

The skin is influenced by many different extrinsic and intrinsic factors. These factors cause visible changes of the skin surface. For the assessment of the efficacy of anti-aging and skin care products, it is necessary to evaluate the skin surface quantitatively. Corresponding to subjective sensations, SELS (surface evaluation of living skin) analyses the skin surface by calculating four skin specific parameters.

H. Tronnier, M. Wiebusch, U. Heinrich, **Skin-Physiological Test in Weightlessness in the ISS Space Station,** IFSCC Magazine Vol. 11, No. 3/2008

A prolonged stay in weightlessness includes several medical alterations of the human body and also results in impairment of the skin. The stratum corneum, epidermal barrier as well as other skin compartments are affected in terms of their susceptibility to dryness, desquamation and pruritus. This can lead, for example, to wound healing disorders. Skin physiological tests were performed on the skin of an astronaut during and after the ASTROLAB-Mission within the Skin Care program initiated by the ESA.

H. Dobrev, **Evaluation of dry Skin: a comparison between visual score, corneometry and image analysis,** Poster presented at the 16th Congress of the EADV, 5/2007

The term “dry skin” describes a skin condition characterized by reduced quantity and/or quality of moisture and/or lipids. The visible symptoms of dry skin are roughness, scaling and reduced elasticity. In addition, patients complain about tightness and itching.

E. Guillen Poveda, **Können mit Hilfe hautphysiologischer Untersuchungen Melanome von melanozytären Nävi unterschieden werden?**, Dissertation an der Klinik und Poliklinik für Dermatologie und Allergologie der Technischen Universität München, Januar 2007

Die Haut ist ein Flächenorgan (kein Kompaktorgan), das die Außenseite des Organismus überzieht und schütz. Die Gesamtfläche im Erwachsenenalter beträgt ca. 1,6-2 m², die Dicke liegt zwischen 1,5 und 4 mm (ohne Subkutis). Im Bereich der Körperöffnungen findet der Übergang der äußeren Haut in die Schleimhaut der inneren Oberflächen statt. Die hier anschließenden hautnahen Schleimhäute werden häufig in Krankheitsprozesse der äußeren Haut miteinbezogen oder können sogar Ort der Erstmanifestation sein.

E. Berardesca, N. Cameli, G. Primavera, M. Carrera, **Clinical and Instrumental Evaluation of Skin Improvement after Treatment with a New 50% Pyruvic Acid Peel,** Dermatol Surg 2006

Pyruvic acid is an a-keto acid that presents keratolytic, antimicrobial, and sebostatic properties as well as the ability to stimulate new collagen production and elastic fibers formation. Because of its low *p*Ka and its small dimension, it penetrates rapidly and deeply through the skin, so far as to be considered a potent chemical peel agent. It has proven its efficacy for the treatment of many dermatological conditions such as acne, superficial scarring, photodamage, and pigmentary disorders. Pyruvic acid application usually induces intense burning, and the postpeeling period is characterized by erythema, desquamation, and, sometimes, crusting.

H. Tronnier, M. Wiebusch, U. Heinrich, **Project Skin Care of the European Long-Term Mission (Astrolab) on the ISS,** DermaTronnier Research, Poster

Impairments due to circulatory and vestibular disturbances of the equilibrium are the prevalent medical side effects astronauts suffer from. These are followed by the dermatological problems. In order to examine these skin problems and find ways to prevent them, skin-physiological measurements as a project “Skin Care” were carried out within the framework of the European long-term mission (ASTROLAB) 2005-2007.

U. Heinrich, K. Neukam, H. Sies, W. Stahl, **Long-Term Ingestion of High Flavanol Cocoa Provides Photoprotection against UV-Induced Erythema and Improves Skin Condition in Women**, Journal of Nutrition 136: p. 1565–1569, July 2006

