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ORAL PRESENTATION ABSTRACTS

Title	MAPPING OF HUMAN HAIR HYDRATION. AN INNOVATIVE VISUAL TOOL FOR CLAIM SUBSTANTIATION
Authors	Angela Cristina Vargas Calle*, Alzira Xavier Pinto Diniz, Nathana Cindy Barros Silva Ramos, Caroline Vieira Hercolino, Victoria Gonçalves, Jussarah Viana, Nelson Luis Perassinoto, Adriano Pinheiro
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Session	<i>Oral</i>
Abstract	One of the main complaints from consumers regarding hair fiber is hair hydration, which is why various efforts have been made to verify if the application of cosmetic products to hair alters its water content. One of the techniques used to quantify this effect is differential scanning calorimetry - DSC. This technique allows the measurement of the enthalpy of water vaporization associated with the hair. In the traditional form, to perform the DSC test, a small sample of hair, which is considered representative of the entire sample, is placed in the equipment and subjected to a temperature variation between 25 and 180°C. Although the result is a good estimate of what happens in the hair as a whole, it assumes that the fiber is homogeneous from root to tip; however, the hair is a structure that is generated in the hair follicle and grows approximately 0.4mm per day, so that the hair that is closer to the tips is older than the hair near the root and therefore has been exposed to more accumulated damage. This information allows us to infer that little is known about the effect on the enthalpy of vaporization of cosmetic products along the hair. In this work, hair strands, after being treated with cosmetic products, were sectioned into 5 equal parts and each section was subjected to measurements of enthalpy of water vaporization by DSC. The DSC results were interpolated with images of the strands, taken after the application of the treatments, using a new software developed by our group. The software assigns a color for each enthalpy value on a scale of 100 to 300 mJ/mg, corresponding to blue for the value



of 300 mJ/mg (more hydrated) and red for the value of 100 mJ/mg (less hydrated), generating a hydration map that reflects the statistical analyses. The methodology developed enables the quantification of the enthalpy of vaporization along the strand and allows easy visualization of the results obtained.

Title	INDIVIDUALIZED COSMETIC PRESCRIPTION IN ACNE SKIN CARE
Authors	Francisca O. C. Dias*, Eanes T. Pereira, Juliana S. A. Falcão
Affiliations	Federal University of Campina Grande - Cuité, Brazil
Session	<i>Oral</i>
Abstract	Acne is a dermatological disease caused by alterations in the sebaceous glands, which are inflamed or infected and can be triggered by several factors. This pathology can affect the self-esteem of the individual, causing psychological and social damage. The health professional qualified in aesthetics has scientific and technical knowledge that can promote the necessary care, through guidance on the use of cosmetics intended for this type of dermatological dysfunction. Individually, the specialist can prepare cosmetic prescriptions and ensure the rational use of cosmetic products, reducing the chances of possible adverse effects from the use of these products, making the treatment safe and effective. The aim of the work is to customize industrialized cosmetic products, through cosmetic prescriptions according to clinical needs and to promote the rational use of cosmetic products. For this work, skincare products for acne were screened and the composition of the products was analyzed for the preparation of cosmetic prescriptions that would enable the care and treatment of acne based on clinical individuality. In the screening, 38 products intended for the care of acneic skin were selected and 10 cosmetic prescriptions were prepared, intended for grade I, II and III acnes. In the study, a model prescription for acne skin care will be presented. The benefits described on the product label, in addition to helping with product selection, make it possible to better understand the components of the formula and customize the product directing it to the clinical case. The study can support professionals in the field of aesthetics who seek to customize industrialized cosmetic products by including them in prescriptions for acne skin care, in addition to warning about the irrational and inappropriate use of cosmetic products.

Title	DEVELOPMENT AND EVALUATION OF EFFECTIVENESS AND SAFETY OF VEGAN PHOTOPROTECTIVE FORMULATIONS FOR ALL PHOTOTYPES
Authors	R. Ribon de Melo ¹ , C. Dal Pizzol ¹ , Ana P. Fonseca ¹ , Patricia M. B. G. Maia Campos ²
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Session	<i>Oral</i>
Abstract	The incidence of skin cancer has increased significantly in several countries, making it an important public health problem. In Brazil, the risk is



even greater, due to its climate and location. Industry plays a crucial role in the production and supply of quality sunscreens. The ideal sunscreen should have broad-spectrum protection, affordable cost, stability, sensory properties compatible with the proposed purposes in order to encourage frequent use. In this context, the aim of the present study was to develop high-protection vegan photoprotective formulations for the face - PS1= SPF 60 photoprotector PS2 = SPF50 photoprotector and evaluate the transmitted permeation, sensory perception, as well as safety and clinical effect. Emulsions were developed, fluid, using organic filters, sensory modifiers, and emollients of medium and high spreadability and low refractive index, which were consulted in clinical studies of safety and perception of efficacy. The strong odor is an important factor in the adherence to the use of a sunscreen, for this it was necessary to balance the sunscreens used to minimize the aroma observed in the final formulation, with salicylates (homosalate and ethylhexyl salicylate) being responsible by the residual odor. The results appreciated that more than 80% of the participants agreed that the smell of the product did not bother them. Over 75% of respondents agreed that the product has a pleasant, non-sticky texture, indicating that the proper selection of emollients and sunscreens had a positive effect on the sensory perception of the products. In addition, this choice also affected spreadability, with 100% approval for PS2, which did not leave the skin whitish and was invisible in phototypes V and VI. The Confocal Raman spectroscopy technique was used to evaluate the particle distribution of active substances in the PS2 formulation on the skin. The results indicated that the particles are concentrated on the surface of the stratum corneum and there is no evidence of penetration into the viable epidermis, even after 4 hours of application. Finally, the proposed photoprotective formulations were compatible with different skin types and experienced sensory properties relevant to adherence to the use of the photoprotector.

Title	BEYOND HYDRATION: CUTANEOUS TOLERABILITY AND CLINICAL EFFICACY OF A RENEWING BODY MOISTURIZER IN SKIN TONE AND TEXTURE EVENING
Authors	Ana P. Fonseca ¹ , C. Dal Pizzol ¹ , Patricia M. B. G. Maia Campos ²
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Session	<i>Oral</i>
Abstract	The skin has specializations according to each region of the body. In the market, there is a higher sales volume for facial care cosmetics than body care cosmetics. However, the body's skin also needs special care, as it suffers from friction, hyperpigmentation, keratosis pilaris and pseudofolliculitis resulting from depilation, among others, which affect the texture of the skin. In this context, a body moisturizer based on alpha-hydroxy acids, squalane, shea butter, glycerin, grape seed oil and physalis extract was developed, in order to provide uniformity of skin tone and



texture, with high skin tolerance. The formulation was evaluated for efficacy and cutaneous acceptability in real use. The study was completed by 34 people of both genders, aged 18 to 70 years, with dry skin, 17 with dark spots in the armpits and/or groin and 17 with keratosis pilaris and/or pseudofolliculitis. The results obtained showed that there were no clinical physical signs such as erythema, edema, flaking and dryness, nor functional signs such as burning sensation, tightness or pricking, indicating that the product presented high skin tolerance. Regarding the efficacy clinical evaluation by the dermatologist, before and after 28 days of use, there was a significant improvement in the uniformity of the skin tone (76.47%, $p=0.0005$), softness and smoothness (100%, $p=0.0002$) and dark spots diminishment in the armpit/groin area (88.24%, $p=0.0003$). In the group with keratosis pilaris and/or pseudofolliculitis, there was a significant improvement in inflammatory papules (87.5%, $p=0.0006$), softness and smoothness of the skin (87.5%, $p=0.0006$). In addition, hydration and microrelief of the skin in the anterior region of the forearms were evaluated by instrumental measurements, where a significant increase in the aqueous content of the stratum corneum was observed after 12h, 24h and 48h of application, as well as an improvement in microrelief and hydration in the viable epidermis. Finally, the cosmetic appreciability of the product by the participants was observed, both in terms of sensory properties and the perception of effectiveness, fundamental aspects for adherence to the routine over time. In summary, the proposed product showed a high safety and efficacy profile in improving hydration, texture and tone of the body's skin, in addition to well appreciated sensory properties.

Title	OBTAINMENT AND STANDARDIZATION OF A NEW COSMETIC INGREDIENT FROM FLAVONOIDS OF <i>PASSIFLORA CINCINNATA</i> AND THEIR APPLICATION IN A NANOTECHNOLOGICAL SYSTEM
Authors	Catarina Silva Guimarães ¹ , Danilo Menezes Oliveira ^{2,3} , Gabriel Azevedo de Brito Damasceno ¹ , Mateus Freire Leite ⁴ , Juliano Geraldo Amaral ¹
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Session	<i>Oral</i>
Abstract	<i>Passiflora cincinnata</i> (<i>P. cincinnata</i>) is a native Brazilian species, popularly known as “maracujá do mato” and “maracujá da Caatinga” and is present in the Amazon, Cerrado, Atlantic Forest and Caatinga biomes. It is popularly used due its anxiolytic, antihypertensive and anti-inflammatory properties. However, to the best of our knowledge, there is no studies of its potential as a cosmetic active ingredient. Its chemical composition presents phenolic compounds, among them, flavonoids, which stand out as potential as potential antioxidant agents in cosmetology. Therefore, the maim of this work was to develop and standardize <i>P. cincinnata</i> extracts and their application in a cosmetic microemulsion. A hydroalcoholic extract was



	<p>obtained from the leaves of <i>P. cincinnata</i> which was partitioned by polarity. The butanolic fraction was purified by crosslinked dextran-based resin, thus obtaining a subfraction rich in flavonoids that was standardized by high performance liquid chromatography (HPLC) regarding its isoorientin content. A microemulsion was produced using PEG-40 Hydrogenated Castor Oil, Sorbitan Oleate, Polysorbate 20, butyl stearate and water and 5.0% of <i>P. cincinnata</i> standardized extract the was added. The formulation was subjected to a preliminary stability study consisting of a centrifugation test (30 minutes at 171.36 RCF) and thermal stress (40°C to 80°C, during 30-minute cycles with a 5°C increase in temperature after each period). The crude extract had a yield of 9.74% and the butanolic fraction, 18.11% and after the purification process, it was possible to state that the butanolic subfraction is standardized at 45.92% of isoorientin. The formulation was characterized with pH equal to 5.66, electrical conductivity was 0.305µS/cm, droplet size of 26.716nm, polydispersity index equal to 0.257 and zeta potential of -13.8mV (±0.2). After the stability study, the formulation remained stable, maintaining as an isotropic system. Therefore, it was possible to obtain a standardized extract from the leaves of <i>Passiflora cincinnata</i>, which was added in a nanostructured system that presents the potential of a new cosmetic bioactive with antioxidant and pro-aging properties, evidencing a species native to Brazil and abundant in the Northeastern Caatinga.</p>
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Title	USING DNA-BASED TESTING TO PROVIDE A VEGAN SEAL OF AUTHENTICITY ON COSMETIC PRODUCTS
Authors	Diego Assis das Graças ¹ , Naiana Corrêa Ribeiro ¹ , Leticia Cristina Fernandes da Costa ¹ , Soraya Silva Andrade ¹ , Sebastião Donizetti Gonçalves ² , Artur Luiz da Costa da Silva ¹
Affiliations	¹ Laboratório de Engenharia Biológica, ENGBIO, Universidade Federal do Pará - UFPA, Pará, Brasil; ² ProServ Química Ltda.
Session	<i>Oral</i>
Abstract	<p>The niche of vegan cosmetics has gained worldwide notoriety in recent years, either by the rise of this lifestyle or even by individuals unaware of veganism, which seeks to adopt ethical requirements direct to consumption. The regularization and verification of these products are fundamental for their reliability and inspection for their reliability and validation of the absence of animal residues. In this work, samples of hair products and their respective raw materials, were selected to create a biomolecular certification of these cosmetics. Tests were developed using the technique of real-time polymerase chain reaction (qPCR), with commercial kits targeted to conserved regions of mitochondrial DNA along animals, with a sensitivity of 0.01% for animal DNA. The technique was used to achieve higher sensitivity and speed in the authentication work. All the products submitted presented the expected results, for the absence of animal material in their composition. Despite the difficulties presented in the manipulation of the material and the scarcity of data for such, a protocol for its handling in molecular biology assays was standardized, in order to help</p>



future studies. Therefore, the method has proven successful in its purpose, allowing us to verify the suitability of hair products for issuing the vegan label by DNA detection.

Title	ENCAPSULATED RETINOL FOR IMPROVED STABILITY AND EFFICACY
Authors	Renata Raffin ^{1*} , Cristieli Kopp ¹ , Melina Duval ² , Assma Assaoui ² , Emmanuel Doridot ² , Philippe Mondon ² , Laurent De-Givry ²
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Session	<i>Oral</i>
Abstract	Retinol is one of the most common cosmetic actives, widely used to manage skin ageing and photo related cutaneous damage. Retinol rapidly degrades, rendering its handling challenging and limited. A strategy to overcome the stability issue of retinol is to use encapsulation as a technology to promote protection for the active inside the lipid capsules. Encapsulated retinol was prepared applying lipid capsule technology at 3% (m/v). Physico-chemical full characterization was performed (pH, particle size, morphology, thermal analysis, dosage). For accelerated stability study, four batches were stored at RT, 40°C and 50°C. Release profile was evaluated using Franz cells and PVDF membranes. Skin permeation was evaluated using Raman spectroscopy. After preparation, samples were homogeneous, stable, without visible phase separation; color was pale/light yellow; pH was 8.2±0.1. Average DV(50) was 0.28±0.02µm and DV(90) was 0.46±0.01µm. Average retinol content was 3.58%±0.04. Accelerated stability demonstrated a significant reduction of temperature sensitivity and retinol degradation compared to free retinol. Encapsulated retinol released retinol in a slow and continuous process reaching higher retinol concentration over time and little degradation after 72h. Skin permeation studies showed enhanced skin penetration and tissue distribution of encapsulated retinol making it more bioavailable compared to free retinol. Encapsulation allows a controlled release of retinol in the living epidermis until 100µm of depth, 24h after topical application. Retinol is one of the widely used cosmetic anti-aging ingredients and very unstable and so, it was developed an encapsulated form of retinol, protected and stable, easy-to-formulate, highly bioavailable and well tolerated. Physico-chemical characterization showed a solid stable nanoparticle containing retinol. Stability studies performed against free retinol showed that encapsulation protects retinol from UV, air and temperature exposures. Release studies showed a stable retinol releasing in higher amount and slower than free retinol. Transcutaneous penetration studies showed controlled release of retinol by forming a reservoir in the stratum corneum before permeating into the living epidermis



Title	APPLICATION OF IMAGING TECHNIQUES FOR THE CHARACTERIZATION OF POST-INFLAMMATORY HYPERPIGMENTATION SKIN
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Session	<i>Oral</i>
Abstract	<p>Post-inflammatory hyperpigmentation (PIH) is a condition of acquired hypermelanosis that occurs after inflammation and/or injury to the skin, often following inflammatory processes such as acne. This condition affects a large portion of the population and, depending on the degree of hyperpigmentation, can cause low self-esteem, compromising the quality of life of these affected individuals. Therefore, it is necessary to understand the cutaneous physiology of PIH skin and its specificities to develop cosmetic formulations that are compatible with this type of skin and increase adherence to these formulations. Thus, characterization studies of PIH skin using instrumental measures are fundamental to understanding their real needs and assisting in more effective diagnosis and treatments. In this context, the objective of the present study was to characterize PIH skin by applying biophysical and advanced imaging techniques, such as reflectance confocal microscopy (RCM). To this end, 58 study participants with PIH skin in the malar region of the face were recruited. High-resolution image analysis evaluations assessed skin microrelief, hydration, and sebum content. In addition, the skin of 5 participants was evaluated using images obtained from RCM analysis in relation to the reflectance of interkeratinocytes in the granular layer, the brightness of the basal layer, stratum corneum, as well as the epidermal thickness and depth of the dermal papillae. The results showed that PIH skin, in general, tends to be mixed or oily, however, with lower hydration and higher transepidermal water loss when compared to normal skin, which may indicate some compromise of the skin barrier function. In the images obtained by RCM, there was a loss of the regular honeycomb pattern of the granular layer with low reflectance and an irregular pattern of dermal papillae, which corroborates with literature data and previous studies by our research group. Finally, understanding the morphology and hydrolipidic characteristics of PIH skin is fundamental for an accurate assessment and support for the development of cosmetic products targeted to meet the needs of this public.</p>

Title	OBTAINING AND APPLYING PROLIPOSOMES CONTAINING PEQUI OIL IN COSMETIC FORMULATIONS FOR SKIN: PHYSICO-MECHANICAL PROPERTIES AND CLINICAL EFFICACY
Authors	Letícia Kakuda*, Bianca J. Navarro, Wanderley P. Oliveira, Patrícia M.B.G. Maia Campos*
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Session	<i>Oral</i>

