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Abstracts

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Sensitive Skin Syndrome in Portugal – A Concise (Social and Demographic) Characterization of the Portuguese Reality

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Reports from global markets suggest that the sensitive skin syndrome affects 50% of the population. Since there is currently no information on this condition in a small market like that in Portugal, the authors designed this descriptive cross-sectional study to characterize this syndrome in this particular context. Data was collected using a structured questionnaire in the community pharmacies chosen for the study. 333 questionnaires (n=333) were validated, and 46% of the surveyed individuals described their skin as "sensitive". Responders were predominantly women, the face was the most frequently mentioned area of the body affected, and environmental factors and contact were reported as the main causes of sensitivity. A wide variability in responses to irritation and in the relationship with previous pathological conditions was also found. Thus, the social and demographic pattern found here agrees with patient-type profile previously reported for the sensitive skin syndrome.

Cell-Activating Effects of a Viniferin-Enriched Grapevine Extract

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Extracts of grapevine, especially in the fermented form of wine, are reported to exert beneficial effects to human health. Grapevine polyphenols are considered to be the main compounds responsible for this beneficial activity, and of these, resveratrol has been studied in most detail. Because of its antioxidant properties, resveratrol demonstrates cell protective characteristics, but it is also able to reduce cell proliferation and induce apoptosis, especially in cancer cells. Investigations on the effects of resveratrol on UVB irradiated primary keratinocytes and HaCats have demonstrated protective properties also in skin cells. Although grapevine extracts are routinely used as an active ingredient in skincare cosmetics, the activity of these extracts on skin, apart from that of resveratrol, is only poorly understood. Here the effects on skin cells of a grapevine extract enriched with the resveratrol dimer ε-viniferin were analyzed in vitro and in vivo.

This paper was presented as a poster at the 25th IFSCC Congress 2008, Barcelona, Spain

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Epidermal Tight Junction: The Master Skin Barrier Regulator

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Tight junctions between adjacent epithelial cells control paracellular permeability of solutes and maintain cell polarity by fencing lipid bilayer components into demarcated apical and basolateral domains. In the present study we investigated the role of epidermal tight junctions in two skin physiological processes, "formation of the epidermal calcium ion (Ca^{2+}) gradient" and "polarized lamellar body secretion". The former is based on the fact that the epidermal Ca^{2+} gradient is closely related to epidermal differentiation and the latter on the knowledge that polarized lamellar body secretion is essential to supply intercellular lipids to the stratum corneum. We hypothesized that tight junctions might form the Ca^{2+} gradient in the epidermis by sealing cell-cell contact at the stratum granulosum and allow the lamellar bodies to be normally secreted toward the stratum corneum by giving granular cells polarity. In our experiments we discovered that tight junctions control not only both intercellular Ca^{2+} permeability and fluorescent ceramide analog (Cer-FL) secretion in cultured normal human keratinocyte cells but also both intercellular calcium distribution and polarized lamellar body secretion in the skin equivalent. Thus, tight junctions should be responsible for linking a series of processes from epidermal differentiation to stratum corneum barrier formation. Our findings suggest that tight junctions should have a crucial role not only in epidermal barrier function but also in both epidermal differentiation and stratum corneum barrier function.

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Dynamic Mechanical Study of Hair Viscoelasticity and Softness

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Dynamic mechanical analysis (DMA) has been widely used to investigate material properties such as thermal transitions and complex modulus of polymers. Until now, only a few articles have been published to discuss applications of DMA in studying human hair and evaluating hair care products due to difficulties in handling hair samples. In DMA, a complex modulus (E*), an elastic (storage) modulus (E') and an imaginary (loss) modulus (E'') are determined which give a better characterization of viscoelastic properties of hair than regular tensile strength. A new DMA test methodology including a hair bundle preparation and sample clamping technique was developed and applied to study human hair samples. Effects of hair type (Caucasian vs. Asian), bleaching time, environmental relative humidity (RH), and cosmetic treatments on hair viscoelasticity and storage bending modulus/stiffness were investigated. Average complex modulus and Young's modulus of single hair fibers and storage bending modulus of hair bundles before and after cosmetic treatments at various relative humidity levels were determined. Subjective evaluations of hair soft feel by salon panelists were conducted and the results compared with those of objective measurements (changes in hair storage bending modulus).

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