Dietary antioxidants contribute to endogenous photoprotection and are important for the maintenance of skin health. In the present study, 2 groups of women consumed either a high flavanol (326 mg/d) or low flavanol (27 mg/d) cocoa powder dissolved in 100 mL water for 12 wk. Epicatechin (61 mg/d) and catechin (20 mg/d) were the major flavanol monomers in the high flavanol drink, whereas the low flavanol drink contained 6.6 mg epicatechin and 1.6 mg catechin as the daily dose. Photoprotection and indicators of skin condition were assayed before and during the intervention. Following exposure of selected skin areas to 1.25 3 minimal erythemal dose (MED) of radiation from a solar simulator, UV-induced erythema was significantly decreased in the high flavanol group, by 15 and 25%, after 6 and 12 wk of treatment, respectively, whereas no change occurred in the low flavanol group. The ingestion of high flavanol cocoa led to increases in blood flow of cutaneous and subcutaneous tissues, and to increases in skin density and skin hydration. Skin thickness was elevated from 1.11 6 0.11 mm at wk 0 to 1.24 6 0.13 mm at wk 12; transepidermal water loss was diminished from 8.7 6 3.7 to 6.3 6 2.2 g/(h m2) within the same time frame. Neither of these variables was affected in the low flavanol cocoa group. Evaluation of the skin surface showed a significant decrease of skin roughness and scaling in the high flavanol cocoa group compared with those at wk 12. Dietary flavanols from cocoa contribute to endogenous photoprotection, improve dermal blood circulation, and affect cosmetically relevant skin surface and hydration variables.

Experiment „SkinCare“ auf der Raumstation: Hautphysiologische Messungen in Schwerelosigkeit, Newsletter #1/2006, Raumstation: Fachinformationsdienst zur Nutzung der Internationalen Raumstation, April 2006, p. 10

Im Rahmen der geplanten europäischen ISS-Langzeitmission von Juli bis Dezember 2006 sollten erstmals systematisch physiologische Parameter der menschlichen Haut bei einem längeren Aufenthalt in Schwerelosigkeit erfasst werden. Dabei erlaubt der Einsatz moderner nicht-invasiver Messverfahren, durch die Bestimmung von Parametern wie Feuchtigkeit, Barrierefunktion und Mikrostruktur, den physiologischen Hautzustand exakt zu charakterisieren.

C. Vincent, M. Szubert, K. Rogiewicz, I. Eris, J. Piotrwska, M. Wieczorowski, J. Chajda, **Comparison of microtopography and profilometry- two methods of skin surface analysis,** Poster Presentation, Centre For Science And Research Dr. Irena Eris, 2005

The process of skin aging is connected with progressive changes in skin structure. The most spectacular effect of skin aging are wrinkles and progressive unevenness of skin surface. Skin of elderly people is thin and fragile due to complex changes very often summarized to reduced dermal collagen and decreased cell proliferation.

Dermokosmetik, Beratung in der Apotheke, PTA Nr. 11, Oktober 2005

Eine gute Unterstützung bei Promotionaktionen zum Thema „Hautpflege" sind Hautanalysegeräte. Sie erleichtern den Einstieg in die Beratung, individuell auf den Hauttyp und Hautzustand der Kundin oder des Kunden abegestimmt.

I. Sadiq, J.-L. Lévêque, T. Stoudemaver, A.M. Kligman, **Assessment of sun damage of the V-Neck area of the chest by the skinchip device,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

A new instrument called SkinChjp has been developed to characterize skin micro-relief and measure skin surface hydration. A digital sensor consisting of a large number of capacitor elements, arranged in a rectangular grid, was used. Each of these capacitor elements can assess the hydration level of a specific point on a variably hydrated surface. When this sensor is in contact with skin it produces a capacitance map of the skin. The areas of skin which are moist and in contact with the sensor glass plate, appear dark and the areas which are dry or moist but away from the glass plate, appear bright. This produces an image of the skin micro-relief showing the skin surface features along with hairs, pores etc. The hydration level at a specific point on the skin is proportional to the darkness level of that point in the SkinChip image i.e. Inverse of the gray value of that pixel. Analysis of this capacitance image can be used to assess structural changes in skin due to life-long exposure to sun.

K. Schweikert, V. Kalhöfer, B. Gabard, **Improving the properties of Hyaluronic acid on dry skin,** Personal Care, Nov. 2005, p. 35-39

The effects of two cosmetic actives intended for the treatment of skin dryness (Hyaluronic acid and the new Tamarindus indica seed extract) were evaluated in five healthy volunteers by objective measurements after twice daily application on the skin of the volar forearm for two weeks.

H. Dobrev, **Clinical and instrumental study of the sebum regulation efficacy of REGU®-SEB**, Poster Presentation at the EADV in London, October 2005

Excessively oily facial skin is due to overactive sebaceous glands and can occur in both males and females. The skin is greasy and shiny, with large open pores, feels unpleasant and may be a serious cosmetic problem. Moreover, this type of skin is sensitive and much more prone to acne and seborrhoeic dermatitis. That is why the control over the excessive oiliness is very important.