Abstract

Encapsulation and drying technologies for products of natural origin have potential applications in the pharmaceutical and cosmetic areas, as they protect and modulate the release of active compounds. Encapsulation in lipid-based systems has gained special attention due to high encapsulation efficiency, ease of production, ability to encapsulate hydrophilic and lipophilic substances, increased solubility, and product stability. Pequi oil (*Caryocar brasiliense* Cambess; SisGen: A15D96E), native to Brazilian biodiversity, has the potential to develop new cosmetic raw materials, considering its high content of carotenoids and polyphenols. The incorporation of pequi oil in lipid nanoparticles can improve their physicochemical properties and increase their solubility and stability. Thus, the present work aimed to encapsulate pequi oil in liposomes, evaluate drying by lyophilization to obtain proliposomes, incorporate proliposomes in gel-type formulations, and evaluate the rheological behavior, texture profile, and clinical efficacy of these formulations. For this, the liposomes were evaluated for their stability during 49 days at room temperature (25 °C), 5 and 37 °C and submitted to the drying process. After lyophilization, the powders were characterized for moisture and water activity and then added to a gel-type cosmetic formulation, which was divided into two parts: gel added with empty proliposome (L1) and gel added with proliposome containing 1% pequi oil (L2). These formulations were characterized by rheological behavior, texture profile, and spreadability. Subsequently, a clinical efficacy test (CEP n° 45620321.2.0000.5403) was carried out with 10 study participants, female, aged between 20 and 27 years to evaluate the cutaneous microrelief, hydration, sebum content, and transepidermal loss of water in the frontal and malar regions of the face, before and after 2 hours of application of the formulations. The results showed that the liposome formulations remained stable, with a zeta potential close to -30 mV, a size smaller than 350 nm, and a polydispersion index <0.3, showing electrical stability and homogeneity of the sample. The proliposomes showed moisture values lower than 2%, values considered adequate to guarantee the stability of the dry product. Furthermore, the water activity remained in the range of 0.2-0.3, indicating a reduced rate of lipid peroxidation and browning reactions. Cosmetic formulations L1 and L2 presented pseudoplastic and thixotropic rheological behavior. Texture profile analysis showed that the presence of encapsulated pequi oil significantly increased ($p < 0,05$) firmness and consistency parameters, which may be due to the presence of saturated and monounsaturated fatty acids in its composition, increasing the formulation viscosity. However, there was no variation in relation to the work of shear, consequently not changing the spreadability of the formulations. The clinical study results showed that the presence of the proliposomes - empty or containing pequi oil - in the formulation improved the cutaneous microrelief due to the increase in the Sesm parameter related to skin softness. It also increased the aqueous content of the stratum corneum, reduced the transepidermal water loss, and did not alter the sebum content during the study period in both evaluated face regions. However, these results were significant ($p < 0,05$) only for the L2 gel formulation, which contained the proliposome with pequi oil. Finally, according to the results obtained, the encapsulation



	and drying process of the liposome-containing pequi oil has excellent potential in prospecting new raw materials of natural origin for application in stable, effective, and safe cosmetic products that value the Brazilian biodiversity with high value.
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Title	IN SILICO APPROACH FOR THE EVALUATION OF OCULAR IRRITATION OF COSMETIC INGREDIENTS
Authors	Gabriela de Oliveira Prado Corrêa*, Andrezza Di Pietro Micali Canavez, Desiree Schuck
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Session	<i>Oral</i>
Abstract	<p>The classification of the potential for eye irritation/damage is a necessary step in the safety evaluation of cosmetic ingredients and is therefore part of national and international regulatory requirements. In February 2023, the National Health Surveillance Agency (ANVISA) provisionally banned the trade and use of hair modeling/braiding pomade due to reports of undesirable effects such as temporary blindness caused by these products. Eye irritation caused by cosmetic products is a problem that can be experienced by individuals who use a variety of products such as makeup, skincare, and other personal care products. According to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), chemicals can be classified into three categories of hazard for eye irritation: (i) Category 1 - causes serious eye damage; (ii) Category 2A - considered irritating; (iii) Category 2B - considered mildly irritating. Substances that do not fall into these hazard categories may be considered "No Category." The objective of this study was to evaluate 14 substances from the OECD 492 proficiency list using in silico models and establish the agreement between in vivo and in silico data. Three platforms with free access (StopTox, ToxTree, and OECD QSAR Toolbox) were used, and the results were parameterized as correct predictions, false positives, false negatives, out of domain/no prediction made, and total predictions made. Sensitivity, which was considered as the ability to predict truly positive/active substances, and specificity, considered as the ability to predict truly negative/inactive substances, were also evaluated. The OECD QSAR offers two prediction models: Exclusion Rules (ER) and Inclusion Rules (IR), both models were considered, and the analyses were performed by read across; the other tools make the prediction automatically. Considering the total predictions made, StopTox was the platform that made the most predictions, evaluating 10 substances, representing 71.4% of the total, followed by OECD QSAR (IR: 66.6%; ER: 57.1%). The ToxTree tool was able to make only 4 predictions representing 28.5% of the analyzed substances. OECD QSAR showed a high rate of false negatives (IR: 44.4%; ER: 42.8%) resulting in a low sensitivity of the models (IR: 20%; ER: 25%). StopTox obtained a low rate of false positives/negatives (10%) and high sensitivity and specificity (80%); ToxTree obtained a sensitivity of 50% and specificity of 100%, however, the sample size (4 substances) can be considered low, and other</p>



substances with reliable in vivo data should be evaluated to obtain a more robust analysis. The use of in silico tools has become a reality in recent years and represents our future. Their applications are unlimited, from initial molecule screening when there is insufficient toxicity data, and in this way, better direct the tests that will be performed, to regulatory purposes in some circumstances. The data obtained can positively support a weight-of-evidence analysis and clarify possible doubts generated by in vitro methods that in some cases may not be entirely sufficient for decision-making. However, specific molecule banks for cosmetic use must be constructed with reliable negative and positive data to obtain robust results.

Title	CLINICAL AND BIOLOGICAL CHARACTERISTICS OF FEMALE SKIN DURING CLIMACTERIC: EFFECTS AND TREATMENT WITH THE USE OF A COSMETIC FORMULATION CONTAINING ACTIVES FROM THE BRAZILIAN BIODIVERSITY
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Session	<i>Oral</i>
Abstract	The climacteric period is characterized by a decline in ovarian functions that begins before menopause and corresponds to about 1/3 of women's lives. During this period, hormonal changes take place and cause both biological and clinical effects on women's health. In the skin, there is an increase in collagen and elastin degradation while a decrease in their synthesis is observed. Also, dehydrated skin, roughness and sagging are noticed. Cosmetic actives that act on both collagen protection and stimulation pathways can contribute to treatments that prevent and attenuate the signs of aging in the skin during this period, as well as plant extracts can play an important role due to many classes of molecules that can act in synergy. Thus, the objective of the present study was to clinically evaluate the effects of biological changes on the skin of women during the climacteric and how the use of a cosmetic formulation containing active ingredients from the Brazilian biodiversity can contribute to attenuating the effects observed on the skin. Clinical trials were conducted in accordance with Resolution 466/12 of the National Health Council, on women subjects aged 50 ± 6 years, phototype on the Fitzpatrick scale III-V. The formulation used in the study contained a combination of three actives from the Brazilian biodiversity, namely: Jatobá, Casearia, and Aroeira extracts. The formulation was applied to the face and neck, twice a day, for 28 d, and different parameters were evaluated, such as skin firmness and elasticity, hydration, and facial contour. For the evaluation of collagen I, III, and IV, elastin, MMP-1, and elastase biomarkers, the formulation was applied to the forearm, twice a day, for 28 d. For all trials, the control group was defined as the skin without the application of any product. Clinical results demonstrated a 12% and 7% increase in skin firmness and elasticity after 28 d, respectively. Skin hydration increased by 73% and 24% after 15 min and 24 h, respectively, and 100% of the subjects had an improvement in the facial contour angle. Concerning biomarkers, compared to the control group after 28 d, it was possible to assess that there was a significant



	increase in 60% of type I, III, and IV collagen and 54% of elastin. There was a 60% and 49% reduction in MMP-1 and elastase synthesis after 28 d, respectively. Therefore, it is observed that the use of a cosmetic formulation containing actives from Brazilian biodiversity, that work on mechanisms of action in the collagen and elastin pathways, can contribute to the development of new products with benefits in improving the firmness and facial contour of women who find themselves in the climacteric period and seek cosmetic treatments focused on their needs
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Title	DEVELOPMENT OF AN INNOVATIVE NATURAL INPUT DERIVED FROM OLIVE BY-PRODUCT UPCYCLING
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Session	<i>Oral</i>
Abstract	The sharp growth of population and food consumption are the main reasons for the increase in agricultural waste, which represents a significant problem worldwide due to the negative effects it has on the environment, economy, and society. The valorization of these biomasses to obtain compounds of interest to the cosmetic industry contributes to a circular ecosystem of value generation. Oliviculture and olive oil production have grown surprisingly in Brazil. During the process of obtaining the oil, approximately 85% of olive production is waste. The reutilization of this residue emerges as a potential alternative source of new ingredients for the cosmetic industry, as its diverse composition provides it with a multifunctional profile of action. Therefore, we have developed an innovative input from the upcycling of olive by-product through the application of green and sustainable processes and ingredients. This product is the result of an academic interaction, an association between university and industry, aiming to bring technical-scientific knowledge to the consumer market. The composition of olive extracts was analyzed by quantification assays of total phenolic compounds (TPC), total flavonoids (TF) and by qualitative analysis of identification of phenolic compounds through Ultra High Performance Liquid Chromatography coupled to High Resolution Mass Spectroscopy (UHPLC-QqTOF-MS). The antioxidant capacity of the extract was also evaluated through the inhibition of ABTS·+ radical, the deactivation of DPPH· radical and the beta-carotene/linoleic acid system. The correlation between TPC content and antioxidant activity was evaluated. The extract stability was analyzed for 90 days under different storage conditions. The olive pomace extract was added to a cosmetic emulsion and its antioxidant capacity was analyzed. The olive pomace extract showed high TPC content (33.02 ± 5.66 mg GAE/g). The content of total flavonoids (TF) was 5.47 ± 0.26 mg EQ/g. Thirty-three compounds were found as constituents of the olive pomace extract by UHPLC-QqTOF-MS analysis, with their presence confirmed, highlighting oleoside, verbascoside, oleuropein and rutin. The inhibition of ABTS radical was 78.42 ± 0.65 µmol TE/g. As for the DPPH radical scavenging activity, the extract showed an IC ₅₀ of 4433.78 µg/mL the



extract showed the ability to protect $34 \pm 2.9\%$ of beta-carotene oxidation induced by oxidative degradation products of linoleic acid. The DPPH• scavenging activity was positively correlated with the levels of total phenolic content in the olive pomace extract. The extract showed stability under the conditions studied. The emulsion containing the olive extract demonstrated a value of $84 \pm 1\%$ for the percentage of DPPH• scavenging activity, while a control serum containing vitamin E showed $67 \pm 1\%$, and the base serum showed $36.5 \pm 7.3\%$. In conclusion, the upcycling of olive by-product represents a potential source of natural and sustainable ingredients for the cosmetic industry. The innovative ingredient developed in this study, based on the green and sustainable approach, showed a high content of phenolic compounds and demonstrated significant antioxidant activity. The extract from olive pomace presented stability over 90 days and its antioxidant properties were maintained after incorporation into a cosmetic emulsion. This work highlights the importance of the valorization of agricultural residues and the collaboration between academia and industry to bring technical-scientific knowledge to the market. The development of this new natural ingredient contributes to the circular economy and to the sustainable use of natural resources, promoting social and environmental benefits.

Title	VALIDATION OF ANALYTICAL METHOD AND STANDARDIZATION OF CRITERIA FOR DETERMINING SPECTROPHOTOMETRIC SUN PROTECTION FACTOR
Authors	Clarissa ten Caten Silva ¹ , Victoria Hostin Pezzini ¹ , Marina Gomes ¹ , Irene Clemes Kulkamp-Guerreiro ² , Bianca Ramos Pezzini ¹
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Session	<i>Oral</i>
Abstract	In the development of sunscreens, the determination of the sun protection factor (SPF) is essential. An accessible alternative for evaluating chemical sunscreens is through the analysis of the spectrophotometric SPF, initially described by Mansur et al. (1986). The method is based on the solubilization of the substances, analysis in a UV-visible spectrophotometer in the UVB range, and application of a mathematical equation. Despite its simplicity and wide use, there are no validation studies in the scientific literature addressing this method. Furthermore, many studies determine the spectrophotometric SPF using non-standard conditions, making it impossible to compare their results. The objective of this work was to propose the standardization of criteria for using the method and validation of analytical methodology for the evaluation of spectrophotometric SPF. The method showed adequate linearity in the range of 0.1000 to 0.4000 mg/mL ($R^2 > 0.99$). The analyzes of precision and accuracy showed low relative standard deviations (<5%) and good recovery percentages (97.65-102.04 %), respectively. Linearity curves were constructed with different chemical sunscreens, and a commercial sunscreen was evaluated. The value determined in this work for this product was 16, much lower than the declared SPF 60, obtained from an in vivo test for product registration at ANVISA. Method standardization is important to obtain comparable results,



and this study proposes rational criteria for the application of the spectrophotometric SPF determination method. It was observed that conducting the test within the linearity range of the method is crucial for obtaining reliable results. The results obtained suggest that the standardized and validated spectrophotometric SPF can be reasonably used to the screening of the photoprotective activity of simple samples, such as ingredients of natural origin. The application of the method is useful for screening and evaluation in the early stages of new products development. However, it does not seem to be suitable for estimating the in vivo SPF of complex samples such as high SPF sunscreens, containing several chemical sunscreens in high concentrations. This work presents criteria for the rational use of the spectrophotometric SPF determination method, which can be applied both in academic research and in the industrial sector.

Title	DEVELOPMENT AND CLINICAL EFFICACY OF A COSMETIC FORMULATION FOR MATURE SKIN CONTAINING ANTIOXIDANTS OF NATURAL ORIGIN
Authors	Gabriela Maria D'Angelo Costa & Patrícia Maria Berardo Gonçalves Maia Campos
Affiliations	School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Avenida do Café s/n, Vila Monte Alegre, Ribeirão Preto, SP, Brazil
Session	<i>Oral</i>
Abstract	Considering the skin changes resulting from aging, it is important to use products to moisturize and protect the skin with antioxidant properties. In this context, the aim of this study was to develop and evaluate the clinical efficacy of a cosmetic formulation for the care of mature skin containing the antioxidants of natural origin, Spirulina sp. and olive extract. For this purpose, an organogel-based formulation containing the antioxidants under study was developed. Then, instrumental measurements were made by biophysical techniques and image analysis of the skin in the frontal region of the face and anterior region of the forearms, before and after 12 weeks of application of the formulation with or without (vehicle) Spirulina sp. and olive extract. The clinical study was conducted after approval by the Research Ethics Committee (CEP/FCFRP 84599418.8.0000.5403) with 27 healthy women with presence of photoaging on the face, aged 39 to 59 years, Fitzpatrick phototype II and III. The parameters evaluated were the aqueous content of the stratum corneum, the transepidermal water loss - TEWL and the morphological characteristics of the epidermis and dermis. The results showed differences in the biophysical parameters between the skin of the frontal region of the face and the anterior region of the forearm, as well as in the morphological characteristics evaluated by image analysis. After the application period of the proposed formulation, the skin of the anterior region of the forearm, which was more hydrated than the frontal region, there was maintenance of hydration and TEWL, while in the frontal region there was a reduction of TEWL. In addition, images obtained from confocal reflectance microscopy and high-frequency ultrasound showed increased hydration of the epidermis and echogenicity of the dermis, respectively. These results suggest that the frontal region, being more



photoexposed, has more changes due to photoaging than the anterior forearm region, which is less photoexposed. In conclusion, the proposed formulation was effective in improving the photoaging conditions of the skin and the skin of the evaluated body regions showed different clinical efficacy responses to the use of the cosmetic formulation containing the naturally derived antioxidants.

Title	DEVELOPMENT OF AN IN VITRO PLATFORM USING RECONSTITUTED HUMAN SKIN FOR THE ANALYSIS OF THE EFFECTS OF RADIATION, POLLUTION, AND PROTECTIVE SUBSTANCE
Authors	Maísa O. Melo ¹ , Ana Júlia P. Gluzezak ¹ , Jean Leandro dos Santos ² , Lorena R. G. Cordeiro ¹
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Session	<i>Oral</i>
Abstract	Several exposome factors influence skin integrity, mainly sun exposure and pollution, which are known to trigger molecular processes that damage skin structure, causing premature aging. To better understand these damages and evaluate the efficacy of protective substances, reconstituted skin models have stood out for having metabolism and barrier functions similar to human skin, ensuring safe results without using animals. However, in vitro studies involving pollution normally use the systemic application, not representing real environmental conditions and generating unnecessary cellular stress. We propose the development of a platform for evaluating the effects of pollution, solar radiation, and possible protective effects on reconstituted human skin models, with the simulation of environmental pollution performed by a nebulization system. The models were developed from the primary culture of human keratinocytes and fibroblasts. The simulation of environmental pollution (reference particulate matter 2.5nm - PM 2.5) was carried out with a Vitrocell® Cloud nebulization air-liquid interface exposure system. The antioxidant effect of a hybrid of sunscreens avobenzone and ethylhexyl methoxycinnamate (M2) was also tested. Irradiation of UVA radiation of 10 J/cm ² was performed. The analysis of the generation of free radicals was performed by analysis in a fluorescence microscope, using the probe DCFH ₂ -DA (2',7'-dichlorodihydrofluorescein diacetate), and the fluorescence intensity was calculated using Image J. After analyzing the results, it was possible to observe that the exposure of skin models to PM _{2.5} pollution by nebulization provided penetration of PM _{2.5} into the viable layers of the skin and that damage increased exponentially when combined with UV radiation (an increase of 314.35% compared to the negative control). The M2 derivative caused a reduction in ROS generation (reduction of 30.12% and 65.79% compared to the model with +UV and -UV pollution, respectively), showing the importance of antioxidant protection against environmental factors. Thus, the developed platform proved to be effective for evaluating future cosmetic products in



	protecting against the formation of free radicals in a physiologically relevant way and with a high correlation with humans.
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Title	SKINALIZED NANOESFERA COM ATIVIDADES SENOLÍTICA E DE CONTROLE DO RELÓGIO BIOLÓGICO
Authors	Sheila Siqueira Andrade ^{*1,2} , Guilherme Ferreira ^{1,2} , Nichollas Camargo Serafim ^{1,2} , João Paulo Longo ^{1,2,3}
Affiliations	¹ Glia Innovation, Av. Guaranís - Parque Industrial, Aparecida de Goiânia, CEP 74993-530, GO, Brasil; ² PlatInnove Biotechnology, Sorocaba, CEP 13414-018, São Paulo, Brasil; ³ Department of Genetics and Morphology, Institute of Biological Sciences, University of Brasília (UnB), Brasília 70910-900, DF, Brazil
Session	<i>Oral</i>
Abstract	<p>Skin aging is a complex, multifactorial and dynamic process that affects all layers and structures of the skin, even altering the functional properties of the extracellular matrix. This process has been primarily associated with well-being, aesthetics and beauty, with interventions focused on restoring the appearance of the skin rather than its health, function and plasticity. However, recent studies have shown that cellular senescence plays a role in the deterioration of age-related skin function and influences overall health and potential longevity. In this context, the identification of biomolecules with dual anti-aging and pro-vitality actions for the skin, as well as the development of optimized active delivery systems in the skin microenvironment, are highly desirable. This study aimed to validate the potential of a heptapeptide designed and rationally synthesized based on the Biotech-educated platelets platform. To enhance its effects, the heptapeptide was encapsulated in an intelligent system called skinalized (bioguided nano-sphere), which demonstrated compatibility with a wide range of formulations and high effectiveness for topical application, as demonstrated by sensory analysis. Biological validation was performed through cell viability assays in a human skin cell monolayer culture system (2D), angiogenesis assays using three-dimensional (3D) biomimetic matrix scaffolds, heterotypic co-culture with human skin fibroblasts and endothelial cells, and validation in more complex models (3D and 4D skin cell spheroids). The heptapeptide acts as a chemotactic agent, increasing the renewal rate, adhesion, and dissemination of skin cells, as well as tissue "cleaning" by removing senescent cells. Its central benefits include organizing the cellular cytoskeleton (inducing an increase in F-actin bundles), basal membrane, and extracellular matrix by inducing laminin production, with consequent sequential increase in type I collagen synthesis, affecting the biomechanical properties of the skin and combating "zombie" senescent cells. Its characterization is completed with the INCI (International Cosmetic Ingredient Nomenclature Committee) designation as palmitoyl sh-Heptapeptide-14 Aspartyl Hydroxytryptophan. Therefore, the heptapeptide designed based on platelet content protein exhibits biomimetic, effective and biocompatible properties, with safe and prominent in vitro and clinical results, providing the skin with resources to combat visible signs of aging.</p>



Title	DERMOCOSMETIC PROTECTION OF ATOPIC SKIN – REGULATION OF IMMUNE DYSFUNCTION AND BALANCE OF THE CUTANEOUS MICROBIOMA
Authors	Michelle Sabrina da Silva ^{1,2*} , Lucas Neves dos Santos ¹ , Rafaela Araújo de Sousa ¹ , Maria Augusta Rebello Giannini ³ , Fernanda Calvente Bayan ³ , Teby Melo da Silva ³ , Flávia Alvim Sant'Anna Addor ¹ , Sérgio Schalka ^{1,2} , Maurício da Silva Baptista ²
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Session	<i>Oral</i>
Abstract	<p>Atopic dermatitis (AD) is a chronic inflammatory skin condition characterized clinically by periodic flareups of dry, red, itchy skin lesions and pathologically by a defective skin barrier, recurrent infections, and local and systemic type 2 immune responses. The disease is common in children and is less prevalent among adults. During an eczema flare-up, the diversity of normal microflora is diminished, allowing <i>Staphylococcus aureus</i> to proliferate, and installing a dysbiosis that activates inflammatory cells. Studies in the literature demonstrate a direct relationship between interleukin (IL) 31 levels and the severe pruritus observed in AD, associated with massive IL-4 synthesis that amplifies the secretion of proinflammatory cytokines. In this work we evaluated the effectiveness of a moisturizer in regulating the immune response and microbiome associated with AD. For this, an in vitro evaluation was performed using human monocytes differentiated into macrophages activated with lipopolysaccharide (LPS) to measure IL-31 synthesis after treating cultures with the moisturizer under investigation. In parallel, a unicentric clinical study was conducted to evaluate the effectiveness of the moisturizer in the balance of the microbiome in 13 research participants, aged between 05 and 12 years, who had active atopic dermatitis in the cubital cavus region (CAAE 60994722.8.0000.5514). Swabs were collected before (D0) and after 30 days (D30) of continuous use of the moisturizer for identification and quantification by qPCR of the microorganism <i>S. aureus</i>. Our results demonstrated that in addition to reducing IL-31 production by up to 57% ($P < 0.001$) the moisturizer also had the ability to balance the skin microbiome by reducing the <i>S. aureus</i> population in the AD region by 15% ($P < 0.001$). Taken together, these results demonstrate the potential effectiveness of the moisturizer in reducing itching and skin discomfort associated with immune dysregulation and combating the dysbiosis characteristic of atopic skin, thus contributing to an improvement in the well-being and quality of life of the individual with AD.</p>

NOTE: The authors are responsible for the scientific content presented and its transcription in English.