G. Varju, G. Garay, **Surface Evaluation of Living Skin (SELS) during Microdermabrasion Treatment Course**, Poster Presentation, Dr. Derm Laser Center of Dermatology, Budapest Hungary, 2005

Microdermabrasion has become a popular method of skin rejuvenation for treating photodamage, fine rhytides, age spots, dyschromia, enlarged pores and mild ache. This procedure is one of the newest skin rejuvenating techniques employed to help improve the texture and appearance of the skin.

H. Dobrev, **The Effects of topically applied Matrixyl, natural grape seed and avocado oils on skin surface, hydration and elasticity**, EADV, May 2005, Sofia, Bulgaria (abstract/poster)

Background: Matrixyl is a lipophilic pentapeptide that stimulates the collagen synthesis by fibroblasts in the skin. The grape seed extract is rich in flavonoids which are powerful antioxidants. Avocado oil consists predominantly of unsaturated fatty acid glycerides, vitamins and minerals, and has good emollient properties.

H. Dobrev, **Evaluation of the efficacy of a Rooibos Extract containing anti-wrinkle cream**, EADV, May 2005, Sofia, Bulgaria (abstract)

Background: Rooibos plant possesses scientifically proven anti-oxidative, anti-allergic, anti-microbial and anti-inflammatory features. Aim: To evaluate the efficacy of a Rooibos extract containing cream on aged facial skin using in vivo skin bioengineering techniques.

A. Béguin, **A novel micronutrient supplement in skin aging: a randomized placebo-controlled double-blind study,** Journal of Cosmetic Dermatology, 4 2005, p. 277–284

Summary *Background* Skin aging, a combination of intrinsic and environmentally induced Processes, predominantly ultraviolet (UV) light from the sun, results in characteristic tissue alterations, such as the degradation of collagen and the formation of visible fine lines and wrinkles. *Objective* To test the efficacy and safety of a novel micronutrient supplement (Estime) in skin aging. *Methods* A 4-month randomized double-blind controlled study including 40 subjects where the supplement was tested against placebo for 3 months followed by a 1-month supplement-free period for both groups to assess lasting effects. Efficacy measurements included skin surface evaluation, ultrasound measurement of sun-exposed and protected areas of the skin (back of the hand and ventral forearms, respectively), and photographic assessment.

H. Dobrev, **Treatment of Acne with a New Topical Preparation. A Clinical and Instrumental Study,** Department of Dermatology, Medical University, Plovdiv, Bulgaria

Background: Sepicontrol A5 is a cosmetic active ingredient designated to improve the appearance of oily, acne prone facial skin. Aim: To evaluate the sebum regulation activity, clinical efficacy and safety of a 3% and 4% Sepicontrol A5 containing cream and gel in subjects with mild to moderate acne.

R. Debowska, K. Rogiewicz, T. Iwanenko, M. Kruszewski, I. Eris, **Folic Acid (Folacin) – New Application of a Cosmetic Ingredient**, Kosmetische Medizin 3/2005, p. 16-22

Many years of trials and research tests proved that a lot of well-known vitamins could be successfully used in cosmetology. The available data indicate that one of them – folic acid plays an important role in life process of mitotically active tissues and its deficiency increases background level of DNA damage.

New Whitening agent based on "theory of melanin diet", Clairju brochure 2005

Skin color is not the same among races. What causes the difference in skin color? The most imporatnt factor for skin coloration is melanin pigment, though skin color is also influenced by blood circulation and the skin's surface condition.

*H. Tronnier, B. Garbe, M. Herling, M. Wiebusch, U. Heinrich,***Nicht invasive Testverfahren am behaarten Kopf,** 10. MFDK München, 04.12.2004 (PPT)Messung der (seborrhoischen) Kopfschuppung; Photo-Trichogramm; Messung von Haardichte und -qualität …

M. Fröschle, R. Plüss, K. Bojarski, A. Peter, **Antiaging Effect with Cosmotropic Substances**, SÖFW-Journal, 130, 4 2004, S. 36-43

Water is one of the most important and limiting factors for plants, animals and humans. The human being consists of 60-65% water and loses daily up to several liters through the skin. The regulation of water content is therefore very significant. Plants especially have developed fascinating physiological and structural strategies to minimize water loss and survive periods of dryness.