		
<p>Juliana Flor DSM Poster Scientific Committee</p>	<p>Joãozinho Di Domenico ABC Poster Scientific Committee</p>	<p>Vanessa Arruda IMCD Poster Scientific Committee</p>

POSTER PRESENTATION ABSTRACTS

Title	CHARACTERIZATION OF THE VISCOELASTIC PROPERTIES OF THE SKIN ON THE HANDS OF WOMEN BETWEEN 30 AND 60 YEARS OLD USING THE CUTOMETER® MPA 580 PROBE
Authors	Louise Vasques & Gislaine R. Leonardi
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Session	<i>Poster</i>
Abstract	<p>Two of the main signs that characterize aged skin are the loss of elasticity and laxity of the skin, which occurs due to degradation, and the consequent decrease of collagen fibers with advancing chronological age and with photoaging. This loss can be mainly observed in areas with little connective filling, such as the neck and hands, causing discomfort and flaccidity. In this sense, the present work aimed to characterize the viscoelastic properties of the hands of healthy women aged between 30 and 60 years and to evaluate the variation in elasticity over the years. For this, the hands of 15 women divided into 2 groups were evaluated: G1 - between 30 and 45 years old and G2 - between 46 and 60 years old. The Cutometer® MPA 580 equipment was used with a 4 mm opening probe. The relative attributes (R) of skin elasticity were evaluated and compared. There is a noticeable trend of loss of elasticity in the skin of the hands over the years, but some people notice this loss earlier. In this study, a decrease of between 25 and 45% in skin elasticity was observed for all evaluated parameters, showing a decay over the years. There is a difference between viscoelastic properties in young skin compared to mature skin. Cutometry can help in studies of the effectiveness of products intended for hand care, with the 4 mm probe being the most suitable for the age group involved in this study. However, these differences do not apply only to the chronological age of the individual and may vary interpersonally according to extrinsic aging factors such as sun</p>



	exposure, eating habits, use of cosmetic products, frequency of washing, and asepsis of the hands, among others.
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Title	STREPTOCOCCUS THERMOPHILUS AS A NATURAL, SAFE AND EFFECTIVE INGREDIENT IN THE TREATMENT OF ATOPIC DERMATITIS
Authors	Marina Piola Rossetto ¹ , Silvia Dal-Bó ² , Zoé Feuser ² , Heloisa de Medeiros Borges ² , Ana Voytena ¹ , Gabriel Fernandes Alves Jesus ³ , Monique Michels ³
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Session	<i>Poster</i>
Abstract	<p>Atopic dermatitis is a chronic inflammatory skin disease in which the skin is affected by microbial dysbiosis.</p> <p>The gut microbiome is related to the skin microbiome. The role of the commensal skin microbiota in atopic dermatitis is of great importance, since the microbiome is essential for the development of the immune system and homeostasis of the organism as a whole. Dysbiosis in the skin and gut are strongly associated with changes in the immune response and the development of skin diseases, including atopic dermatitis.</p> <p>The literature suggests that different active and inactive probiotic strains (paraprobiotics) can contribute to the preservation of skin integrity and homeostasis and that their use can be beneficial in dermatological conditions such as atopic dermatitis. Given the immunomodulatory and anti-inflammatory potential of <i>S. thermophilus</i> ATCC 19258 previously evaluated in in vitro tests by the research group, the inactivated strain (paraprobiotics) was tested, at a concentration of 1%, in volunteers diagnosed with atopic dermatitis in a clinical trial randomized and placebo-controlled. During a period of 28 days of treatment, 24 volunteers, randomly divided into two groups, blindly, were followed. The volunteer underwent a screening with physical assessment to determine the degree of dermatitis, in addition to a screening and perceived efficacy questionnaire. Qualitative analysis (assessment of perceived effectiveness) and quantitative analysis (using the “Skin Analyzer Digital” equipment) were measured. Quantitative assessment measured skin balance, moisture, oiliness and elasticity. These variables were collected at 0, 14 and 28 days after using the product. Results demonstrate that the application of the paraprobiotic cream based on <i>S. thermophilus</i> showed a significant improvement in skin balance, moisture and oiliness, after 28 days of use in the treated group, compared to placebo. The perception of the variable “skin irritation”, “flaking” and “itching” by the Treated Group showed a significant increase in the number of people who showed improvement in their condition (“Improved”). Finally, the paraprobiotic cream showed proven safety and efficacy in the treatment of the skin of people with atopic dermatitis, since no adverse effects were reported.</p>



Title	DEVELOPMENT OF A BAR SOAP WITHOUT SAPONIFIED WITH A MORE ACCESSIBLE MARKET VALUE
Authors	Tatiane Camargo* & Carla A.P Moraes
Affiliations	Faculdade de Tecnologia de Diadema Luigi Papaiz – FATEC DIADEMA - Diadema, Brasil
Session	<i>Poster</i>
Abstract	<p>Brazil is the 4th largest cosmetics consumer market in the world, and the bar soap is one of the products commonly used in Brazilian homes for body cleaning, however, it is a country that still has major problems in the sanitary area, where the neediest parts of the population face difficulties, especially economic, to obtain good personal hygiene products. The objective of the work was to elaborate a new bar soap to be used during bathing, with a more accessible market value, aimed at both body hygiene and consumer welfare, incorporating different ingredients and technologies to the research and production process. For this, 07 new formulations were developed, without the use of surfactants derived from saponification reaction and incorporating two distinct technologies to the production process (molding process and emulsion process), where, from the 07 formulations developed, 02 attended what was proposed in the project, bringing soft cleaning, good hydration, easy rinsing, good durability and with production value similar to existing products with the same requirements in the market.</p> <p>Keywords: bar soap, hydration, surfactants.</p>

Title	SIMPLE AND COMPLEX CUSTOMIZED COSMETIC PRESCRIPTIONS FOR THE CARE OF HYPERPIGMENTED SKIN
Authors	Sara I. M. Aquino*, Thassy H. N. Belarmino, Eanes T. Pereira, Juliana S. A Falcão
Affiliations	Universidade Federal de Campina Grande - Cuité, Brasil
Session	<i>Poster</i>
Abstract	<p>Post-inflammatory hyperpigmentation (PIH) and solar hyperpigmentation are dermatological conditions in which skin darkening occurs due to inadequate stimulation of melanin-producing cells, melanocytes. The treatment of both is performed mainly with topical depigmenting agents (cosmetic products) that inhibit the main enzyme involved in melanin synthesis, tyrosinase. For an effective treatment, it is important that these cosmetics are prescribed by a qualified professional. Therefore, the objective of the treatment was to produce personalized cosmetic prescriptions for the care of hyperpigmented skin, as well as to point out the importance of the prescriber. To achieve the expected results, the methodology used was a narrative review of the literature, skin care product screening steps, label analysis and prescription production. Industrialized products with active ingredients such as retinol, kojic acid, glycolic acid, niacinamide, among others, were selected. The prescriptions were classified as simple and complex, providing a comfortable routine for the patient. This work aims to help pharmacists and other professionals who prescribe cosmetic therapies.</p>



Title	THE RELATIONSHIP BETWEEN PHYSICO-CHEMICAL PROPERTIES AND STABILITY OF BASE EMULSIONS FOR NATURAL HAIR COSMETICS APPLICATION
Authors	Fernanda M. P. Miranda ^{1*} , Helen C Ferraz ² , Fernanda Badotti ¹
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Session	<i>Poster</i>
Abstract	<p>The large amount of information available about environmental and health issues leads consumers to increasingly question the composition of the cosmetics they use and look for natural products with high performance. Hair cosmetics are among the most popular and the most widely used are shampoos and conditioners. A shampoo formulation is usually composed of a combination of surfactants that promote cleaning, foam and ingredients that bring softness and shine to the hair. Conditioners are generally composed of cationic surfactants, silicones, cationic polymers and/or lipids that makes the hair easier to comb. In this work the stability of emulsions using jojoba oil was evaluated focusing on the production of alternative hair care products. Jojoba oil is rich in antioxidants and has a composition close to the skin's natural sebum, providing interesting properties to the formulation and reducing the irritating potential. The use of pea protein isolate (PPI) was also evaluated. This protein widely used in the food industry to stabilize emulsions. Base emulsions for shampoos and conditioners containing natural surfactants and semi-natural co-surfactant was formulated. The most stable formulations were selected by performing central composite design. Tensiometry analyses showed that PPI is capable of reducing the surface tension of water from 72.4mN/m to 45.9mN/m and 43.2mN/m in the proportion used for shampoo and conditioner respectively. The shampoo emulsion, which contained 5% oil and 1% PPI, showed creaming phenomenon in the stability teste at 5, 25, 45 and 65°C (Turbsican[®]) and, watching the stability in the bench test at 25°C, there was a 4% separation in 4hs. The viscosity value obtained was 34.25cP, suggesting the need of a viscosity agent in the formula to obtain a commercial product. The presence of the co-surfactant cocoamidopropil betaine provided better foamability to the shampoo base. The emulsion for conditioners in the same concentration of oil and PPI proved to be quite stable in the stability tests using Turbsican[®] and, watching the stability in the bench test, there was no detectable separation for more than 24 hours. The viscosity value obtained was 13527cP, considered suitable for the product.</p>



Title	DEVELOPMENT OF COSMETIC FORMULATIONS WITH A WATERLESS CONCEPT
Authors	Isabella Miranda Salomão, Laura Moretti Aiello, Gislaine Ricci Leonardi
Affiliations	Campinas State University
Session	<i>Poster</i>
Abstract	The cosmetics area presents a market of constant innovations, seeking new applications and increasingly natural and sustainable alternatives in its products. This work aimed to develop and evaluate the stability of cosmetic formulations developed with a waterless concept. Methodology: formulations were developed with different combinations of polymers and natural thickeners. Formulation 1 (F1) was prepared with a 5% concentration of polar phase, while formulation 2 (F2) had a higher concentration of this phase (20%). To study the preliminary stability, the emulsions were evaluated by centrifugation test and by their organoleptic and microscopic characteristics at times 0, 7, 14 and 30 days. Results and discussion: Two stable formulations were obtained, with F1 being more consistent and F2 having a creamier and brighter appearance. Both samples remained stable after centrifugation. Through microscopy analysis, the formation of liquid crystal structures and crystals from the structure of the dispersed thickener in the formulation was observed. Conclusion: The developed formulations represent potential anhydrous systems for application in moisturizing products and possible incorporation of cosmetic actives.

Title	DEVELOPMENT OF COSMETIC FORMULATIONS CONTAINING LICURI OIL (<i>SYAGRUS CORONATA</i>) OF NORTHEASTERN CAATINGA
Authors	Maria Clara Botelho de Sousa, Bruna Santana Neves, Vinícius Rosenbergre dos Santos Carmo, Caio Ferraz Cabral de Araújo, Gabriel Azevedo de Brito Damasceno
Affiliations	Federal University of Bahia - Multidisciplinary Institute of Health, Vitória da Conquista-BA, Brazil
Session	<i>Poster</i>
Abstract	The Caatinga, an exclusive biome of Brazil, hosts more than 3150 vegetal species, of which 53% are native, demonstrating its great biodiversity. The search for new cosmetic actives is growing and the use of botanical extracts in cosmetic formulations is disseminated. <i>Syagrus coronata</i> , popularly known by licuri, is a native palm tree of Caatinga regions, being one of the most aridity tolerant species of this biome. Although widely known and used by the population, it is still little explored for use as active compounds in cosmetics. Licuri almond oil presents medium chain saturated fatty acids, such as caprylic, capric and lauric acid, components with potential of use in cosmetology both as structuring agents and oily phase in emulsions, configuring as ingredients with moisturizing potential. The purpose of this study was the development of emulsions containing <i>Syagrus coronata</i> oil. The licuri oil was commercially bought and presents registration in SisGen (AD19039). A statistical experimental plan of the type 2 ² with central



compound was performed, constituted by ten formulations, whose dependent variables consisted in the concentration of licuri oil and tensoative system used and, as variables responses, the minimum apparent viscosity and the values of pH and electric conductivity. The formulations were prepared using the phase inversion method and then the samples were evaluated according to its macroscopic aspects. After 24 hours, they were subjected to the centrifugation tests (3000 rpm/30 minutes). Those formulations which remain unchanged had their preliminary stability evaluated. The samples were stored in a climate chamber ($45 \pm 5^{\circ}\text{C}$) for five days. The pH value, electric conductivity and macroscopic characteristics were evaluated 24 hours after the manipulation and the storage period in the climate chamber. Only one emulsion presented its minimal apparent viscosity at the limits of the equipment quantification available in our laboratory, not being possible to analyze the viscosity values of the other formulations. However, it was possible to obtain emulsions in the form of moisturizer and lotions, using a large range of licuri's oil concentration, demonstrating this oil potential as a cosmetic active.

Title	DEVELOPMENT OF AN ANTI-ACNE FACIAL MASK BASED ON POLYVINYL ALCOHOL
Authors	Nathália Luiz Dias ¹ & Luciana Macedo Brito ^{1,2}
Affiliations	¹ Universidade Federal Rural do Rio de Janeiro; ² Departamento de Ciências Farmacêuticas
Session	<i>Poster</i>
Abstract	<p>The functionality of face masks has been explored since antiquity, currently their use and benefits are supported by scientific research. There are several types of masks, with sheet masks being the first to be successful among Brazilians because of their practicality and because they are very publicized on social networks. The peel off facial mask has also gained space in the market, it is based on vinyl resin and its film-forming property makes it practical to apply, easy to remove and the possibility of extracting blackheads, for example. The objective of the present work was to manipulate base formulations of a peel off facial mask using polyvinyl alcohol as a film-forming agent and from this base to incorporate an anti-acne active ingrediente - a cutaneous disease of the pilosebaceous follicles that negatively affects a large part of the population. both physically and mentally -. In order to develop an accessible, safe and effective formulation, the active ingredient chosen was Punica granatum extract, a fruit that is widely used in both traditional and scientific medicine with numerous proven benefits for human health, including the skin. Formulations with different concentrations of polyvinyl alcohol were manipulated using glycerin and sorbitol as wetting agents. After manipulation, organoleptic tests, drying tests, film formation, pH measurement, temperature stress and freeze- thaw cycles were performed to verify the physicochemical parameters of the developed formulations.</p> <p>The formulation with 10% polyvinyl alcohol and a mixture of glycerin and sorbitol showed the best result, being chosen to incorporate the active</p>



	ingredient. The formulations showed stable organoleptic characteristics at room temperature for 60 days, all dried in a timely manner and were able to form a removable film; the pH of the facial masks was around 5 and 6, which is compatible with the skin pH; and during thermal stress the masks maintained their organoleptic characteristics both at high and low temperatures. At the end of the work, an ideal anti-acne facial mask formulation was obtained, with the recommendation to carry out more specific tests for the subsequent commercialization of the cosmetic.
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Title	ACCELERATED STABILITY STUDY AND FEASIBILITY ASSESSMENT OF A KOMBUCHA PROBIOTIC COMPLEX
Authors	Bruna K. L De Paula ¹ , F. Fonseca ² , D. Marques ³ , Osvaldo F. S. Filho ⁴
Affiliations	¹ Universidade Federal de Pernambuco; ² Universidade de Cádiz; ³ Universidade de Barcelona; ⁴ Faculdade Maurício de Nassau
Session	<i>Poster</i>
Abstract	Originating in Greek, probiotics are living microorganisms that, in balance, promote the proper functioning of the body, improve various systems and enhance human health. Recent research shows that topical probiotics have the potential to treat skin conditions by restoring the balance of the microbiome and promoting the growth of beneficial bacteria. This alternative approach has promising results, but further exploration is needed to reduce antibiotic use and minimize side effects associated with long-term treatments. Furthermore, more clinical studies are needed to better describe the beneficial effects on the skin. This research aims to evaluate the stability and viability of a probiotic complex obtained from the fermentation of sweetened hibiscus tea and inoculated with a culture of bacteria and yeast (scooby), which produces acetic acid, lactic acid and carbon dioxide, resulting in a slightly acidic, sweet, effervescent and healthy drink due to its probiotic potential and antioxidant content. After being fermented, a bioactive probiotic extract is obtained by biotechnological means, which is being tested as a cosmetic ingredient as an innovative alternative for skin treatment. The raw material was subjected to physical-chemical and microbiological analyses, with the objective of evaluating the quality standards necessary to determine its safe and effective use. The analyzes were carried out based on Resolution No. 481/99 of the National Health Surveillance Agency (ANVISA) and ANVISA's Cosmetic Stability and Physical-Chemical and Microbiological Quality Control Guides; ABDI; ABIHPEC and SEBRAE. To assess the viability of the microorganisms present in the product, counts of lactic acid bacteria and yeasts were carried out in addition to the stability test. At the end of the 90 days, it was observed that the Kombucha Probiotic Complex samples remained stable, presenting an acceptable result within ANVISA specifications. Furthermore, with regard to viability the count of lactic acid bacteria and yeasts remained constant throughout the study period.



Title	PAIRED COMPARISON ANALYSIS OF EMULSION SENSORY PERCEPTION FOR CURLY HAIR CONTAINING NATURAL AND SYNTHETIC INGREDIENTS
Authors	Karina L. C. Maso*, Vicente N. Sanford, Ana Thais S. Damasceno
Affiliations	WU Cosmetic Care, Eusébio-CE, Brasil
Session	<i>Poster</i>
Abstract	<p>The research and development of more natural and sustainable cosmetic products have become increasingly present in the cosmetics industry with the growing demand for this market niche. The practice has shown that the large amount of content and information created and propagated mainly by social media and/or other branches of the internet may be directly related to changes in consumption habits that lead to the warming of some markets. The culture of self-acceptance and self-love has gained strength on social media in recent years, walking alongside an increase in the search for hair products for wavy, curly, kinky, and transitioning hair. Considering these two market trends, a paired comparison study was conducted. The objective was to develop two types of leave-in creams: a formulation rich in synthetic ingredients (F1) and another formulation containing natural ingredients (F2), mainly hibiscus oil (<i>Hibiscus sabdariffa</i> L.) as an antioxidant, emollient and conditioning agent. Both formulations were applied to the same type of hair (3C curl pattern), and the strands were evaluated at three different times: immediately after application, after two hours of application, and after six hours of application. The evaluation was based on the comparison of the strands according to the sensory perception of three formulators. Shine, frizz, curl definition and opening, softness, roughness, and silkiness were observed. After the study, it was possible to observe that the strand treated with F1 showed a frizz-free, shiny, and well-defined curl. In contrast, the strand treated with F2 also showed a frizz-free, shiny, and well-defined curl, but softer, silkier, and with less roughness than the strand treated with F1. Both formulations underwent accelerated stability tests for 28 days. No changes were detected in the samples during the analyzed period, suggesting safety for possible commercialization of F2. The result signals success in overcoming the initial challenge of obtaining a natural and sustainable cosmetic product with good stability, as natural ingredients have shown to be quite labile when compared to synthetics.</p>

Title	GREEN COFFEE OIL: PHYTOCHEMISTRY AND DEVELOPMENT OF DISPERSED SYSTEMS
Authors	Paulinne Moreira Lima ¹ , Mateus Freire Leite ² , André Luís Morais Ruela ³ , Gabriel Azevedo de Brito Damasceno ¹ , Juliano Geraldo Amaral ¹
Affiliations	¹ Instituto Multidisciplinar em Saúde, Universidade Federal da Bahia, Vitória da Conquista-BA, Brasil; ² Faculdade de Ciências Farmacêuticas, Universidade Federal de Alfenas, Alfenas-MG, Brasil; ³ Universidade Federal de Ouro Preto, Ouro Preto-MG, Brasil
Session	<i>Poster</i>
Abstract	Vegetable oils are increasingly showing importance for the cosmetics industry, as there is a greater tendency to use natural products. An example



	<p>is green coffee oil, which has numerous physiological advantages. In this work, the phytochemical characterization of the oil from the green beans of <i>Coffea arabica</i> was carried out, by gas chromatography coupled to mass spectrometry (GC-MS), with a comparison of the spectra in the FFNSC1.3, NIST11 and WILEY7 libraries. With the results, an evaluation of the physiological and cosmetic benefits of each compound was made. Most of the annotated substances present benefits for the skin, such as antioxidant and photoprotective activity and thus have potential for use in dermocosmetics. In addition, 198 emulsions containing coffee oil as the oil phase were developed. Among the emulsions produced, some had a higher concentration of the oil phase, which could favor skin hydration, others contained a greater amount of surfactant, enabling a more stable system, and some had intermediate concentrations, reducing the risks of possible skin irritation due to the presence of surfactants. These results reinforce the importance of the work, with an emulsion developed without the need for heating and with valuable substances for the cosmetics industry.</p>
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Title	SENSORY AND PHYSICAL-MECHANICAL PROPERTIES OF COSMETIC FORMULATIONS CONTAINING OLIVE AND PEQUI OILS AND THE LIPOSOLUBLE DERIVATIVE OF VITAMIN C
Authors	Bianca J. Navarro, Gabriely Scatolini, Letícia Kakuda; Patrícia M.B.G. Maia Campos *
Affiliations	School of Pharmaceutical Sciences of Ribeirão Preto – FCFRP/USP
Session	<i>Poster</i>
Abstract	<p>The use of oils in cosmetic products is a regular practice since they are widely known for their emollient, moisturizing, and sensory modifying properties. In recent years, cosmetics based on vegetable oils have gained prominence, including for application in oily skin, because they have a rich composition of fatty acids also present in the lipid mantle of the skin, contributing to the maintenance of the skin barrier function. In this context, this study aimed to develop and evaluate the sensory and physical-mechanical properties of cosmetic formulations containing olive (<i>Olea europaea</i>) and pequi (<i>Caryocar brasiliense</i> Cambess; SisGen: A15D96E) oils, besides ascorbyl tetraisopalmitate - TIPA. For this purpose, it was developed a formulation based on C13-15 alkane, added or not (F0-vehicle) with the active substances, isolated or in combination: 10% olive oil (F1); 10% pequi oil (F2); 5% of each oil and 2% TIPA (F3); 5% of each oil (F4); 2% TIPA (F5). The formulations were evaluated in terms of work of shear in a TextureAnalyzeTA.XPlus® Texturometer and sensory properties by twenty participants, aged 17 to 30, using the Sensorimeter®SR100 (Courage-Khazaka), a device that translates subjective opinions into numerical measurements using a 0-100 scale. Immediately after the application, the parameter spreadability and soft touch were evaluated, and after 10 minutes, hydration, smoothness, oily residue, pleasant touch, stickiness, and preference for the formulation. In the spreadability test, there was no significant difference in the work of shear parameter among the formulations, which correlates with the spreadability parameter in the analysis of sensory properties. This result corroborates those obtained by</p>



the Sensorimeter since no difference was reported in the spreadability of the formulations. In the sensory analysis, F3 improved perception of hydration and smoothness and significantly ($p>0,05$) decreased stickiness and oily residue compared to F1. On the other hand, the high concentration of only one of the vegetable oils resulted in greater stickiness and oiliness sensation. Therefore, formulations F1 and F2 were considered less moisturizing and smooth after application. In conclusion, the association of pequi and olive oils and TIPA added benefits to the formulation since they provided better sensory properties.

Title	EFFICACY EVALUATION OF A COSMETIC FORMULATION FOR HAIR CARE: MECHANICAL STRENGTH, COMBABILITY AND SOFTNESS
Authors	Ana Júlia F. Garcia *, Bianca J. Navarro, Letícia Kakuda, Patricia M. B. G. Maia Campos *
Affiliations	Faculty of Pharmaceutical Sciences of Ribeirão Preto – FCFRP-USP
Session	<i>Poster</i>
Abstract	Exposure to exposome factors can accelerate skin and hair aging due to oxidation resulting from the exacerbated increase in free radicals, which can affect their physiology and morphology. The use of consolidated vitamins in cosmetics, such as provitamin B5 and vitamin C, can result in effective products for the prevention and treatment of exposome damage. In this context, this work aimed to develop a leave-in formulation for hair care added or not (F1-vehicle) with 3% of ascorbyl tetraisopalmitate - TIPA (F2), 1% of D-panthenol (F3) and 3% of TIPA and D-panthenol in combination (F4), as well as to evaluate the physico-mechanical properties and the efficacy of these formulations on the standardized hair tress. For this purpose, the tresses were submitted to the application of formulations F1, F2, F3, and F4, in addition to the control tress, which was not submitted to any treatment. The instrumental measurements consisted of the evaluation before and after the treatment of the tress in terms of combability, softness, and mechanical resistance, using the Texturometer Texture Analyze TA.XPlus® equipment, coupled with different probes. The Skin Glossymeter GL200® evaluated the shine of the tress. After the leave-in application, the hair tress showed a significant decrease ($p>0.05$) in brightness, which was expected due to the deposition of the product on the tress, reducing the reflectance of the light on the hair fiber. In addition, the results showed an increase in hair softness for all evaluated formulations. However, this result was not significant. Regarding combability, the F3 containing TIPA significantly reduced this parameter ($p<0.05$) and increased the mechanical resistance of the hair after treatment. The F4, which contained TIPA and D-panthenol, improved the mechanical resistance, but the result was not significant compared to the initial time. In this way, the use of the liposoluble vitamin C derivative is promising to be applied as an active ingredient in cosmetic formulations for hair care, aiming to increase the resistance of the hair fiber against tension and reduce the combing force.



Title	DEVELOPMENT AND EVALUATION OF PHYSICAL-MECHANICAL AND SENSORY PROPERTIES OF COSMETIC FORMULATIONS CONTAINING PEQUI OIL AND THE EXTRACTS OF TARA AND RED ALGAE
Authors	Alice R Chrysostomo, I. Grazielly Pinheiro Licco, M Talita., Letícia Kakuda, Patrícia M. B. G. Maia Campos *
Affiliations	School of Pharmaceutical Sciences of Ribeirão Preto – FCFRP-USP
Session	<i>Poster</i>
Abstract	The incorporation of natural compounds in cosmetics is becoming increasingly relevant to meet consumers' demands and new trends in sustainable movements. Thus, the aim of this study was to develop and evaluate the physical-mechanical and sensory properties of cosmetic formulations containing pequi oil (<i>Caryocar brasiliense</i> Cambess; SisGen: A15D96E) and the extracts of tara (<i>Caesalpinia spinosa</i> extract) and red algae (<i>Kappaphycus alvarezii</i> extract). For this purpose, formulations were developed adding or not (F1) the addition of 3% pequi oil (F2), 1% tara and red algae extracts (F3), and both active substances in association (F4). The work of shear parameter was evaluated using the TextureAnalyzeTA.XPlus® Texture Analyzer and the rheological behavior were assessed using the Brookfield®RVDV3 rheometer. To evaluate the sensory properties, 10 participants were recruited to evaluate the formulations in terms of spreadability, hydration, oily residue, and stickiness. The results showed that all formulations presented a flow index lower than 1, indicating non-Newtonian and pseudoplastic behavior. Furthermore, F3 showed a significant reduction (p0.05) in the work of shear parameter, which correlates with spreadability. This can be correlated with the data obtained in the evaluation of sensory properties where the addition of the active substances under study did not interfere in the spreadability parameter. F3 showed negative results regarding hydration and stickiness, while F2 was considered the most hydrating and with the lowest formation of oily residue after application. Thus, the addition of extracts improved the parameter related to film formation, while the presence of pequi oil improved sensory properties. Finally, a balance between the choice of active substances and formulation composition is necessary to achieve the proposed benefits without compromising sensory properties.

Title	EFFICACY EVALUATION OF WATERLESS FORMULATIONS CONTAINING NATURAL INGREDIENTS IN THE TREATMENT OF TRICHOPTYLOSIS: AN EX VIVO STUDY
Authors	Laura Moretti Aiello ¹ Isabella Miranda Salomão, Rebeca Mantuan Gasparin ¹ , Daniele Cristina Zulim Botega ² , Gislaine Ricci Leonardi ¹
Affiliations	¹ Faculty of pharmaceutical sciences of University of Campinas, Campinas, Sao Paulo, Brazil ² Athon higher education, Sorocaba, Sao Paulo, Brazil
Session	<i>Poster</i>
Abstract	Continuous exposure of hair to different aggressive agents, such as repeated washing, heat sources and chemical procedures can result in



structural damage to the hair shaft such as trichoptylolysis (or split ends). Due to sustainable trends in the cosmetic market, there is a demand for natural products and ingredients for the treatment and repair of hair strands. Thus, this study aimed to evaluate the effect of applying different waterless formulations in trichoptylolysis repair through microscopy analysis. Methodology: Four formulations were developed to evaluate the effects on hair shafts, one positive control (association of silicones), one negative control (detergent solution) and two test formulations. Waterless emulsions were formed from the structuring of the oil phase by applying different combinations of natural ingredients (vegetable oils and butter) and glycerin proportions. For each formulation, 3 visually damaged hair shafts (split ends) were evaluated by optical microscopy, at 25X and 100X magnification, before and after 2 hours of the standardized products application. Result and discussion: Microscopy technique allowed the visualization of longitudinal hair shafts fractures. As expected, the positive control allowed the restoration of the distal hair shaft portion, while the application of the negative control did not change the structural damage of trichoptylolysis. Considering the effects of these controls, both developed formulations resulted in split ends cohesion after 2 hours. Conclusions: Through optical microscopy analysis, it was possible to demonstrate that the development of waterless formulations from natural ingredients represents a sustainable and potentially effective alternative for use in repairing structural damage to the hair shaft, such as trichoptylolysis.

Title	MICROBIOLOGICAL ANALYSIS OF ORGANIC COSMETIC PRODUCTS
Authors	Jéssica Ferreira Xavier de Souza ¹ , Mariana Moreira Dias ² , Gabriele Wander Ruas ³
Affiliations	^{1,2,3} Fatec Diadema Luigi Papaiz
Session	<i>Poster</i>
Abstract	With the growing consumer demand for organic cosmetic products, there is a demand for natural ingredients. As an example, the preservatives that perform the biocide function in cosmetics, ensuring consumer safety, are often synthetic compounds. Through the RDC N° 752/22, Anvisa establishes the parameters for microbiological control, covering the main bacteria found in cosmetic products of clinical importance, such as <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> and total and fecal coliforms. Anvisa's RDC N° 528/21 lists the preservatives allowed in cosmetics. For cosmetics certified as organic, only 8.3% of this list is allowed. This many companies use non-conventional preservatives, such as ingredients with biocide action, or extracts. The aim of the study was to evaluate the microbiological safety of organic facial cosmetics, which do not have conventional preservatives or those present in the RDC 528/21. To this end, five organic preservative-free facial serums from different brands were diluted in TSB and BHI broth and inoculated onto TSA and PCA agar. After incubation, the colonies were identified following Gram stain, catalase test and inoculation in selective agar such as MacConkey, Mannitol salt, Motility and TSI agar, incubated for 24 hours at 37°C. The reading of the



	<p>results allows the identification of glucose, mannitol, and lactose fermentation, H₂S, and CO₂ production. The serums were both lipid-based and water-based. All had non-conventional preservatives in their composition. Contamination was found in the samples consistent with the genus <i>Staphylococcus</i> spp. The use of preservatives in cosmetic products confers safety to the product and to the consumer. Allied with the measures that prevent the contamination of the product in the manufacturing process, present in the RDC N° 48/13, it is possible to ensure the stability of the cosmetic until its expiration date. The presence of the <i>Staphylococcus</i> spp genus in products indicates failures in Good Manufacturing Practices, causing risks to the product and the consumer. The use of preservatives that do not have a broad spectrum of action against microorganisms, such as plant extracts and raw materials with little preservative action, may have contributed to the contamination of these products.</p>
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Title	STUDY ON MACRO AND MICROSCOPIC CHARACTERISTICS OF HAIR BY ENERGY, IMAGE AND SOUND ANALYSIS
Authors	V. C. Albarici, N. C. B. S Ramos, A. X. P. Dini, M. M. Ferreira, C. V. Herculino, N. A. Ribeiro, V. P. Gonçalves, A. S. Pinheiro
Affiliations	Grupo Kosmoscience Ciência e Tecnologia Cosmética Ltda, Valinhos, SP, Brasil
Session	<i>Poster</i>
Abstract	<p>Introduction: Hair fiber surface condition is one of the attributes that is firstly identified by consumers upon touching hair. The friction reduction is directly linked, microscopically, to the increase in softness on the fibers surface, which includes a decrease of roughness and the closure of cuticular layers. Macroscopically, it is also necessary that a lower degree of aggregation and interaction exist between fibers.</p> <p>Objective: The purpose was to assess the macro and microscopic hair surface characteristics of different ethnical origins utilizing the techniques of microscopy, combability and sound analysis.</p> <p>Materials and Methods: Natural hair tresses of straight, wavy, curly and kinky curvatures were used. The scanning electronic microscopy was realized on 5 fibers of each hair type. An equipment with electronic sensors that traduce fibers roughness on sound intensity was used. Combability measurements were conducted using the universal test equipment, in which the tresses were submitted to a passing through a fixed comb.</p> <p>Results and Discussion: According the obtained results, the superficial hair fibers roughness showed equal mean values between the hair groups studied, i.e., the hair with different curvatures showed similar damage degree.</p> <p>The combability analyses showed a crescent energy with the increase hair of curvature. These results are corroborate with sound analyses, on which with the increase of hair curvature there is an increase of sound intensity, indicating a higher friction of fibers with the electronic sensors.</p> <p>Conclusions: The microscopic results analyzed showed that the natural hair of different curvatures showed similar roughness results. However, the macroscopic analysis demonstrated that the responses of energy to</p>



combing and sound intensity are also associated with the interaction between the fibers and their aggregation, being therefore, factors that impact on the friction of the hair.
Thus, it can be concluded that the combination of macroscopic and microscopic analysis is fundamental for a robust analysis of the surface conditions of the hair.

Title	EVALUATION OF SENSORIAL AND PHYSICAL-MECHANICAL PROPERTIES OF MULTIFUNCTIONAL SUNSCREENS
Authors	I. Grazielly Licco*, Leticia Kakuda, Patrícia M.B.G. Maia Campos*
Affiliations	University of Pharmaceutical Sciences of Ribeirão Preto – FCFRP/USP
Session	<i>Poster</i>
Abstract	<p>Among the component factors of exposome, solar radiation and pollution can be emphasized as the main cause of skin photoaging due to the formation of reactive oxygen species. To reduce the photoaging damage, it is necessary to make regular use of multifunctional sunscreens, which protect the skin from solar radiation and can reverse the damage caused by the exposome. In this context, the aim of this study was to develop and evaluate the physical-mechanical and sensorial properties of sunscreens, containing or not (P1) tara extract (<i>Caesalpinia spinosa</i>), red seaweed (<i>Kappaphycus alvarezii</i>) and jabuticaba extract (<i>Plinia cauliflora</i>). Sunscreens added with jabuticaba extract (P2), tara extract, and red seaweed (P3), and the extracts in combination (P4) were developed, and evaluated in terms of texture profile and spreadability - TextureAnalyzeTA.XPlus® Texturometer and rheological behavior - Brookfield®RVDV3 rheometer. The formulations were stored at room temperature, 37 and 5°C, and evaluated for 28 days. After this period, the formulations were stable, with no changes in the rheograms. The flow index was lower than 1, showing that the formulations presented a pseudoplastic non-Newtonian behavior with thixotropic. Furthermore, the presence of extracts in the formulations decreased the hysteresis area in relation to P1, a characteristic related to thixotropy, indicating fast recovery after shearing, a desired property in sunscreens. P3 and P4 showed a significant ($p < 0.05$) decrease in consistency, firmness, and cohesiveness due to the presence of extracts. In the analysis of sensory properties, formulation P1 was better evaluated in terms of spreadability, touch sensation, and hydration, followed by formulations P4, P2, and P3. This result may be related to the reduction in the values of texture parameters, where lower firmness, consistency, and cohesiveness may result in better sensory perception by the study participants. Finally, although the results of the instrumental measures suggest that the presence of extracts can improve the film-forming properties of the formulations, in the sensory analysis the P1 formulation, without the extracts, was better evaluated, showing the importance of an adequate balance of raw materials and active substances in sunscreens to achieve the expected effect and adequate sensory properties for the proposed purposes.</p>



Title	BENEFICIAL EFFECTS OF A CAPILAR COMPOSITION CONTAINING ALGAROBA EXTRACT (<i>Prosopis juliflora</i>)
Authors	Maria Luísa de S. Freire, Arthur Henrique F. Ramos, Clóvis G Da Silva, Melânia L. Cornélio
Affiliations	Dept. de Engenharia Química-CT-UFPB Campus I, João Pessoa, Brasil
Session	<i>Poster</i>
Abstract	<p><i>Prosopis juliflora</i>, commonly known as algaroba, belongs to the legume family, was introduced in Brazil in the 1940s and adapted easily to the northeastern caatinga, being a promising species for this region. The extract of this plant has regenerative, antimicrobial and moisturizing properties, making it interesting for cosmetic application in a scenario where the demand for products with natural components in the industry is growing. This research sought to evaluate the action of the extract of the Algaroba tree (<i>Prosopis juliflora</i>), in concentrations of 0.5, 1 and 2%, as an active in shampoo and conditioner formulations, as well as its benefits when applied to two types of hair (type IIIb-curly and type Ia-smooth). The physicochemical characterization of the algaroba fluid extract was performed, and it presented favorable amounts of sugars, lipids and proteins for application in cosmetic formulations. Tests were performed to analyze the antioxidant activity of the extract, which presented a DPPH value of $(82.78 \pm 1.58 \text{ g/Kg})$. A phytochemical screening was also performed, where the presence of the following secondary metabolites was confirmed: flavonoids, steroids and alkaloids. The formulations produced were tested on locks, evaluating combing, hair tension and shine in specific equipment. It was observed that the extract of algaroba allowed, in increasing order of concentration, an increase in shine, improved the resistance of the tested threads in a significant way in comparison with the control lock and it was detected greater ease of combing of the threads treated with the extract of the plant in relation to the thread without the active. Thus, we can consider that the extract of the Algaroba is a promising active ingredient to treat hair.</p>