P. J. Dykes, R. Marks, **Unfolding or True Extension? The Mechanism and Importance of Stratum Corneum Compliance,** Stratum Corneum IV, Paris, 17.-19. Juni 2004 (presentation)

R. Plüss, M. Fröschle, K. Bojarski, A. Peter, P. Bottiglieri, **Resurrection in Cosmetics,** Conference Proceedings, Personal Care Ingredients Asia, Guanzhou, March 2004

Resurrection plants possess the fantastic ability to dry out and then reach their normal state again and continue growing a short time after being remoisturized. For this to be possible there has to be an ingenious protection system in place in than plant during the drying-out phase as well as an extraordinary ability to restructure the plant's cell structure during the remoisturization period. This potential of resurrection plants could be incorporated in the active complex S-61. As the test results showed, a short treatment of 1 – 2 weeks with a cream containing the active complex S-61 improves the skin's appearance, with the skin looking clearly revitalized. The skin is seen to have restructured itself, wrinkling is significantly reduced and the suppleness of the skin can be felt as being improved. The skin's ability to resist wear and tear from its external environment is seen to improve.

H. Tronnier, B. Garbe, M. Herling, M. Wiebusch, U. Heinrich, **Nicht-invasive Testverfahren an der Kopfhaut,** Ästhetische Dermatologie 2/2004, S. 30-37

Zum Nachweis vorliegender Hautzustände oder Funktionen sowie ihrer Änderungen unter dem Einfluss interner Faktoren oder externer Massnahmen im positiven (zum Beispiel Wirksamkeit) oder negativen Sinne (zum Beispiel Verträglichkeit) gibt es zahlreiche nicht-invasive Testmethoden. Sie

können zu großen Teil modifiziert oder mit Vorbehandlung (z.B. Rasur) auch an der beharten Kopfhaut eingesetzt werden. Ergänzend dazu sind zahlreiche Methoden beschrieben, mit denen Wasch- und Pflegemassnahmen am Haar auch in vitro, also an Haarsträhnen getestet werden können. Es gibt aber auch dermatologisch-kosmetische Indikationen im Bereich der Kopfheut, für die spezielle Testverfahren erforderlich sind und zu entwickeln waren.

H. Lambers, S. Piessens, A. Bloem, H. Pronk, P. Finkel, E. Voss, **Natural skin surface pH is on average below 5, which is beneficial for its resident flora,** Skin Research and Technology 10, Abstracts, 2004

The acidic surface pH as well as the pH gradient over the gradient over the stratum corneum (SC) are important for a good skin condition, supporting optimal structure and function of the lipid barrier and SC homeostasis.

P. Quatresooz, L. Petit, I. Uhoda, C. Piérard-Franchimont, G.E. Piérard, **Mosaic subclinical melanoderma: An Achilles heel for UV-related epidermal carcinogenesis?**, International Journal of Oncology 25: 1763-1767, 2004

Cutaneous cancers are not uncommon on the face of elderly patients. Melanin should protect, at least in part, against the ultraviolet (UV)-induced neoplastic damage. However, the density in melanin chromatophores is heterogenous in the epidermis of Caucasian adults. The computerized UV light-enhanced visualization (ULEV) method is a sensitive tool to assess non-invasively this mosaic pattern of intra-epidermal melanin load.

A. Castro de Castro, **Sericina en preparaciones capilares para cabellos danados: medida de su efectividad,** Actualizaciones Terapéuticas Dermatológicas y Estéticas, Vol. 25, No. 3

El cabello humano esta sometido a una agresion ambiental que contribuye a causar degradaciones quimicas y estructurales. Se disenaron dos preparaciones con Hidrolizado de Sericina: champu acondicionador y ampolla revitalizante. Se estudiaron 20 pacientes con cabellos danados, observandose el dano mediante un Visiscan VC 98. cada paciente uso: champu y ampolla 3 veces/semana/30 dias.

H. Lambers, H. Pronk, S. Piessens, E. Voss, **Natural human skin surface pH is on average below 5,** Gordon Conference, Aug. 2003

The acidic surface pH and the pH gradient over the stratum corneum (SC) are important for optimal condition of the skin, supporting the following functions: regulation of skin microflora, thereby preventing pathogenesis, optimal structure and function of the lipid barrier, optimal stratum corneum homeostasis.