Title	UTILIZAÇÃO DO CBD PARA COSMÉTICOS E SEUS BENEFÍCIOS PARA A PELE, APRESENTANDO ESTUDO PARA PELES ACNEICA
Authors	Leticia Oliveira Torquato & Eliane L. Guerra Nunes
Affiliations	Universidade Federal de São Paulo (UNIFESP)
Session	<i>Poster</i>
Abstract	<p>Cannabidiol is a non-psychoactive cannabinoid isolated from <i>Cannabis sativa</i> which, due to its claimed beneficial properties and therapeutic potential, is currently being increasingly discussed in the scientific community. The investigation of the cutaneous cannabinoid system seems to be a promising choice in the search for new therapeutic possibilities, as the decriminalization and legalization of these products continues to expand and new studies prove the skin homeostasis function, along with the anti-inflammatory actions. The present work presents a review of the literature, presenting a scientific work, to obtain bases on CBD and its potential use as a promising sebostatic and anti-inflammatory agent for the treatment of acne.</p>



Title	COSMETIC NANOEMULSIONS OBTAINMENT THROUGH LOW ENERGY METHODS: EVALUATION OF THE INFLUENCE OF OIL PHASES, SURFACTANT SYSTEMS
Authors	Caio Ferraz Cabral de Araújo, Vinícius Rosenbergre dos Santos Carmo, Maria Clara Botelho de Sousa, Bruna Santana Neves, Catarina Silva Guimarães, Juliano Geraldo Amaral, Gabriel Azevedo de Brito Damasceno
Affiliations	Instituto Multidisciplinar em Saúde, Universidade Federal da Bahia, Vitória da Conquista-BA, Brasil
Session	<i>Poster</i>
Abstract	<p>Nanoemulsions have become increasingly popular in cosmetology. They are defined as thermodynamically unstable systems, containing an oil and an aqueous phase stabilized by surfactants, with droplets ranging from 20 to 300 nanometers. Given their versatility of use, they have been widely studied to establish the best formulation conditions, stability, and their various uses. In the cosmetic industry, in addition to stability, these systems are valued for increasing permeability, improving the sensory properties of formulations, and allowed cosmetics to have greater use of active ingredients. Two groups of methods can be used in their production: high-energy methods, which use more sophisticated equipment, high shear rates, and are difficult to scale up, and low-energy methods, which use the physicochemical properties of the formulation components, do not require specialized equipment, and are easy to scale up. Therefore, this work aims to develop nanoemulsions using low-energy methods, varying their surfactant systems and oil phases to achieve different cosmetic vehicles. Initially, a pre-formulation study was carried out on the different emollients used as the oily phase, their HLB values, and the required surfactant systems. Subsequently, the central points of a statistical factorial design were chosen as the model formulations. The formulations were analyzed for their macroscopic appearance 24 hours after preparation and then subjected to a centrifugation test (3000 rpm / 30 minutes). Those without visible changes were subjected to a preliminary stability study in a climatic chamber ($45.0^{\circ}\text{C} \pm 5.0^{\circ}\text{C}$) for five days. Before and after storage, the droplet size, zeta potential, and polydispersity index (PDI) were evaluated. From the different nanoemulsions obtained by the spontaneous emulsification method with magnetic stirring, the droplet size ranged from 104.6 to 180nm, the zeta potential ranged from 17.8 to 40.0 , and PDI ranged from 0.09 to 0.20, using preferably diisopropyl sebacate, ethyl oleate, decyl isostearate (and) isostearyl isostearate, and caprylic/capric triglyceride as the oily phase and polysorbate 80 and sorbitan oleate, combined or isolated, as the surfactant systems. The formulations remained stable after the preliminary stability study, indicating their applicability as nanostructured vehicles for cosmetic formulations</p>



Title	THE USE OF FOODS FOR SKIN LIGHTENING: A REVIEW OF POPULAR KNOWLEDGE
Authors	Santa Maria D. R. Orrillo Lindo ¹ , Letícia C. Pinto ² , Juliano L. Bicas ² , Gislaine R. Leonardi ¹
Affiliations	¹ Faculdade de Ciências Farmacêuticas (FCF) - Universidade Estadual de Campinas (UNICAMP), Campinas, Brasil; ² Faculdade de Engenharia de Alimentos (FEA) - Universidade Estadual de Campinas (UNICAMP), Campinas, Brasil
Session	<i>Poster</i>
Abstract	<p>With the significant growth of the skin-lightening cosmetics market, the industry is constantly looking for alternatives capable of helping to maintain uniform and blemish-free skin, points closely linked to psychological issues of self-esteem and well-being. One of the most discussed mechanisms is the antioxidant action, as it inhibits the reactions initiated by the enzyme tyrosinase, which plays an important role in the formation of melanin. The actives currently used have several points that make their industrial application difficult, even when used on a large scale, it would be interesting to overcome problems such as photosensitivity, insolubility, and toxicity. With the increase in the trend towards alternatives with a natural appeal, foods such as fruits and vegetables have become a starting point for the search for cosmetic activities. As a way of evaluating widespread knowledge on the use of food for the cosmetic purpose of skin lightening in different countries, the investigation began with an analysis of videos from the YouTube platform and web pages, using keywords in English, Portuguese, and Spanish. 35 videos from 11 different countries were analyzed, which mentioned 18 plant varieties. Among them, those with the highest frequency were rice (<i>Oryza sativa</i>) at 18.5%, potato (<i>Solanum tuberosum</i>) at 14.8%, and papaya (<i>Carica papaya</i>), at 9.9%. Regarding the web pages, 30 pages from 9 different countries were evaluated, which mentioned 25 varieties of food. Among them, those with the highest frequency of mentions were lemon (<i>Citrus limon</i>) at 12.8%, potato (<i>Solanum tuberosum</i>) at 9.3%, and natural yogurt at 8.7%. Popular use indicates direct application to the skin of extraction in the form of juice, mixtures, and peels. With the data collected and compared to the bibliographic review, it is possible to start a study to evaluate a real possibility of obtaining actives with a potential whitening effect with the industrial application by the dynamics of upcycling, that is, to reduce the amount of waste using them for a high-quality purpose. added value.</p>

Title	EFFECTS OF THE BIOACTIVE TUCUMÃ OIL ON DEEP SKIN HYDRATION, ANTI AGING ACTION AND UV PROTECTION
Authors	Lucas Neves dos Santos ¹ , Rafaela Araújo de Sousa ¹ , Michelle Sabrina da Silva ^{1,2*} , Rafaella Tomazini Candido ³ , Eduarda Montuenga ³ , Flávia Fernanda Jesuino Batistela ³ , Flávia Alvim Sant'Anna Addor ¹ , Maurício da Silva Baptista ²



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Session	<i>Poster</i>
Abstract	<p>Sun exposure is responsible for up to 80% of the visible signs of skin aging such as wrinkles, fine lines, hyperpigmentation, and a dry appearance. The extracellular matrix (ECM) plays a key role in maintaining the structure of the skin, its main components being hyaluronic acid (HA), elastin, and collagen. HA is an essential glycosaminoglycan for structuring and filling around collagen fibers, acting in tissue hydration and maintaining the support of the extracellular space. In young skin, large amounts of HA are found in the periphery and intersections of collagen and elastin fibers, which does not occur with skin photoaged by ultraviolet (UV) radiation, in which lower levels of HA and overexpression of metalloproteinases (matrix-degrading enzymes) are observed. Due to the importance of HA in maintaining skin support and hydration, a skin care strategy has been to restore lost hyaluronic acid and stimulate the fibroblastic response. The use of natural ingredients to promote skin health and well-being is a worldwide trend that associates natural beauty with sustainability. Considering the above, the objective of the present work was to evaluate the biological action on the skin of a natural bioactive, extracted from the pulp of the <i>Astrocaryum vulgare</i> fruit, an Amazonian palm tree that gives rise to tucumã, rich in nutrients and functional bioactives, such as carotenes and phenolic compounds. For this, the quantification of hyaluronic acid synthesis in culture of human fibroblasts aged with UV radiation and incubated with tucumã oil at concentrations of 0.32; 0.10 and 0.03µg/mL. The results demonstrated that the bioactive tucumã oil has the ability to significantly stimulate HA synthesis in 44% and 25% (P<0.001 and P<0.05), at concentrations of 0.32 and 0.10µg/ ml, respectively. Additionally, we can observe that the bioactive is able to protect fibroblasts against the harmful effects of UV radiation on HA synthesis by up to 88%. Taken together, these results allow us to infer that the bioactive tucumã oil increases the synthesis of hyaluronic acid, improving the support and deep hydration of the skin, with anti-aging action and protection against the harmful effects of sun exposure.</p>

Title	HAIR DNA: A FRESH LOOK AT HAIR TREATMENTS IN AN ASSERTIVE MANNER
Authors	Thaiane Robeldo ¹ , R. Natalia ^{1,3} , Roberta Costa ^{1,3} , Tatiane Fujii ² , Anderson Ferreira Cunha ³ , Valéria Longo ¹
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Session	<i>Poster</i>
Abstract	The literal concept of hair is the hairs that cover the surface of the scalp, consisting of keratin formed fibers that develop from follicles found in the



dermis. However, hair is much more than a structure that shapes the face as an aesthetic aspect, but is integrated into a person's health. Thus, this integrative network consists of the scalp, good nutrition, lifestyle, environment, microbiota, emotional states, metabolism and DNA. Therefore, knowing the genetics of the hair is knowing your needs in depth to maintain a good health of the scalp and hair fiber. Hair DNA is a diagnosis that consists of tracing the main genetic profiles related to hair health, which are: Profile of hormonal decline (predisposition to androgenetic alopecia); Reactive fall profile (growth and fall), aging profile (oxidative processes) and inflammatory; Vitamin D metabolization profile. In this work, we developed a genetic diagnosis to understand hair health. From saliva samples obtained by swabbing, we used the rt-PCR technique to analyze 18 polymorphisms (SNPs) related to the genes: androgenetic alopecia, vitamin D, antioxidants, pro-inflammatory cytokines and factors related to growth. The analysis of the allelic variations obtained for each SNP and the resulting set of information for each profile given by this diagnosis, predicts what the individual metabolic needs are and, based on this, a personalized food supplementation is formulated with natural ingredients that is administered by a period of 90 days. The results show that a food supplement formulated from individual genetic results is capable of modulating predetermined responses and restoring greater health to the hair fiber and scalp.

Title	EFFECTS OF THE ASSOCIATION OF UV RADIATION AND ENVIRONMENTAL POLLUTION IN DIFFERENT ASSOCIATIONS OF SUNSCREENS
Authors	Diogo Santos Campachi, Maísa Oliveira de Melo, Profa Dra Lorena Rigo Gaspar Cordeiro*
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Session	<i>Poster</i>
Abstract	<p>Currently, it is known that prolonged exposure to the sun and environmental pollution has a significant influence on carcinogenesis and photoaging processes. Thus, the search for protective substances and new evaluation models are highly relevant to research targets for obtaining products with greater performance in protecting against exposome factors without using animals.</p> <p>This work aims to evaluate the effects of the association of UV radiation and environmental pollution in different associations of sunscreens through the evaluation of phototoxicity and protection against the production of free radicals in cell culture.</p> <p>For this, studies evaluating phototoxicity in cultured fibroblasts (3T3 NRU PT, adapted from OECD TG 432) and antioxidant activity through inhibition of intracellular ROS (reactive oxygen species) induced by UVA radiation (DCFH2-DA probe) and pollution (PM 10 particulate matter) were developed with the simulation of UVA radiation and pollution as well as by evaluating the combination of association of photo-unstable solar filters, when applied simultaneously. A combination of avobenzone sunscreen and</p>



ethylhexyl methoxycinnamate (photounstable) and an association of DHHB and ethylhexyl methoxycinnamate (photostable) were used. After data analysis, it was possible to conclude that the combination of avobenzone and ethylhexyl methoxycinnamate showed phototoxic potential, and the association of DHHB and ethylhexyl methoxycinnamate was not considered phototoxic. Pollution showed phototoxic potential, and when combined with the association of photounstable sunscreens, phototoxic potential was observed. On the other hand, the association of photostable sunscreens was also not considered phototoxic. In the ROS generation tests, environmental pollution associated with UV radiation caused an increase in intracellular ROS induced by UVA radiation. Both combinations of sunscreens inhibited the generation of intracellular ROS induced by UVA radiation. However, the photostable combination showed more pronounced protection. Thus, it was possible to conclude that the proposed models were adequate, demonstrating that pollution increases the generation of ROS and damage induced by solar radiation. In addition, photostable sunscreen associations are important for protecting against these exposome-related damages.

Title	STUDY OF THE EFFECT OF THE BLEND OF ARGAN AND AVOCADO VEGETABLE OIL ON AFRO AND CAUCASIAN CAPILLARY FIBERS
Authors	Natalia R. Pedroso ^{1,2*} , Roberta B. Costa ^{1,2} , Thaianie A. Robeldo ² , Valéria M. Longo ²
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Session	<i>Poster</i>
Abstract (2000 characters, including spaces)	Vegetable oils gained great prominence in the beauty and health care routine. In addition to being sustainable and economical, vegetable oils have numerous benefits when included in the capillary schedule. From anti-frizz treatment to hair nutrition and hydration processes, the oils have anti-inflammatory and antioxidant properties capable of contributing to the maintenance of the health of the strands and scalp, even more so when the blend of oils is carried out, which is nothing else than the mixture of two or more oils to potentiate the effects. However, there is a wide variety of vegetable oils with different properties that need to be evaluated before mixing them, in order to generate ideal combinations for harmonic interactions between the hair fiber and the oils in question. Objectives: To investigate changes in superficial properties, measured by scanning electron microscopy (SEM), and of the fibers cortex by differential scanning calorimetry (DSC) and tension measurements in Afro and Caucasian colored hair fibers, after the joint application of avocado vegetable oils and argan, aiming to understand the interactions of each type of fiber with such mixture. Methodology: 04 colored tresses of Caucasian hair and 04 colored tresses of Afro hair measuring approximately 20 cm and weighing 3 g were used. The colored tresses were evenly coated with the combination of two vegetable oils: argan oil and avocado oil. Thus, in order to obtain information such as mechanical strength, proportion of water present in the



	structure and morphology of the fibers before and after treatment, the treated and control tresses of hair were subjected to uniaxial traction, DSC and SEM tests. Conclusion: Potent health hairs benefits have been found when avocado and argan oils are applied together, differing in their effects on each fiber, Afro and Caucasian. This reveals the unique characteristics and textures of each hair, making it necessary to consider ethnic and structural differences in evaluating the effectiveness of different cosmetic products.
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Title	EVALUATION OF PEPPER-ROSEMARY ESSENTIAL OIL IN COSMETIC FORMULATIONS FOR THE TREATMENT OF ACNE VULGARIS
Authors	Gabriela A. Gil*, Letícia Kakuda, Maria Valdelini S. Teixeira, Marina C. G. Del Arco, Niege A. J. C. Furtado, Sergio L. S. Salvador, Wanderley P. Oliveira*
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Session	<i>Poster</i>
Abstract	Lippia sidoides Cham. (SisGen: AAEA8D6), also known as pepper-rosemary, is an indigenous plant species of the Brazilian semi-arid region. Its essential oil (EO), extracted from its leaves, presents anti-inflammatory and antibacterial properties against gram-positive and gram-negative species. In this context, this study aimed to encapsulate the EO of pepper-rosemary in nanostructured lipid carriers (NLC) and assess their potential for treating acne vulgaris caused by inflammation and colonization by Cutibacterium acnes. The constituents of pepper-rosemary's EO were identified using gas chromatography coupled with mass spectrometry and then encapsulated in NLC at a concentration of 30 mg/mL. The lipid system was stored at room temperature, 5°C, and 37°C and evaluated for its pH, particle size, polydispersity index, and zeta potential weekly for 28 days. The antibacterial activity of the pure EO and the nanoparticle, with and without oil, was tested against Cutibacterium acnes, Staphylococcus epidermidis, and Staphylococcus aureus to determine the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). The lipid system was also incorporated into a gel-type cosmetic formulation at a concentration of 50% (w/w). The developed gel was stored at room temperature, 5°C, and 37°C, and its pH and organoleptic characteristics were assessed weekly over 28 days. The results indicate that the encapsulation of the EO produced stable nanometric systems that can be easily incorporated into pharmaceutical and cosmetic formulations. The pure and encapsulated pepper-rosemary EOs displayed antibacterial activity against Staphylococcus epidermidis and Staphylococcus aureus at all concentrations tested (937.5 µg/mL to 15 mg/mL). Additionally, the pure EO exhibited activity against Cutibacterium acnes at a concentration of 250 µg/mL. This inhibition is likely attributable to the EO's high thymol content (76.06%), which can induce the rupture of bacterial cell membranes, leading to lysis and the release of intracellular contents. Therefore, pepper-



	rosemary EO has substantial potential for use as an active phytopharmaceutical ingredient in cosmetic formulations for treating acne vulgaris.
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Title	SOY-DERIVED EMOLLIENT WITH MULTI BENEFITS FOR SKIN AND HAIR CARE
Authors	Fernanda Moreira Marques & Vanessa da Silva Freitas
Affiliations	BASF SA
Session	Poster
Abstract	Methyl Soyate is an ester derived from the soybean chain with emollient property of interest to the cosmetic industry. This emollient also adds value from the sustainability aspect, since it's an option with high natural index, plenty availability of soybean oil and possibility of ester production in the Brazilian territory, thus reducing the extension of the supply chain. The objective of this work was to evaluate the impacts and benefits of the use of Methyl Soyate in cosmetic formulations for skin care and hair care, as well as to compare its performance to traditional cosmetic ingredients with the same performance. The formulations were submitted to sensory assessments and performance evaluations. For the skin application, body lotion formulations were prepared using Methyl Soyate, or Isopropyl Palmitate, or Mineral Oil as emollients. The sensory assessments with a trained panel concluded that Methyl Soyate shows equivalence to Isopropyl Palmitate and better after feel when compared to Mineral Oil. For the hair application, conditioner formulations were prepared using Methyl Soyate, or Mineral Oil, or Dimethicone. In the instrumental evaluation, it was observed similarity on the conditioning behavior and better shine performance to Methyl Soyate. In the sensory assessment, performed in straight and curly hair, Methyl Soyate shows similarity to Dimethicone in most of the evaluated parameters, with emphasis on the superior conditioning perception with Methyl Soyate in both types of hair.

Title	INSTRUMENTAL EVALUATION OF COMPARATIVE CLINICAL EFFICACY OF SOAP POWDER CONTAINING NATURAL SURFACTANT X SOAP POWDER WITH SYNTHETIC SURFACTANT
Authors	Flavia S. Dabbur*, Sionara C. Martins, Virilaine C. S Barros
Affiliations	Faculdade de Farmácia do Centro Universitário Cesmac
Session	<i>Poster</i>
Abstract	Soap is a personal hygiene product made with the cleaning purpose that is carried out by surfactants, which can be synthetic or natural origin. The natural use surfactants is a worldwide trend because they are less aggressive to the skin and the environment. Natural cosmetics represent a new way of consuming cosmetics in terms of ingredients, functionality, packaging, origin and relationship with producers, and an innovation in relation to conventional industrialized cosmetics, adding rational and emotional dimensions linked to Responsible Consumption. In order to test cosmetic products, it is essential to carry out efficacy tests, these are carried out in real conditions of use and the results can be measured instrumentally



	<p>that evaluates different skin parameters such as pH, hydration, sebum and other functions. Objective: The aim of the research was to instrumentally evaluate the comparative clinical efficacy of powdered soap containing natural surfactant versus powdered soap containing synthetic surfactant. Material and Method: The experimental study was approved by the ethics committee CAAE n. 76465817.6.0000.5292. The selection of volunteers was of the probabilistic type, consisting of 15 untrained consumers, of both sexes, aged between 18 and 50 years, chosen at random. The sample size was based on the paired difference or preference test (two-tailed, $p=1/2$). Two soap samples were used and named as S32 (soap with synthetic surfactant) and S48 (soap with natural surfactant) and water was used as standard. For the analysis, three areas were demarcated on both arms and the measurements were performed with Smart Analyzer equipment, an instrument that analyzes levels of water, oil and the balance between these two parameters of the skin with measurements by a bioelectric impedance system. Results: In 60% of the tested volunteers, it was verified that the water and oil loss percentage were significantly lower when using sample S48 (containing natural surfactant - biosurfactant), when compared to the results of sample S32 (contains synthetic surfactant). Conclusion: It was concluded that even after washing the skin with only water, the volunteers showed variations in both the percentage of water and oil, since the pH of the washing water can change the isoelectric point of the skin modifying its characteristics. Every product applied to the skin alters the barrier function temporarily; and the biosurfactants have been shown to be less harmful to the skin barrier than synthetic surfactants.</p>
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Title	SUSTAINABLE VESICULAR NANOCARRIER AS A TOOL TO INCREASE NIACINAMIDE CUTANEOUS PERMEATION
Authors	Schauana Freitas Fraga ¹ , Larissa Pedron Duarte ² , Euler Eduardo Lisboa de Moura ² , Simone Jacobus Berlitz ³ , Renata Vidor Contri ¹ , Irene Clemes Kùlkamp-Guerreiro ^{1*}
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Session	<i>Poster</i>
Abstract	Niacinamide is a topical agent with antioxidant, anti-inflammatory, whitening, immunomodulatory and conditioning properties for the skin. Nanosystems can improve the characteristics and delivery of various drugs and active substances to their site of action. However, it is known that hydrophilic substances, in addition to low skin permeation, present low incorporation rates in most nanocarriers. Conventional vesicular systems can incorporate hydrophilic substances, but present limited stability and are usually prepared using organic solvents. In this study, niacinamide, a hydrophilic substance, was used to develop a vesicular nanocarrier for topical application, in accordance with green chemistry principles. The



process of formulation development was conducted aiming at an improvement in the niacinamide incorporation rate and in ex vivo permeation for topical application. The formulation was prepared using top-down approach. Different ratios of niacinamide, surfactant and co-stabilizer were evaluated to optimize the formulation and no organic solvent was used during its preparation. A polymeric nanoformulation was prepared for comparison, as well as a solution containing niacinamide at the same concentration. The physical-chemical characterization was carried out by analysis of particle mean diameter (Z-average), polydispersity index (PDI), zeta potential, pH, niacinamide content, and incorporation efficiency. These parameters were evaluated for 30 days at room temperature and remained unaltered. The ex vivo skin permeation was performed using pig ear skin as membrane using a Franz diffusion cell. The Z-average of the formulation was 160 ± 1.17 nm, PDI 0.104 ± 0.01 , zeta potential -22 ± 3.43 mV, pH 6.6 ± 0.02 and niacinamide content was 100.2 ± 2.92 % with an incorporation efficiency of 52.7%. In the permeation study, the developed formulation showed significantly greater dermal permeation compared to the free active and the polymeric nanocarrier ($p < 0,05$). The preliminary toxicity was evaluated by the brine shrimp lethality bioassay. In conclusion, a sustainable niacinamide-loaded vesicular nanocarrier was developed without organic solvent during its preparation. The developed nanocarrier was able to load niacinamide and improve its permeation. Hence, it could be a promising option to load other hydrophilic substances aiming higher skin permeability for topical formulations.

Title	ESTUDO DAS CAMADAS DA PELE HUMANA IN VIVO AVALIADA POR ESPECTROSCOPIA RAMAN
Authors	Julia Marinzeck De Alcantara Abdala
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Session	<i>Poster</i>
Abstract	Human skin is composed of two main layers epidermis and dermis, which contain biomolecules, structure and functions of their own. Knowledge about the biochemistry of these layers is important for clinical research, cosmetics, and skin diseases, futhermore, the skin is a dynamic organ, and over time it undergoes changes in the density of type I collagen, which is the main constituent of the dermis, with the formation of biomarkers resulting from these alterations. The Raman spectroscopy technique allows the research of the biochemical composition of biological samples in vivo, such as the skin, of its biomolecules and biomarkers, in a selective and non-destructive way, making it possible to examine the depth and layers of tissues in vivo, which allows analyze changes in the biochemical composition of the skin, making it possible to explain the biophysical links between vibrational characteristics and changes in specific chemical compositions. The aim of this work was to analyze the constituents of the epidermis and dermis region of human skin in vivo, using the Raman spectroscopy technique. An infrared laser with a wavelength of 785 nm was



used for the analyses. The analyzed participants had a defined age group, and phototypes I and II. To interpret the results, Hierarchical Cluster Analysis, HCA, Principal Component Analysis, PCA, and loading plot were used, which allow the classification of average spectral data for each layer of the skin. In the results, the main constituents observed in the dermis spectra were related to collagen such as proline and amide III, and in the epidermis, related to lipids, proteins, and pyrrolidone carboxylic acid, which are biomolecules of the natural hydration factor present in its most outside the stratum corneum. The HCA and PCA techniques proved that there was separation of the layers from the separation of vibrational modes data, which are separated into two groups, dermis and epidermis. It can be concluded that the Raman spectroscopy technique associated with HCA and PCA is promising for studies of skin, collagen, hydration factor and the biochemistry of its layers.

Title	EVALUATION OF PRECLINICAL SAFETY AND EFFICACY OF SECONDARY METABOLITES ISOLATED FROM THE ANTARCTIC FUNGUS ASPERGILLUS SYDOWII FOR SKIN PHOTOPROTECTION
Authors	Henrique M. Mieli, G. L. Maria Bravo, Hosana M Deboni, Lorena R Gaspar
Affiliations	Faculty of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil
Session	<i>Poster</i>
Abstract	The search for UV filters with photostability and a broader absorption spectrum is currently highly relevant for the area since it guarantees sunscreens with better performance, in addition to the safety and efficacy of the final product. In this context, it is possible to highlight the secondary metabolites of marine microorganisms that can be used as UV-filters and antioxidants due to their ability to absorb ultraviolet radiation and inhibit reactive oxygen species (ROS) induced by UVA radiation. Thus, they can be used as an alternative to traditional filters or in combination with filters already described in the literature. However, for this, their safety and efficacy need to be tested. The present study proposes the evaluation of the safety and efficacy of fractions and substances isolated from the Antarctic fungus <i>Aspergillus sydowii</i> through alternative approach methodology for the use of animals. The crude fungal extract was submitted to fractionation through vacuum liquid chromatography (VLC), and the promising fractions were tested and submitted to the isolation of substances through HPLC-DAD. Photostability was performed through the absorbance of samples before and after 9 J/cm ² of UVA radiation. Phototoxic potential (OECD Test Guideline 432) and irritant potential (HET-CAM) were performed for safety parameters. As for the efficacy parameter, the antioxidant activity was obtained by the evaluation of the inhibition of UVA-induced reactive oxygen species production in HaCaT keratinocytes. The promising fraction studied and a substance isolated from it showed a broadband ultraviolet absorption, mainly in UVB (280 nm- 320 nm) and UVA-I (360 nm- 400 nm). Furthermore, they were considered photostable, and both samples did not show any phototoxic (MPE: 0.0475 and 0.079) nor irritant potential (HET CAM score: 0.25 and 0.50). The fraction at 1.0



µg/mL demonstrated a statistically significant reduction in the generation of UVA-induced ROS when compared to controls. Therefore, it is possible to conclude that the analyzed samples may be possible candidates for UV filters since they have a broadband absorption and antioxidant activity.

Title	APPLICATION OF PLANTAGO MAJOR'S SEED IN COSMETICS AS A NATURAL ALTERNATIVE TO SYNTHETIC EXFOLIATORS
Authors	Maria Eugênia. B. Rocha*, Letícia Kakuda ¹ , Patrícia M.B.G. Maia Campos, Wanderley P. Oliveira
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Session	<i>Poster</i>
Abstract	<p>In the cosmetic industry, the introduction of plastic microbeads for exfoliation purposes is a potential source of material harmful to aquatic ecosystems and global climate. As a result, the search for natural alternatives to synthetic exfoliants has been growing in the cosmetic market to minimize environmental damage. Plantago major is a medicinal plant found in various regions of Brazil, and its seeds have potential for upcycling after the extraction of mucilage. Thus, the objective of this work was to obtain and apply Plantago major seeds in the development of cosmetic formulations for exfoliation, aiming to use natural alternative particles to synthetic ones, as well as to conduct a stability and clinical efficacy study of the developed product. The pH of formulations F1 (with seeds) and F2 (vehicle) and their organoleptic characteristics were evaluated at room temperature, 5°C, and 37°C weekly for 28 days. The immediate clinical efficacy study consisted in recruiting 13 participants aged 19 to 29, where hydration, transepidermal water loss, presence or absence of erythema on the skin, softness, scaling, roughness, width, and depth of wrinkles were evaluated before and 30 minutes after the application of F1 and F2 forearms' anterior region, using the Corneometer®, Tewameter®, Mexameter®, and Visioscan® equipment, respectively. At the end of the study, a survey was sent to the participants to evaluate the perception of the products' efficacy. The developed formulations remained stable at the three evaluated temperatures without changes in their organoleptic properties and pH. Regarding the clinical studies, the exfoliation promoted by F1, that contained Plantago major's seeds, did not alter transepidermal water loss and the absence of erythema was observed. In addition, improved skin microrelief due to tendency to increase Sesm parameter, related to skin softness. Regarding the participants' perception of efficacy, all indicated a preference for F1 and reported feeling softer skin. Thus, the application of Plantago major seeds as exfoliating particles did not compromise the stability of the formulation and showed good results for instrumental measurements and perception of efficacy. Lastly, the seeds indicate their potential as an alternative to synthetic particles in the development of exfoliating cosmetics.</p>



Title	EVALUATION OF THE EFFECT OF 5 MHz ULTRASOUND ASSOCIATED WITH A HYDROPHILIC GEL ON THE SKIN OF THE HANDS AND FOREARMS
Authors	Luiz E. Fabbri Filho, Mariane M. Vergílio, Louise Vasques, Ana Carolina L. Santos, Gislaine R. Leonardi
Affiliations	State University of Campinas – UNICAMP, Campinas/SP, Brasil.
Session	<i>Poster</i>
Abstract	Ultrasound has been employed in aesthetic treatments as a therapeutic technique, often associated with cosmetic formulations in order to improve skin aging signs such as skin sagging. Objectives: The aim of this study was to evaluate the efficacy of a hydrophilic gel associated with the use of 5 MHz ultrasound. Methodology: For this purpose, a cosmetic formulation containing water, glycerin, hydroxyethyl cellulose, and preservative was developed and applied along with 5 weekly sessions of continuous therapeutic 5 MHz ultrasound protocol and intensity of 3W/cm ² , on the dorsal region of the hands or forearms of participants for 5 weeks, in sessions of 4 to 6 minutes. The result was evaluated through high-resolution skin images before (t ₀) and after the clinical study intervention (t ₁). The water content of the stratum corneum was also measured. Results and Discussion: No significant difference was observed between t ₀ and t ₁ ; nevertheless, an increase in the water content of the region was observed over time for most of the study participants. This result suggests an improvement in skin hydration. It was also possible to observe qualitative improvement in the appearance of the skin of the hands, such as firmness and lightening of hyperpigmented regions (spots) in some of the participants, suggesting that the therapeutic technique associated with the use of the hydrophilic gel may have contributed to the improvement of the skin health. Conclusion: It is important to demonstrate the efficacy of technological devices that are being used in conjunction with cosmetic formulations. In this way, it is possible to verify effective and safe parameters and protocols. Additionally, it is suggested that a therapeutic protocol of longer duration and constant frequency may provide more robust results in future studies.

Title	POTENTIATING ANTIOXIDANT AND PHOTOPROTECTIVE ACTION OF GREEN PROPOLIS EXTRACT IN COSMETIC EMULSION
Authors	Michelli Ferrera Dario ^{1,2} , Yanka Rodrigues Cardoso Barbosa ^{1,2} , Axelle Kate Megnisse Sogan ^{1,2} , Julia Pedrosa de Vasconcelos ^{1,2} , Claudinéia Aparecida Sales de Oliveira Pinto ² , André Rolim Baby ² , Maria Valéria Robles Velasco ^{2*}
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Session	<i>Poster</i>
Abstract	The sun can produce a series of deleterious effects on humans through exposure to ultraviolet (UV) radiation. Interest has grown in the development of photoprotectors containing plant-derived substances to replace, at least partially, sunscreens in order to minimize unwanted effects,



while maintaining photoprotective efficacy and adding multifunctionality to the formulation through antioxidant action. Green propolis originates from field rosemary (*Baccharis dracunculifolia*) has a promising action in a photoprotective formulation, as it has a high concentration of flavonoid-type phenolic substances. This work aimed to evaluate the influence of the dry extract of green propolis on the antioxidant activity and photoprotective efficacy of a cosmetic emulsion when associated with octyl p-methoxycinnamate (UV-B) and avobenzone (UVA) chemical filters. The presence of green propolis extract was responsible for the statistically significant change in the antioxidant activity and the in vitro SPF of the photoprotective formulation, effects being dependent on the concentration of the bioactive extract, an increase from 128% to 2.5% and 222% to 5.0% w/w. From the obtained results, the promising activity of the green propolis extract was verified with multifunctional action in photoprotective and antioxidant formulation.

Title	DIABETICS: WOULD THEY BE A NEEDY MARKET OF THE COSMETIC INDUSTRY ATENTION?
Authors	Priscila Pereira Fávero ^{1,2} , Lázaro Pinto Medeiros Neto ¹ , Juscélia Maria de Moura Feitosa Veras ² , Lennara de Siqueira Coelho ² , Gustavo Carlos da Silva ¹ , Lívia Assis ² , Fernanda Ricci Lemos ^{1,3} , Airton Abrahão Martin ^{1,2}
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Session	<i>Poster</i>
Abstract	Diabetes Mellitus (DM) is a metabolic disorder caused by a disruption in insulin secretion and/or action, resulting in metabolic changes, especially in elevated blood glucose levels (hyperglycemia). According to the International Diabetes Federation, in 2019 the estimated prevalence of diabetes in people aged 20-79 years is currently 463 million, and the forecast for 2030 is that 10.2% of the population will have diabetes. It is known that hyperglycemic clinical conditions can trigger increased glycation of various proteins, altering the function of several molecules. Since collagen and keratin are important proteins in the context of the cosmetics industry, the present study aims to evaluate the glycation process of these proteins in skin and nails of diabetic patients. Thus, the study is an invitation to pay attention to the particularities of these patients, promoting the generation of a potential product dedicated to this market. To this end, an in vivo and non-invasive study was conducted on skin and nails of diabetic and non-diabetic research participants, using Confocal Raman Spectroscopy. In this technique, a 785nm wavelength laser is applied to the skin or nail, allowing information on the biochemical composition and structure of tissues to be collected by the light scattering. The skin research was approved by the Ethics Committee under number

	03826112.2.0000.0077 and the nail investigation by number 3.066.001. The results of the biochemical evaluations showed significant alterations in the skin and nail proteins of diabetic patients. Particularly, it was possible to observe structural and quantitative changes in the collagen molecule in the skin of diabetic patients compared to healthy patients. In nail investigations, the disulfide bonds (S-S) and the peaks of α -helix and β -sheet show alterations in the keratin molecule stability, due to the glycation effect. Thus, it can be inferred that skin and nails of diabetic patients present a different biochemical composition from non-diabetic participants, boosting the formulation of specific products that minimize or delay the effects of protein glycation in DM carriers.
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Title	HOW DOES THE SEA WATER DAMAGE THE HAIR FIBER?
Authors	Marjory Bernardes Fileto, Michelli Ferrera Dario, Claudinéia Aparecida Sales de Oliveira Pinto, André Rolim Baby, Maria Valéria Robles Velasco
Affiliations	¹ Department of Pharmacy, School of Pharmaceutical Sciences, University of São Paulo, Brazil; ² São Camilo University Center – CUSC, São Paulo, Brasil
Session	<i>Poster</i>
Abstract	The hair, when exposed to aggressive factors, whether chemical or natural, these can damage hair's structure and changes may occur in its characteristics, mechanical properties, color, etc. The objective of this work was to evaluate the damage caused by artificial sea water, in virgin hair fiber, bleached hair and colored hair with three different levels of blonde (8.0; 10.0 and 12.0) and for the latter, locks of straight virgin brown hair were used and bleached with 30 volumes of hydrogen peroxide and 20,0g of bleaching powder, to color immediately afterwards, with permanent dye, the locks with the 3 shades of blonde. In order to simulate the beach environment inside the laboratory, the experiments had three stages in order to be able to accurately compare the locks: 1° without artificial sea water; 2° with the artificial sea water and 3° after washing the artificial sea water and conditioning. The combing results showed that after the submission of artificial sea water, there was an increase in the force used among all hair's groups, with the lock with blonde level 12.0 the one that had the highest strength used, with an increase of more than 70% when compared to the virgin's lock. The colorimetric evaluation showed little change in the color of the locks after submission in artificial sea water, with the lock with blonde level 8.0 being the one that showed the most noticeable change, with a DE value of 17.84% compared to lock level 8.0 without artificial sea water. Regarding the gloss test, the values expressed after submission of sea water showed a reduction in the shine level, especially the blonde lock level 12.0 which had the greatest decrease in brightness (55.10%). As for protein loss, all hair's groups had a loss of less than 10%, demonstrating that artificial sea water does not interfere with protein loss from the hair fiber. It is possible to observe that the artificial sea water required an increase in the combing strength, however it not damaged the hair, making necessary to only use conditioning products to restore the hair fiber health.