L. Petit, G.E. Piérard, **Analytic quantification of solar lentigines lightening by a 2% hydroquinone–cyclodextrin formulation,** JEADV (2003)17, 546–549

Abstract: Background: The innate melanin pigmentation of skin is modulated during lifetime by a series of factors, including ageing and chronic ultraviolet light exposure. Actinic lentigines may be of particular concern from a cosmetic point of view. Conventional hypopigmenting agents are usually deceptive. Using cyclodextrins to form inclusion compounds with these agents might represent a more active drug delivery system. Objective: To assess sensitive and objective methods predicting the effects of a 2% hydroquinone–cyclodextrin formulation on solar lentigines. Study design: Thirty Asian adults applied a 2% hydroquinone–cyclodextrin formulation once daily on solar lentigines of a forearm for 2 months. The other untreated forearm served as a control. Monthly assessments were performed using skin colorimetry and fluorescence video recording combined with image analysis. Corneomelametry following photodensitometry of cyanoacrylate skin surface strippings was performed after melanin staining of the samples.

R. Pena Ferreira, P. Costa, F. Bahia, **Visioscan VC 98 application: a comparison study between coarse and smooth skin surface**, Skin Research and Technology, Vol. 9, No. 2, May 2003

The skin is a result of many biochemical and physical factors and these are subject to changes both internally and externally. What is aging? Must of us define aging in terms of the appearance of people in our life experience. Others studying aging mechanisms define aging as a decrease in functional capacity. In the last few years, a great deal of data has been generated on aging mechanisms trying to determine if the aging process is a single event, a one-gene process, or a multifaceted process produced by many events and perhaps many genes.

H. Tronnier, M. Wiebusch, U. Heinrich, **Frictiometry on human skin,** Skin Research and Technology, Vol. 9, No. 2, May 2003

The state and function of human skin can be quantified by numerous non-invasive test methods. There are, however, still no valid methods to measure the tactile properties of the skin surface and thus to quantify the state of the skin on the one hand, and to determine the negative and positive effects of tactile influences on the other hand. The measuring device (Frictiometer) consists of a sensor, a steering unit and a monitor. The torque, the circular friction on the skin surface, is measured via the motor load current and is shown as a voltage drop.

U. Heinrich, **Kosmetika - Wirken sie wirklich?** Pharmazie

Bei der Beurteilung kosmetischer Produkte im Hinblick auf ihre Wirksamkeit gehen die Meinungen oft weit auseinander. Ist ihre kosmetische Wirksamkeit wissenschaftlich erwiesen oder steht sie nur als vollmundiger Werbeslogan im Vordergrund? Für die Herstellung und Vermarktung kosmetischer Produkte gelten heute genaue Vorschriften, sowohl auf nationaler als auch auf internationaler Ebene. Sie beziehen sich vor allem auf die Verträglichkeit und den Nachweis der Wirksamkeit dieser Produkte. Die EG Kosmetikrichtlinie befasst sich in Artikel 7a mit dem Nachweis kosmetischer Wirkungen. Er muss erbracht werden, wenn dies auf Grund der Beschaffenheit des Erzeugnisses oder der angepriesenen Wirkung gerechtfertigt ist.

A.G. Shepky, A. Bürger, G. Rudolph, M. Max, U. Koop, J. Ennen, M. Kuhn, A. Schölermann, F. Rippke, **Mild keratolysis by topical application of proteolytic enzyme subtilisin**

The proteolytic enzyme subtilisin offers a novel, especially mild way of keratolysis, obtained already in low concentrations and within the normal pH-range of the skin. The highly purified protease subtilisin from Bacillus subtilis degrades the bonds between the corneocytes and promotes the release of peptides and amino acids as natural moisturizing factors.

U. Heinrich, H. Tronnier, **Johanniskraut-Extrakt zur Pflege der atopischen Haut,** Kosmetische Medizin, Ausgabe 3-4/2003, 24. Jahrgang

Die Bedeutung einer wirkungsvollen Hautpflege mit subakuter atopischer dermatitis sowie auch Personen mit trockener empfindlicher Haut konnte in Zahlreichen Untersuchungen nachgewiesen werden. Neben einem besseren Hautgefühl können Juckreiz, Rauhigkeit, Rötung und Trockenheit deutlich vermindert werden. Gleichzeitig werden heute die angenehmen galenischen Eigenschaften einer kosmetischen Hautpflege verlangt.

M. I. Nogueira de Camargo Harris, **Propriedades biomecânicas da pele,** Pele: estrutura, propriedades e envelhecimento, Editora Senac, Sao Paulo, 2003

A biometrologia cutânea, ramo da ciência que avalia quantitativamente as propriedades biomecânicas da pele, tem encontrado na cosmetologia um importante aliado, pois o apelo mercadologico dos produtos destinados aos cuidados com a pele e com os cabelos tem-se baseado cada vez mais em evidências cientificas e tecnicas sensiveis, precisas e validadas, ao inves de serem fundamentadas em especulacoes.

N. Krüger, L. Fiegert, D. Becker, T. Reuther, M. Kerscher, **Spurenelemente in Form eines Kupfertripeptidkomplexes,** Kosmetische Medizin, 1/2003, 24. Jahrgang

In den letzten Jahren wurde eine Reihe von neuen dermatokosmetischen Wirkstoffen entwickelt, um Hautalterungssymptome zu bessern. Neben konsequentem Lichtschutz, Retinol und Antioxidantien werden jetzt auch in Deuschland Spurenelemente bei Hautalterung eingesetzt. In der hier vorgestellten offenen, kontrollierten Untersuchung an 40 Probanden zeigte sich bei topischer Applikation von Kupfertripeptid eine Zunahme der Hautdichte in der 20MHz-Sonographie, eine verbesserte Hydratation der obersten Hautschichten gemessen mittels Corneometrie sowie eine im Vergleich zu Retinol und Placebo signifikant stärkere Glättung der Haut, erfasst mit dem Visio-Scan.

C. Piérard-Franchimont, G.E. Piérard, **Postmenopausal Aging of the Sebaceous Follicle: A Comparison between Women Receiving Hormone Replacement Therapy or Not,** Dermatology 07/2002

The endocrine control of sebaceous follicles is complex in women. During aging, a decline in sebum output is often experienced. However, some women report increased seborrhoea after the menopause.

C. Piérard-Franchimont, G.E. Piérard, **Beyond a Glimpse at Seasonal Dry Skin**, Exogenous Dermatology, 2002

On clinical grounds, the so called dry skin corresponds in reality to a rough, sometimes flaky and scaly stratum corneum.

T. Sato, W. Sakamoto, W. Odanaka, K. Yoshida,O. Urishibata, **Clinical effects of dietary hyaluronic acid on dry, rough skin**, Aesthetic Dermatology Vol. 12: p. 109-120, 2002

A double-blind feeding study was carried out wherein 35 subjects who frequently suffer from dry, rough skin were given either a dietary hyaluronic acid supplement (120 mg/day) or a placebo for comparison for a 4-week period. The results have clarified the following: (1) Measurements of skin moisture showed that ingested hyaluronic acid acted to increase moisture content. (2) Microscopic skin surface analysis showed that ingested hyaluronic acid acted to increase skin smoothness and to ameliorate wrinkles. (3) Significant increases in blood hyaluronic acid concentration were found in both the hyaluronic acid and placebo ingestion groups, but the percentage increase was higher in the hyaluronic acid group. Other clinical laboratory test results indicated no clinically significant changes. It has been shown from the above that ingestion of hyaluronic acid is effective at increasing moisture retention and smoothness in the skin, and there are also no safety problems.

L. Orejarena, A. Castro, **Evaluacion de la efectividad hidratante de diferentes sustancias y su estabilidad fisica**, Actualizaciones Terapeuticas, dermatologicas y Esteticas, Nov.-Dec. 2002, Vol. 25

La resequedad de la piel tiene diversos origenes: disminucion de lipidos, perdida de agua transepidermal, factores hormonales, geneticos, medicamentosos, ambientales. Conociendo que esta condicion es una de las mas tratadas por especialistas, y que infinidad de productos dermocosmeticos especifican ser hidratantes, sin evaluacion de efectividad ni estabilidad, nos propusimos evaluar la actividad de diferentes hidratantes, en varias bases.

M. Boeninger, *L. Nylander-French***, Comparison of Three Methods for Determining Removal of Stratum Corneum Using Adhesive Tape Strips**, International Conference on Occupational and Environmental Exposures of Skin to Chemicals, September 8-11 2002, Hilton Crystal City, Washington DC

Adhesive tape stripping has been used to remove layers of the outermost stratum corneum from the skin. These tapes can be used to measure the physical condition of the skin, or for quantifying exogenous and endo genous compounds present within the skin.