Title	EVALUATION OF PHOTOSTABILITY AND UVB PROTECTION OF AN ISOLATED COMPOUND OF <i>Penicillium brevicompactum</i> AND ITS SEMISSINTHETIC DERIVATIVE
Authors	Maria G. L. Bravo ¹ , Ana C. Jordão ¹ , Hosana M. Deboni ¹ , Eduardo F. Vicente ² , Lorena R. Gaspar ¹
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Session	<i>Poster</i>
Abstract	<p>The search for new UV filters becomes increasingly necessary, due to new studies indicating that some UV filters, such as oxybenzone (benzophenone-3), show signs of damage to the marine environment, endocrine disruption in animals, inhibition algae growth, and induction of coral bleaching. New molecules have been bioprospected in order to identify compounds capable of conferring photoprotection, combined with the minimization of damage to marine life, currently known as ocean/sea friendly. Thus, this work aims to discover new UV filters, using a compound isolated from the endophytic fungus <i>Penicillium brevicompactum</i>, associated with the alga of the genus <i>Bostrychia</i>, collected on the coast of the state of São Paulo. Methodologies based on alternative methods to the use of animals were used, thus interconnecting different aspects that contribute to new trends in the sustainable cosmetics area. The compound studied was found in the crude extract of ethyl acetate, from an extended cultivation of the fungus in parboiled rice and artificial sea water. The extract was fractionated and the compound was identified and isolated from the fractions using vacuum liquid chromatography and high-performance liquid chromatography, respectively. A semissynthetic derivative was produced by conjugating the molecule to a peptide, using semi-synthesis reactions. The photoprotective activity of the compound and its derivative was determined by evaluating ultraviolet absorption, photostability, protection against UVB radiation, using human keratinocytes of HaCaT lineage, and phototoxicity in murine fibroblasts of Balb/c 3T3 lineage (OECD-TG 432). The compounds showed high absorption in the range of 280 to 320 nm (UVB radiation range), remaining photostable when irradiated at a radiation dose of 27.6 J/cm². Biological assays demonstrated that the molecules did not present phototoxic potential (MPE < 0.1) and showed better protection against UVB radiation (95.53 ± 7.93%) when compared to methoxycinnamate UVB filter (68.19 ± 10.84%). These results demonstrate that the evaluated samples are photostable, non-phototoxic and provide protection against UVB radiation, and open perspectives that compounds from the marine environment can be used as UV filters, contributing to the development of new effective and safe products.</p>



Title	POTENTIAL BENEFITS OF CUTANEOUS MICROBIOME IN NANOEMULSIONS CONTAINING PHYTOCANNABINOID: DEVELOPMENT, STABILITY, AND CHARACTERIZATION BARANDA
Authors	E. R. ¹ , L. A. Carvalho ¹ , C. S. Ponciano ^{1,2} , R. L. Fabri ³ , T. N. Barradas ^{1*}
Affiliations	¹ Department of Pharmaceutical Sciences, Federal University of Juiz de Fora, School of Pharmacy, Juiz de Fora, Minas Gerais, Brazil. ² Amantikir Origem Natural, São Lourenço, Minas Gerais, Brazil. ³ Institute of Biological Sciences, Federal University of Juiz de Fora, School of Pharmacy, Juiz de Fora, Minas Gerais, Brazil.
Session	<i>Poster</i>
Abstract	The cutaneous microbiome has been receiving increasing attention in recent years due to its role in maintaining skin health. Reduced microbial diversity is associated with increased colonization by pathogenic bacteria such as <i>Staphylococcus aureus</i> , which can form biofilms in skin diseases such as atopic dermatitis.1 Nanoemulsions (NE) have been widely used in cosmetic formulations for their ability to improve the stability and cosmetic power of natural active ingredients. In this study, NEs were produced for microbiome-focused cosmetic applications of a promising phytocannabinoid (CBA) derived from Brazilian biodiversity, with anti-inflammatory, antimicrobial, and antioxidant properties.2 CBA has high lipophilicity and low solubility.3 The CBA was characterized for hydrophilic-lipophilic balance (HLB), an important parameter for future studies aiming to use this compound in pharmaceutical formulations. The results showed that the HLB of CBA was 13 and 14.5. Four NEs containing CBA at concentrations of 5 to 8% showed kinetic stability and Ostwald maturation stability for 90 days. The values obtained for the average particle size of the four formulations were: 81.76, 85.09, 95.16, and 100.53. The polydispersity index (PDI) values for the formulations were, respectively: 0.159, 0.168, 0.148, and 0.156. The encapsulation efficiency for formulations containing 6, 7, and 8% was evaluated by UV-Vis spectrometry ($\lambda = 205 \text{ nm}$). The encapsulation efficiency of the 6% formulation was 99.56% (SD = 0.37), 99.63% (SD = 0.12) for the 7% formulation, and 94.36% (SD = 0.45) for the 8% formulation. Antimicrobial activity against <i>S. aureus</i> was observed in formulations containing 6, 7, and 8% of CBA. The results showed that nanoencapsulated CBA is capable of inhibiting the growth of <i>S. aureus</i> , with potential to regulate and/or prevent skin problems caused by microbiome imbalance.

Title	EVALUATION OF THE STABILITY OF MAKE-UP REMOVER BALM
Authors	Natalia Yukari Mori ¹ , Samara Ernandes Adamczuk ^{1,2} , Vera Isaac ¹
Affiliations	¹ São Paulo State University (UNESP), School of Pharmaceutical Sciences, Araraquara – SP; ² Federal University of Technology - Paraná (UTFPR), Dois Vizinhos - PR
Session	<i>Poster</i>
Abstract	Skin care has been intensified with new products on the market. The night care involves removing make-up and moisturizing the skin, in the search for a younger and renewed appearance to maintain the integrity of the skin. In



Asian countries, the habit of double cleansing consists of applying an oil-based makeup remover to remove makeup and impurities that accumulate on the face during the day, followed by the application of a facial soap suitable for the skin type. After this stage, the face is able to receive the other products that provide skin hydration. The objective of the present work was to evaluate the stability of a make-up remover balm formulation made up of fatty material. Through stability tests, involving spreadability and rheological behavior tests, in addition to checking the appearance and odor, it was observed that the solid form of the make-up remover may have interfered with the spreadability, since the standard deviation values obtained in the analyzes were high. The temperature may also have influenced its characteristics, mainly in greenhouse storage, since, in the analysis of the 60th day, the sample stored in this condition already showed signs of alteration; however, storing it in a cool place or selling it in small packages, with a duration of less than 60 days, as the make-up removing balm can be used daily, can guarantee its success from a commercial point of view, since the make-up removing performance has not suffered alterations, presenting 96% of acceptance by the volunteers, although it presented alterations in the rheological behavior and of the aspect, in another carried-through research.

Title	COMERCIAL HAIR STRAIGHTENERS FORMULATION AND LABELING COMPLIANCE IN RELATION TO THE BRASILIAN LAWS
Authors	Priscilla H. G. S. Novelli* & Mayara F. Reis
Affiliations	Instituto Federal do Rio de Janeiro (IFRJ) – campus Nilópolis, Nilópolis, RJ, Brasil
Session	<i>Poster</i>
Abstract	Progressive search for straight hair brought with itself an exacerbated use of hair straighteners and the launch of a big variety of new products. Thus, people started to question both the legality of the ingredients used in these products and the labeled data. It is important to emphasize that the use of products not registered and/or not allowed by the National Health Surveillance Agency, can bring side effects for both the health of consumers and hairdressing professionals. The objective of this work was to verify the compliance of three commercial hair straighteners (A, B, C) in relation to Brazil's National Health Surveillance Agency (ANVISA) regarding the labeling and legality of ingredients used [Resolution of the collegiate board (RDC) 07/15, RDC 409/20, RDC 529/20, RDC 530/21, Normative instruction 98/21]. Besides, this work conducted a research regarding the identity and function of these ingredients. After this search it was possible to see that the analysed products were accordingly to the ANVISA's rules. However, there are opportunities for improvement in terms of labeling, as the small font used on the label and the use of a nomenclature mostly unknown by the consumer. However, recent ANVISA's resolutions that correct such problems have already been pointed out in the work (RDC 409/20 and RDC 432/20). It was possible to observe that the hair straighteners have a long list containing the mode of use and restrictions. This list use to come in an attached leaflet and has to be carefully read by



	the consumer in order to avoid the side effects of the inappropriate use of the product
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Title	EVALUATION OF ANTIOXIDANT ACTIVITY AND ASSAY OF PHENOLIC COMPOUNDS IN EXTRACTS OF <i>Anacardium occidentale</i> L. IN THE FOUR SEASONS OF THE YEAR
Authors	Any C. I. Diniz & L. B. Vera Isaac
Affiliations	Paulista State University (UNESP), Faculty of Pharmaceutical Sciences, Campus Araraquara
Session	<i>Poster</i>
Abstract	<p><i>Anacardium occidentale</i> (SISGEN Code: A82635D) popularly known as cashew tree, whose pseudofruit is the cashew, is a tropical species originating in Brazil, rich in vitamin C, calcium, phosphorus and iron, widely used in natura, in juices and preserves. The objective of this work was to evaluate the antioxidant activity and the dosage of phenolic compounds in the four seasons of the year in the leaf extracts of <i>A. occidentale</i> L. The evaluation of the antioxidant activity of the extracts was carried out by the methodology with the use of the 1,1-diphenyl -2-picrylhydrazyl (DPPH●). Solutions with different percentages of extracts were added to 2.5 mL of 0.004% ethanol solution of the DPPH● radical. The solutions were kept away from light and, after 30 minutes, the absorbance of the solutions was determined at 515 nm. The experiment was carried out in triplicate. The total phenolic content of the dry extracts was determined using the Folin-Ciocalteu reagent and the analytical curve of gallic acid. For this, 400 µL of sample were added to 2.5 mL of Folin-Ciocalteu reagent (1:10) in test tubes. After 8 minutes, 2.0 mL of 7.5% sodium carbonate (Na₂CO₃), prepared 24 hours in advance, in water and heated until solubilization, were added. The tubes were shaken and allowed to stand at room temperature for 2 hours, protected from light. Then, the absorbances of the samples were evaluated in a UV/Vis spectrophotometer, at 765 nm. The experiments were performed in triplicate. The results were expressed in µg of total phenolics equivalent to gallic acid per 100 µg of extract. The antioxidant activity obtained for each of the extracts was: Summer Extract 0.0502 ± 1.0789 mg/mL; Autumn 0.0398 ± 0.8337 mg/mL; Winter 0.0503 ± 0.7389 mg/mL and Spring 0.0624 ± 0.9767 mg/mL. The extract of autumn leaves is the most suitable for incorporation into cosmetic formulations, which is also interesting from an economic point of view, since it will not be necessary to use pseudofruits, already used by the food industry, to obtain high activity. antioxidant. In the determination of phenolic compounds, the results obtained were: Summer extract 25.91 ± 0.80; Autumn 60.39 ± 5.46; Winter 55.04 ± 3.46; Primavera 52.61 ± 3.96 all expressed in µg of phenolic compounds equivalent to gallic acid/100 µg of extract. According to the results obtained, the autumn extract also presents more phenolic compounds equivalent to gallic acid; therefore, the <i>A. occidentale</i> autumn leaf extract is the one with the highest antioxidant activity and the highest presence of phenolic compounds, being of greatest interest to the cosmetic industry.</p>



Title	ANALYSIS OF THE PHOTOPROTECTIVE POTENTIAL OF FRACTIONS STEMMING FROM AN ANTARCTIC ORGANISM
Authors	Nayara F. T. Araújo, Maria G. Simon, Maria G. L. Bravo, Ana C. Jordão, Hosana M Deboni, Lorena R. Gaspar
Affiliations	Faculdade de Ciências Farmacêuticas de Ribeirão Preto. Universidade de São Paulo (USP-RP).
Session	<i>Poster</i>
Abstract	The incentive for the daily use of cosmetics that prevent sun damage has been a constant concern in Brazil. This happens due to low adherence to protective measures, even though it is known that effects such as premature aging, spots, and skin cancer are directly related to sun exposure. Connected to this behavior is evident the demand for more sustainable products, as well as the use of natural ingredients. Among them, the compounds of marine origin are highlighted because they have a high potential for innovation and evidence of absorption of high levels of ultraviolet radiation. Thus, this study aims to analyze the photoprotective potential of fractions from the fungus <i>Rhinochloidiella similis</i> , according to the sustainability and Green Chemistry criteria. The fungus was grown for 28 days in potato dextrose broth (PDB) and artificial seawater and extracted using ethyl acetate. The fractionation of the crude extract was performed by Vacuum Liquid Chromatography (VLC), with a mixture of solvents of different polarities, to obtain nine fractions that had their absorptions analyzed in the spectrum of the ultraviolet region (280-400 nm). Three fractions were selected for photostability testing by UV spectrophotometry. Then, the fractions were subjected or not to UVA radiation of 9 J/cm ² in order to analyze their photodegradation. The results demonstrate that compared to the control, all fractions analyzed presented no significant reduction in absorption in the UVA and UVB region after irradiation. Therefore, the studied fractions presented the potential for photoprotection and were considered photostable. Notably, the test presented is essential in the formulation of cosmetic products since using photounstable compounds can lead to photodegradation, formation of reactive intermediates, and modification of the chemical structure.

Title	STUDY OF THE INFLUENCE OF SURFACTANTS IN THE COMPOSITION OF SHAMPOO CONTAINING GREEN CLAY FOR SEBORRHEIC DERMATITIS
Authors	Ana Luiza Merigo Lopes, Mônica Maruno, Maria Elisa Ruivo Mendonça, Josinete Salvador Alves
Affiliations	Centro Universitário Barão de Mauá
Session	<i>Poster</i>
Abstract	Seborrheic dermatitis is a chronic, non-contagious inflammatory disorder caused by the fungus of the genus <i>Malassezia</i> spp, which is capable of surviving in lipophilic environments. Dandruff, which is considered a milder form of seborrheic dermatitis, does not result in an inflammatory process. To control the effects of seborrheic dermatitis, topical products such as



	<p>shampoos, lotions, and hair creams are commonly used. Clay, which has been used for thousands of years in hair cosmetic procedures, is an example of a product commonly used for this purpose. With the aim of evaluating the influence of anionic and amphoteric surfactants in a shampoo containing green clay, an experimental methodology was developed that consisted of developing shampoo formulations with sulfate (sodium lauryl ether sulfosuccinate) and sulfate-free formulations containing only amphoteric surfactant (cocoamidopropyl betaine) as the cleaning agent. The shampoos were evaluated for their organoleptic characteristics, foam index, pH, and residual effect on hair samples after washing. The shampoos obtained had good consistency, homogeneity, and stability when subjected to centrifugation and storage under different temperature conditions. The shampoo containing anionic surfactant had a slightly higher pH compared to that with the amphoteric surfactant. Additionally, the volume of foam formed by the sulfate-free shampoo was lower than that of the product containing sodium lauryl ether sulfosuccinate as the surfactant. Finally, the sulfate-free formulation was considered the best option for cleaning the scalp and hair fiber, according to the sensory effect left on hair samples after washing.</p>
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Title	EVALUATION OF THE ANTIOXIDANT ACTIVITY OF DRY EXTRACTS OF HIBISCUS SABDARIFFA
Authors	M.B. Berlim, M.M. Dos Santos, S. Fanan, N.C.C. Silva, C.R.A. Malafaia, D.W. Barreto
Affiliations	Assessa Indústria Comércio e Exportação LTDA - Rio de Janeiro, Brazil
Session	<i>Poster</i>
Abstract	<p>Hibiscus sabdariffa L. is a plant native to Africa, and has been traditionally cultivated for over 5,000 years. H. sabdariffa is an important source of vitamins, minerals and bioactive compounds such as organic acids, phytosterols and polyphenols with great potential for use in cosmetics. The dried flowers of this plant contain anthocyanins, the petals produce a glycoside from the flavanol group called hibiscritin and the calyces are rich in riboflavin, ascorbic acid, niacin, carotene, calcium and iron. Several in vitro and in vivo studies have shown that extracts from Hibiscus sabdariffa L. have a potent antioxidant effect, showing a strong correlation with the concentration of anthocyanins. The dry extract of hibiscus produced from the application of green chemistry processes presents, in relation to the chemical characterization of the main phenolic compounds, average values of 54.69 mg AGE/L. For total and monomeric anthocyanins, the values obtained were 126.63 mg/100g and 94.68 mg/100g, respectively. As confirmation, by the method of liquid chromatography coupled to high resolution mass spectrometry (LC-ESI-HRMS), it was possible to observe the presence of 7 molecular ions, identified as: hydroxycitric acid, hibiscus acid, delphinidin-3-O-sambubioside (D3S), cyanidin-3-O-sambubioside (C3S), gallic acid, chlorogenic acid and caffeic acid. When compared with the values of the liquid extract of hibiscus, an increase of approximately</p>



70% in the values of total phenolics is observed. Regarding monomeric and total anthocyanins, the increase is 51% for both versions. Hibiscus extracts increased the action of tyrosinase, possibly due to the fact that they provided phenolic substances capable of acting as substrates for the tyrosinase enzyme. Powdered samples of *H. sabdariffa* showed collagen synthesis stimulation activity compared to the control group. In addition, the samples demonstrated increased activity of SIRT1 and SIRT 3 SIRT3 compared to the control. Samples of *H. sabdariffa* were also able to stimulate ATP production in keratinocytes and fibroblasts, which proves its excellent potential as an active ingredient in cosmetic products.

Title	USE OF MOLECULAR AGRICULTURE CONCEPTS TO OBTAIN EXTRACTS BASED ON ROSE PETALS CULTIVATED IN THE MOUNTAIN REGION OF RIO DE JANEIRO
Authors	F.K.F Santos ¹ , G.T.B. Marinho ² , S.D. Calixto ² , C.R.A. Malafaia ³
Affiliations	¹ Military Engineering Institute - IME, Rio de Janeiro, Brazil ² Federal University of Rio de Janeiro - UFRJ, Macaé, Brazil ³ Assessa Indústria Comércio e Exportação LTDA - Rio de Janeiro, Brazil
Session	<i>Poster</i>
Abstract	The use of roses in cosmetics dates back to the Medieval Era. To this day, rose water is a common component in cosmetic products. The rose is the most cultivated cut flower in the world. Its popularity derives from its great beauty and the wide variety of existing colors, that are directly correlated with the composition of pigments such as anthocyanins and carotenoids. The traditional cultivation of roses normally aims to obtain large and beautiful flowers, where the size of the flower bud is the most valued aspect, and for this reason farmers do not hesitate to use large amounts of pesticides, which can thus accumulate in the flowers. In the concept of molecular agriculture, what matters is not the size or beauty of the flower, but its molecular composition, that is, the presence and concentration of molecules of interest in the plant matrix. For the creation of a cosmetic active based on rose petals obtained respecting the concept of molecular agriculture, an experimental design was carried out where the parameters used were combinations of solvents, time, temperature and concentration of enzymes. Physical chemical (pH, Brix and Total Solids) and chemical composition, such as total phenolic, total and monomeric anthocyanins and antioxidant capacity were established as parameters. The tests showed that the EC50 of the extracts obtained was higher for the 100% aqueous extract. The total phenolic and anthocyanin contents were superior to similar studies described in the literature. The anthocyanins of interest were identified using LC-ESI-HRM, 3-O-arabinoside cyanidin being the major one among 5 identified anthocyanins. All samples showed low toxicity profiles for THP-1 human macrophages and monocytes. The extracts obtained showed the same profile of NO production inhibition in macrophages. None of the extracts showed signs of acute oral toxicity (NRU 3T3 Cytotoxicity), demonstrating the cosmetic potential and safety of the obtained extracts.



Title	SYNTHESIS OF POLYMERIC NANOPARTICLES FILLED WITH VETIVER ESSENTIAL OIL FOR POTENTIAL MELASMA TREATMENT
Authors	Andressa Carvalho Câmara Januário* & Gisele Cristina Valle Iulianelle
Affiliations	Instituto de Macromoléculas Eloísa Mano
Session	<i>Poster</i>
Abstract	Vetiver essential oil (<i>Vetiveria zizanioides</i>) is rich in bioactives that can act on the skin through its biological properties, however, due to its sensitivity to oxidation and degradation, the use of resources to protect it is necessary. Thus, nanoencapsulation emerges as an alternative for the protection of its functional properties, providing slow and controlled release, low toxicity and low irritability rates. This technology allows for a constant supply of the active ingredient to different layers of the skin with lower doses, increasing the effectiveness of the cosmetics. In this study, nanocapsules were developed using two methods of synthesis of preformed polymer nanoparticles: nanoprecipitation and ionic gelation; aiming to protect bioactives, which have potential treatment for melasma, through nanoencapsulation. Using the nanoprecipitation method, nanocapsules based on poly- ϵ -caprolactone (PCL) were prepared using polaxamer 407 or polysorbate 80 and sorbitan monostearate 60 as surfactants. Through the ionic gelation method, alginate-based nanocapsules were prepared using calcium as a crosslinking solution. The polymer concentrations were varied while keeping the concentrations of vetiver essential oil constant. The average hydrodynamic diameter of the polymer nanocapsules in aqueous suspension was analyzed by dynamic light scattering (DLS) in the Zeta Potential Analyzer Nicomp Nano device. Nanoparticles prepared by nanoprecipitation using the surfactant polaxamer 407 had diameters ranging from 155.83 ± 0.73 to 304 ± 2.10 nm, while surfactants polysorbate 80 and sorbitan monostearate 60 obtained populations with diameters ranging from 306.27 ± 1.89 nm to 371.83 ± 0.87 . Decreasing polymer concentrations shifted the hydrodynamic diameter of nanoparticles to smaller sizes. For nanoparticles prepared by ionic gelation, the diameter ranged from 453.4 ± 8.12 to 1933.5 ± 13.11 nm. The addition of essential oil in the formulations shifted the hydrodynamic diameter to smaller sizes when prepared by nanoprecipitation with polaxamer 407, and to larger sizes when polysorbate 80 and sorbitan monostearate 60 were used. In ionic gelation, as increasing in the amount of essential oil decreased the hydrodynamic diameter size. Other assays will be conducted to complete the physicochemical and biological characterization.

Title	FUNDAMENTALS OF THE MORTUARY COSMETOLOGY
Authors	Maria Christiane de Souza & Carla Aparecida Pedriali Moraes
Affiliations	Faculdade de Tecnologia de Diadema Luigi Papaiz – FATEC, São Paulo, Brasil
Session	<i>Poster</i>
Abstract	Mortuary Cosmetology is the last service applied to the lifeless body before the funeral. This procedure has strong social appeal, for it provides comfort for grieving family members and friends. The following research gathers bibliography as a mean of comprehending the alterations in a lifeless persons' skin, as well as the cosmetic needs for high-coverage makeup and



its interaction with superficial skin lesions. Objective: Investigate the fundamentals of Mortuary Cosmetology and the necessary features of the cosmetic products used by the Mortuary Cosmetologist. Material and methods: Bibliographic selection extracted from online databases; institutional content from schools of Mortuary Practices and Mortuary Cosmetics, as found in the Google search engine; interviews with professionals in said areas. Participation in the Desvendando a Necromaquiagem (Unveiling the Mortuary Cosmetology) workshop, promoted by WT Centro de Estudos, and the EXPONAF (National Exhibit of Mortuary Articles), both in 2023, for information gathering. Results: Validation of the information acquired through bibliographic survey, converging with the practical knowledge from professionals of the field. Conclusion: Obtained results pointed to the effectiveness of the use of color corrective makeup, as well as high coverage bases formulated with silicone and emollients, for film formation and moisturizing action on the epidermis.

Title	STUDY OF THE EFFECT OF THE BLEND OF ARGAN AND AVOCADO VEGETABLE OIL ON AFRO AND CAUCASIAN CAPILLARY FIBERS
Authors	Natalia R. Pedroso ^{1,2*} , Roberta B. Costa ^{1,2} , Thaiane A. Robeldo ² , Valéria M. Longo ²
Affiliations	¹ Federal University of São Carlos, UFSCar, São Carlos, SP, Brasil. ² Katléia Lab Ltda, Advanced Hair Diagnostic Center, São Carlos, SP, Brasil.
Session	<i>Poster</i>
Abstract	Vegetable oils gained great prominence in the beauty and health care routine. In addition to being sustainable and economical, vegetable oils have numerous benefits when included in the capillary schedule. From anti-frizz treatment to hair nutrition and hydration processes, the oils have anti-inflammatory and antioxidant properties capable of contributing to the maintenance of the health of the strands and scalp, even more so when the blend of oils is carried out, which is nothing else than the mixture of two or more oils to potentiate the effects. However, there is a wide variety of vegetable oils with different properties that need to be evaluated before mixing them, in order to generate ideal combinations for harmonic interactions between the hair fiber and the oils in question. Objectives: To investigate changes in superficial properties, measured by scanning electron microscopy (SEM), and of the fibers cortex by differential scanning calorimetry (DSC) and tension measurements in Afro and Caucasian colored hair fibers, after the joint application of avocado vegetable oils and argan, aiming to understand the interactions of each type of fiber with such mixture. Methodology: 04 colored tresses of Caucasian hair and 04 colored tresses of Afro hair measuring approximately 20 cm and weighing 3 g were used. The colored tresses were evenly coated with the combination of two vegetable oils: argan oil and avocado oil. Thus, in order to obtain information such as mechanical strength, proportion of water present in the structure and morphology of the fibers before and after treatment, the treated and control tresses of hair were subjected to uniaxial traction, DSC and SEM tests. Conclusion: Potent health hairs benefits have been found when avocado and argan oils are applied together, differing in their effects



	on each fiber, Afro and Caucasian. This reveals the unique characteristics and textures of each hair, making it necessary to consider ethnic and structural differences in evaluating the effectiveness of different cosmetic products
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Title	ANTI-POLLUTION AND ANTIOXIDANT EFFECT OF A SUNSCREEN SPF 50 ON THE RESTORATION OF SKIN REDOXOME HOMEOSTASIS IN AN EX VIVO MODEL
Authors	Rafaela Araujo de Sousa ¹ , Lucas Neves dos Santos ¹ , Michelle Sabrina da Silva ^{1,2*} , Paula Pitta ³ , Cristina Vendruscolo ³ , Sérgio Schalka ^{1,2} , Maurício da Silva Baptista ²
Affiliations	¹ MEDCIN Group, Osasco/São Paulo, Brazil. ² University of São Paulo – Institute of Chemistry – USP, São Paulo, Brazil. ³ Beiersdorf - São Paulo, Brazil.
Session	<i>Poster</i>
Abstract	<p>Skin redoxome is a network of reactions and redox active species (ReAS) in the cutaneous environment, including the generation of ReAS, its neutralization by endogenous and exogenous antioxidant agents, as well as the signaling networks responsible for organizing redox homeostasis. Several skin diseases and disorders are closely related to the oxidative impact of air pollution on the skin, such as acne, atopic dermatitis, psoriasis and hyperpigmentation. Among pollutants, cigarette smoke is a highly complex aerosol composed of carcinogens and various oxygen-forming substances. The induction of oxidative stress by environmental stress exceeds the skin's antioxidant defenses, causing damage to the lipid membranes of cells and inducing the synthesis of proteolytic enzymes, such as matrix metalloproteinase, responsible for the breakdown of dermal proteins. Skin protection using sunscreens, both through the formation of a physical barrier and through biological protection due to the action of ingredients with antioxidant function, is essential to restore redox homeostasis and conserve the cellular and tissue structures involved in skin redoxome. In the present work, we evaluated the action of a sunscreen SPF 50, rich in antioxidants, in the reduction of reactive oxygen species and protection against lipid peroxidation in an ex vivo model of human skin subjected to an environment of pollution by cigarette smoke. The quantification of lipid peroxidation was performed using the TBARS colorimetric assay (thiobarbituric acid reactive substances) and the evaluation of reactive oxygen species was measured by a fluorogenic probe. Our results demonstrated that the evaluated sunscreen was able to reduce the formation of reactive oxygen species by 29% (P<0.05) and lipid peroxidation by 9% (P<0.01), when compared to the group with skin exposed to pollution. These data represent a protection against the damage caused by cigarette smoke on the skin of 70% for the formation of free radicals and 29% for lipoperoxidation, proving the action of sunscreen not only in relation to the impacts caused by radiation, but also in terms of anti-pollution and antioxidant protection, helping to restore the balance of redox reactions involved in skin redoxome.</p>



Title	STUDY ON THE FORMULATION OF BAR SOAP CONTAINING AVOCADO PULP
Authors	Maria Laura Peron Queiroz ¹ , Mônica Maruno ² , Cesar Augusto Sangaletti Tercariol ³ , Josinete Salvador Alves ⁴
Affiliations	Centro Universitário Barão de Mauá
Session	<i>Poster</i>
Abstract	<p>Cosmetic products that contain natural substances in their composition, whether they are organic or not, have been gaining a prominent place in the market. Avocado (<i>Persea americana</i> Mill), a fruit commonly found in Brazilian lands, has emollient, moisturizing, healing, anti-inflammatory, and antioxidant properties, in addition to being rich in vitamin E and essential fatty acids for the skin. Most bar soaps have a pH that differs from what is commonly found in the skin, which hinders their use for skin care purposes. The aim of this study was to evaluate the influence of some excipients on the formulation of bar soaps containing avocado pulp. The study was experimental, and the excipients used were selected based on availability in the market. In other words, easily accessible ingredients were used to allow for reproduction by anyone. In addition to the components responsible for skin cleansing, glycerin soap bar and surfactants, corn starch, talc, and clay were used in the formulation as agents to modify the soap's hardness. The obtained soaps were evaluated for their organoleptic characteristics, foam index, and pH determination. All soaps presented a dark green color, probably due to the avocado pulp. Different combinations of excipients were experimented with in the formulations, and the experience provided knowledge about the behavior of these ingredients in soaps. Among the formulations developed, formulation VI was considered the best among all produced as it presented hardness, desirable appearance, acceptable color, and foam index close to the standard. The final composition of the soap was obtained by combining glycerin soap bar, extra virgin coconut oil, avocado pulp, corn starch, talc, white clay, coconut lauryl sulfosuccinate, cocoamidopropyl betaine, and coconut fatty acid diethanolamide. Although the obtained soap presented some acceptability characteristics, pH was the challenging parameter of the study since, being slightly alkaline, it is still far from the ideal acidic pH of the skin.</p>

Title	SUSTAINABLE MICRO-ACTIVATED ANTI-DANDRUFF INGREDIENT
Authors	Florian Genrich ¹ , Christin Koch ¹ , Bernd Heinken ¹ , Deise Serro ²
Affiliations	¹ Symrise AG, Cosmetic Ingredients Division, Holzminden, Germany; ² Symrise Brazil, Cosmetic Ingredients, Brazil
Session	<i>Poster</i>
Abstract	<p>Conventional anti-dandruff products are commonly characterized using three ingredients: zinc pyrithione, climbazole, and piroctone-olamine. These three actives are based on their antifungal activity against the dandruff-causing agents <i>Malassezia</i> sp. This study focuses on a new approach to combating this fungus, using a sustainable technology with an innovative mode of action. Propanediol Caprylate relies on <i>Malassezia</i>'s natural dependence on sebum lipids (triglycerides), being cleaved by this microorganism thanks to its similar chemical ester-structure. After metabolization, the active form of the compound is released, reducing the</p>



	<p>activity of the fungus, leading to dandruff control and decreasing scalp irritation. Methods: The production of propanediol caprylate is based on solvent-free esterification, based on the principles of green chemistry. Breakage tests of the ester bond from the active were performed by cultivation in the presence of <i>M. globosa</i> and <i>M. restricta</i>, incubated at 32 °C, with the determination of propanediol caprylate and Caprylic Acid at the end of the process by gas chromatography. In vivo studies were conducted over a period of 30 days with leave-on and rinse-off products compared to a placebo and a positive control. Results: In vitro cultivation demonstrated that the tested <i>Malassezia</i> species have compatible lipases for breaking down the natural active, releasing caprylic acid, responsible for down regulating the population of these microorganisms. In vivo tests proved that the performance of 0.5% propanediol caprylate in shampoo was comparable to Climbazole at the same concentration. Discussion and Conclusion: Propanediol caprylate presents itself as a sustainable and effective technology in dandruff control, being comparable in performance to conventional market actives. This liquid ester with easy processing surpasses the difficulties related to the direct use of caprylic acid, such as its odor. Considering the demand for natural ingredients in personal care products, this active ingredient appears as a modern alternative for the anti-dandruff cosmetics market.</p>
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Title	THE SKIN SENSITIVITY INDEX - GRADING AND OBJECTIVE EVALUATION
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Session	<i>Poster</i>
Abstract	<p>Skin sensibility is described as the feeling of skin discomfort without clinical evidence of skin lesions. It is ordinarily associated with dryness, itching, pimples, and redness in response to environmental factors, hygiene, skincare or cosmetic products, stress, among others. Its multifactorial origin makes evaluating and grading the levels of skin sensibility a tough assignment. This work analyses current evaluation methods and proposes new and reliable tools for this process. Methods: A 90 Caucasian women panel was subjected to an interview with a binary result that includes "sensitive skin" or "non sensitive". Furthermore, the group was also put through a self-perception questionnaire, that answers were scored as a clinical sensitivity index. The results of both methods were correlated with the outcome of a self-grading of stinging test applied with lactic acid in the face of the volunteers. The self-perception questionnaire was also repeatedly submitted to a 183 women panel to test the repeatability in obtaining the clinical index. Finally, an instrumental-based index was</p>



developed through full-face hyperspectral SpectraFace® acquisitions. A colorimetric analysis on the images of the volunteer's facial skin is correlated with the results of the applied clinical questionnaire. Results: While the binary classification provided by the interview had a low correlation with the results of the prickling trial, the clinical index showed a high correspondence with these results. The high variability in the given answers of the repeatability trial stipulated the necessity to select reliable subjects for machine learning. The instrumental analysis with the image-based index indicated a high correlation with the clinical index obtained with the questionnaire of the trained panel. Discussion and Conclusions: Classical methods such as the sting test may not be correlated or precise enough to address skin sensitivity evaluation. Instead, we introduced two groundbreaking indices. The clinical index, based on self-perception, that should be used to get quick and easy evaluations with a more complete approach than a binary one. The instrumental image-based, that predicts the sensitivity from parameters computed from hyperspectral acquisitions and has the advantage of being completely objective and robust to subjects' positioning variations. Both indices complement each other.

Title	NATURAL SKIN TANNER WITH OXIDATIVE STRESS REDUCING ACTIVITY
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Session	<i>Poster</i>
Abstract	Skin tanning is an important beauty feature in certain regions of the world, but consumers are aware that exposure to ultraviolet light can induce severe consequences to the skin and health, popularizing sunless tanning. Dihydroxyacetone (DHA) is one of the main ingredients used for this self tanning, and it acts through the Maillard Reaction with proteins in the superficial layers of the skin. Carbon dioxide (CO ₂) extract of Isochrysis sp., Tahitian Strain (T-Iso) has been shown as a natural alternative as a tanning ingredient, as proven by ex vivo studies. The presented study investigates the capacity of this extract to reduce oxidative stress induced by DHA and UV light. Methods: Ex vivo skin model studies were conducted to measure the production of free radicals, using dichlorofluorescein diacetate as an indicator in the culture for subsequent image analysis. In this system, tests were performed in the presence of DHA, T-Iso extract, and both. The influence of the extract was also analyzed in cells irradiated with UVA light (60J/cm ²). Results: The presence of DHA showed a dose dependent response in inducing the production of free radicals, while the T-Iso extract exhibited good antioxidant activity by the ABTS assay (IC ₅₀ value = 0.062%). The use of a cosmetic gel with the extract showed a significant reduction in the oxidative stress caused by DHA compared to the placebo.



	<p>UVA led to the expected significant increase of ROS and the extract exhibited a significant decrease of ROS by 63%. Discussion and Conclusion: The CO₂-extracted microalgae extract, in addition to its tanning activity, showed efficient antioxidant capacity proven by the ABTS assay in vitro and ex vivo tests in models with UVA and DHA. Furthermore, the microalgae extract, obtained by SFE from biomass produced through controlled and sustainable biotechnology, finds its value as an ally of DHA in self-tanning and skin care products.</p>
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Title	HYDROXYPINACOLONE RETINOATE EFFICACY - NEXT GENERATION SEQUENCING DISCOVERS
Authors	Maria Reichenbach ¹ , Michele Massironi ² , Mickaël Larnicol ³ , Rafael Albuquerque ⁴
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Session	Poster
Abstract	<p>Retinol is an ingredient with high efficacy in reducing wrinkles and skin renewal. However, side effects related to its continuous use are commonly observed. In the past, retinoid esters were developed, but their advantages and mechanism of action over the use of classic retinol are not yet fully elucidated. This study uses Hydroxypinacolone Retinoate (HPR) as a model to try to elucidate such a mechanism and understand its efficacy. Methods: In vitro studies were conducted by culturing cells in the presence of a blend containing Diisopropyl Adipate, Hydroxypinacolone Retinoate and Tocopherol in comparison with culture exposed to all-trans retinol, as a benchmark. RNA sequencing was analyzed in response to these exposures. In vivo tests were also performed on half-face application of products with the two active ingredients, with a panel of 96 volunteers. The results were obtained by image analysis after 14 and 28 days, investigating the presence of wrinkles and expression lines by the Canfield® equipment. Results: The presence of all-trans retinol and HPR regulated the expression of 2254 genes in common, with retinol regulating the expression of 1639 more genes and HPR regulating 493 more genes. Among genes regulated solely by HPR are some related to extracellular matrix organization, collagen production (associated with membrane formation), and intracellular protein degradation, important for cell survival and stratum corneum formation. The in vivo phenotypic effects shown by image analysis relate that the presence of all-trans retinol reduced the intensity of wrinkles and expression lines by up to 15.6% compared to the placebo control. The tested ingredient was able to achieve a reduction of up to 17.0%. Discussion and conclusion: The comparative study of Retinol with its ester derivative with Hydroxypinacolone showed that it has advantages such as organization of the cellular matrix and strengthening of the basal membrane in relation to the former. The in vivo study showed that both have comparable efficacy in reducing wrinkles and expression lines. Showing that the tested ingredient is a safe alternative for use in anti-aging cosmetics.</p>



Title	MODERN PRODUCT PROTECTION WITH EMPOWERED MULTIFUNCTIONALS
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Session	<i>Poster</i>
Abstract	<p>This work explores the effect of various factors on the preservative efficacy of several multifunctional ingredients to identify conditions in which multifunctionals can be most effective. In this study, chemical agents, such as chelating agents and organic acids, and physical factors, such as pH and water activity were used in combination with multifunctional ingredients. Methods: Microbial challenge tests were performed on O/W emulsions according to the standards proposed by the Personal Care Products Council (PCPC) and European Pharmacopoeia (E. Ph., 1996) methods. Results: When multifunctionals – alkanediols or hydroxyacetophenone – were combined with chelating agents or organic acids in O/W emulsions, better product protection efficacy was observed. While there were some differences among different chemical entities, all studied chelating agents and organic acids had a positive effect. This effect was pH-dependent, however, as predicted by the mode of action. pH alone had a strong impact on the efficacy of multifunctionals with lower pH values showing greater contribution. Generally, pH values < 5.0 or 4.5 had a marked effect. The contribution of the antimicrobial hurdles was more noticeable at lower concentrations of the multifunctionals than their typical use levels. This suggests that robust product protection systems can be built based on multifunctional ingredients even at lower than typical use levels when they are judiciously combined with other hurdles. Similar effect of the hurdles was observed with the different multifunctionals. The extent of the contribution of the additional factor to the efficacy of the multifunctional depended on the multifunctionals tested and their use levels. Conclusion: When multifunctionals ingredients are combined with appropriate chemical or physical factors, greater preservative efficacy can be achieved. This may result in more robust product protection and even allow reduced use levels of multifunctionals. Chelating agents, organic acids, and pH provide convenient and simple ways to empower the product protection system without major impact on other aspects of the formulation.</p>

NOTE: The authors are responsible for the scientific content presented and its transcription in English.



ORGANIZAÇÃO



HOST



CONTEÚDO CIENTÍFICO



ALIANÇA

(Clique na logomarca e visite a feira)



APOIO



PARCERIA



APOIO DE MÍDIA



PUBLICAÇÃO INTERNACIONALS DOS PAPERS

Clique na logomarca e conheça a instituição



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