J.S. Burry, R.L. Evans, A.V. Rawlings, **Effects of antiperspirants on whole body sweat rate and thermoregulation**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002
The primary function of sweat production is thermoregulation.

H. Tronnier, **Effects of Textiles on Human Skin***,* SÖFW Journal, 128, Jahrgang 4-2002

Very often, the people concerned as their employers make detergent residues in clothes responsible for skin reaction to textiles. Sometimes allergies are suspected.

A. Pagnoni, **Photoaging and Photodocumentation,** Cosmetics & Toiletries, January 2002, Vol. 117, Nr. 1

Techniques to photograph or image skin photodamage have reached new levels of sophistication. This survey discusses clinical grading, light imaging techniques, videomicroscopy and threedimensional in vivo measuring systems.

A. Castro, **Sericina en Preparaciones Capilares para Cabellos Danados: Medida de su Efectividad**, Magazine Actualizaciones Terapéuticas Dermatológicas y Estéticas, Vol. 25 No. 3, 2001

H.E. Packham, C.L. Packham, **Skin Bioengineering as a Contribution to Product Performance and Safety**, Cosmetics & Toiletries 03/2000

With today's increasing consumers sophistication and the demand both for products that work and are safe for the user, there is a need for greater objectivity and accuracy in both formulations and claims made by the manuafcturer.

J.F. Hermanns, L. Petit, O. Martalo, C. Piérard-Franchimont, G. Cauwenbergh, G.E. Piérard, **Unraveling the patterns of Subclinical Pheomelanin-Enriched Facial Hyperpigmentation: Effect of Depigmenting Agents,** Dermatology 2000, 201, p. 118-122

During photoaging the density of melanin chromatophores is heterogeneous in the epidermis.

J.W. Wiechers, C. Oakley, V. Wortel, T. Barlow, **Comparison of Skin Colour Measuring Methodologies on Asian Skin.** Personal Care Ingredient Asia Conference, Bangkok, March 2000

H. Lambers, H. Pronk, **Biophysical Methods for Stratum Corneum Characterization**, in T. Förster (Editor): Cosmetic Lipids and the Skin Barrier, 2001 by Marcel Dekker

There is no doubt that the application of cosmetic lipids has many positive effects on the structure and function of the skin. These effects are pleiotropic, caused either by direct interaction with the epidermis, particularly the stratum corneum, or indirectly, by influencing the physiologic, homeostatic condition of the skin.

H. Tronnier, **Beitrag zur Hautverträglichkeit von Körperpflegemitteln**. Kosmetische Medizin 6/1999

Wenn auch die Zahl der Nebenwirkungen durch kosmetische Präparate und Körperpflegemittel, vor allem der allergischen, sehr gering ist, gibt es doch gerade bei empfindlichen Patienten Hautzustände, für die eine weitere Maximierung der Verträglichkeit für den Dermatologen wünschenswert ist.

H. Tronnier, **Results of the Skin Surface Evaluation**, Cosmetics & Toiletries Manufacture Worldwide 1999

After a description of the measuring principle, the equipment and the realization of the SELS-Software as well as after dealing with already published study results, there will be a report also about three more analysis series. Thus it was possible to show that the smoothness of the skin Sesm has correlated with an improvement of the cellular cohesion.

E. Thumm, E.G. Jung, C. Bayerl, **Überprüfung der Auswirkung von Kosmetika auf Hautrauhigkeit, Feuchtigkeitsgehalt und Barrierefunktion der Haut**. Kosmetische Medizin 3 Juni 1999

In einer seitenkontrollierten Studie wurde drei Kosmetikpräparate auf liposomaler Basis hinsichtlich ihrer Auswirkung auf a)Hautrauhigkeit (Skin Visiometer SV 500), b) den Feuchtigkeitsgehalt des Stratum corneum (Corneometer CM825) und c) die Hautbarrierefunktion bzw. den transepidermalen Wasserverlust/TEWL (Tewameter TM 210) untersucht.

A.O. Barel, K. Alewaeters, P. Clarys, **Optical Imaging Using UV Light for the Determination of Photoageing,** Skin Research and Technology, Vol. 5 No. 2, May 1999

Photoaging of the skin is characterized by the appearance of hyper/hypopigmentation symptoms of premalignant aczinic keratoses.

H. Tronnier, U. Heinrich, **Diagnostik und Behandlungskontrolle seborrhoischer Kopfschuppung mit bildanalytischem Verfahren**, Kosmetische Medizin, 2 Mai 1999-07-15

Nach kurzem Eingehen auf die Klinik der (seborrhoischen) Kopfschuppung und ihre Pathogenese sowie die Therapie wird auf die konischen Nachweisverfahren auf der Kopfhaut hingewiesen. Eine neue bildanalytische Methode, basierend auf älteren Untersuchungen, wird beschrieben. Gemessen wird dabei die Schuppenzahl (SZ), die durch Schuppen bedeckte Meßfläche (SF), aus denen sich eine relative Schuppengröße errechnen läßt (SG). Außerdem werden prozentual die Schuppengrößen in 9 Klassen ausgewiesen.

M. Puschmann, A. Melzer, H.P. Nissen, **Hautglätende, hautelastische und hautschützende Wirkung einer Urea-Ceramid-Kombination,** Kosmetische Medizin Nr. 4, 1999-11-22

Sebostase ist ein häufiges dermatologisches Krankheitsbild. Sie wird durchexogene Faktoren, (Klima, Waschgewohnheiten) und/oder konstitutionelle Faktoren wie Alter und atopische Hautdiathese hervorgerufen. Eine auffällige Häufung derartiger Symptome findet sich in der kalten Jahreszeit. Hier ist das Klima (Temperatur, Luftfeuchtigkeit) sowohl im Freien als auch in den Gebäuden als wichtiger Kofaktor anzusehen. Zur Therapie trockener Haut werden traditionell Salben/Fettsalben, Ölbäder sowie harnstoffhaltige Zubereitungen eingesetzt.

H. Tronnier, **Wirksamkeit von Kosmetika – Anspruch, Wirklichkeit und Perspektiven**, 13. Symposium der DGK Bad Neuenahr, 1999

H. Tronnier, M. Weibusch, U. Heinrich, R. Stute, **Surface Evaluation Of Living Skin,** 3rd Int. Symposium on Cosmetic Efficacy, May 1998

The quantitative evaluation of the surface structure of the skin is interesting in the context of assessing therapeutic and cosmetic measures as well as for the determination of the degree of irritative damages of the skin. Up to now, the preferred method was to carry out measurements on replicas.

H. Tronnier, M. Wiebusch, U. Heinrich, **Results of the skin surface analysis by means of SELS (Surface evaluation of living skin),** Forum Cosmeticum, Basel, 19.-20. Feb. 1998

The improvement of skin condition – however it is achieved – is a central aim of the use of skin care products, and in a way also of decorative cosmetics.

H. Tronnier, *M. Wiebusch, U. Heinrich,* **Ergebnisse der Hautoberflächenanalyse mit SELS**, Kosmetische Medizin 19, 5, Dezember 1998 und EURO Cosmetics, 4-2001, p. 30-34

Nach einer Beschreibung des Meßprinzips und der Durchführung der SELS-Methode sowie einem Eingehen auf bereits publizierte Studienergebnisse wird über 3 weitere Untersuchungsreihen berichtet. Dabei konnte gezeigt werden, daß die glätte der Haut SE_{sm} mit einer Verbesserung der zellulären Kohäsion korreliert ist.

H. Tronnier, M. Wiebusch, U. Heinrich, **Results of the Skin Surface Analysis by Means of SELS,** Akt. Dermatol. 23, 1997

Surface evaluation of living skin (SELS) is a new optical-photoanalytical process. Four important parameters, determining the surface structure of the skin (scaling, roughness, wrinkling status and smoothness) can be recorded simultaneously. At the same time the image of the studied skin area can be used either directly or converted to colors chosen arbitrarily to represent different temperatures. The usefulness of the method is shown through examples of relevant influences on the skin surface and their effect on the SELS values, as well as by the results of comparative treatments of several weeks`duration. Constitutional, topical and age dependant skin surface structures can also be recorded by means of this method.

H. Tronnier, M. Wiebuch, U. Heinrich, R. Stute, **Surface Evaluation of Living Skin – SELS**, Experimental Dermatology, Vo. 6, No. 5, 10/1997

An evaluation of the surface structure of the stratum corneum of the skin is an imporatant factor in diagnosing dermatoses and a differentiated quantitative analysis of the factors determining it is an essential aid for the assessment of therapeutic and cosmetic measures, as well as for the evaluation of side-effects (e.g. cortocoid athropy).