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P1 - DEVELOPMENT OF AN IN VITRO TEST FOR THE EVALUATION OF THE SWEAT-RESISTANCE EFFICACY OF DECORATIVE COSMETICS – AN EXPLORATORY STUDY

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Palavras-chave: Decorative cosmetics, Anti-sweat, Sweat-resistance, Method development, In vitro

The decorative cosmetics market is becoming more and more demanding regarding product safety, quality and performance. In 2015, the most popular demand of consumers in the United States was “long-wearing”. The claim “anti-sweat” is starting to be used by the cosmetic industry, associated with the trend of people living more active lives and practicing sports. The aim of this project was to develop and optimize an in vitro test capable to assess sweat-resistance efficacy of decorative cosmetics.

Two test foundations were produced, A: 15% of Granresin MQI-2450 (Isododecane (and) C24-28 Alkyldimethylsiloxy Trimethylsiloxy silicate) and B: 5% of Unimer U-15 (VP/Eicosene Copolymer). The positive and negative controls used were a commercial sweat-resistant foundation and an aqueous paste, respectively. Two different methods were developed and optimized in an attempt to evaluate the sweat resistance of the foundations. Both tests were performed using polymethylmethacrylate (PMMA) plates as substrates. One of the tests involved the immersion of the plates in warmed water (Immersion 1, Immersion 2), while the other involved spraying warmed water on the plates (Spray 1, Spray 2). The amount of foundation lost was calculated considering the weight of the plates before and after the assays. Following test optimization, the colour of the samples and controls remaining on the plates was further measured using a colorimeter.

Sample B seemed to provide better sweat-resistance than sample A with respect to both the percentage of foundation loss and colour variation. Test Spray 2 showed a better performance when compared with the test Immersion 2. Not only it mimics more closely the real use of foundations, but it also clearly differentiated foundations A and B. With this work, it was implemented for the first time a method to evaluate sweat resistance efficacy. Although presenting some limitations, the optimized method had the ability to discriminate the two developed foundations.

Future studies should address the improvement of the method sensibility, either by modifying the test's parameters, such as the volume of water and drying method, or the use of different positive and/or negative controls.

P2 - PORTAL INFOCOSMÉTICOS: AN INITIATIVE OF FFUP FOR HEALTH PROMOTION AND EDUCATION IN THE COSMETOLOGY FIELD

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Palavras-chave: Portal infoCosméticos

Despite of the vast range of available information, there is an evident lack of scientifically supported content in the Cosmetology field, accessible to both consumers and professionals. Considering this, the Laboratory of Pharmaceutical Technology of the Faculty of Pharmacy from Oporto's University launched Portal infoCosméticos (PIC), using in-house academic knowledge and expertise to build an easy-access website projected to promote literacy regarding cosmetic ingredients and products.

Portal infoCosméticos' mission is to provide information to empower consumers while making safer and better-informed choices regarding cosmetic products. Likewise, professionals involved in cosmetic advice can obtain validated information, supported by up-to-date scientific evidence.

This educational project uses clear and lay language, short contents and infographics, and hyperlinks to other information sources that help with the understanding of the comprised contents. The content is developed by recent graduates and students of the Master Degree in Pharmaceutical Sciences in the format of an elucidation of a pre-defined question. After this stage an infographic is created and a process of validation and harmonization takes place before web publication. The scientific validation is ensured by national and international researchers and lecturers besides the national regulatory authority, INFARMED. Besides students, researchers and pharmacists, designers, web designers, communication specialists and website developers were also enrolled in the project team.

Cosmetics ingredients, formulation, safety and regulation of cosmetic products are some of the addressed topics, with focus on the main concerns of nowadays consumers. Legislation is a crucial issue in this field and thus PIC dedicated several questions to this topic such as the question “What were the most important changes introduced by the cosmetics european regulation that entered into force in 2013?”. PIC revealed that the main purposes of those amendments were to clarify cosmetics legislation, mainly regarding safety reports, notification rules, labelling, allowed claims and experiments in animals.

Portal infoCosméticos is an ongoing digital project, being the first of its kind in Portugal, which will be increasingly dedicated to the improvement of literacy and to regular updating of relevant information in the Cosmetology field.

P3 - TAKING TOTAL PROTECTION INTO THE BLUE

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The negative impacts of visible light, particularly blue light (wavelength 380-500nm), to skin are still not fully understood. A few studies have shown an increase of blue light-induced oxidative stress and hyperpigmentation suggesting a contribution to photoaging (1-3). Only two UV-filters were found to partially block wavelength >380nm, hence additional means of protection are needed. We investigated blue light induced cutaneous damages and screened for compounds to suppress these damages.

Vitamins B3, B6 and E could prevent beta-carotene from blue light-dependent degradation in-vitro on PMMA plates. To investigate the potential of such compounds to suppress blue light induced damages in skin, we developed an ex-vivo model of blue light irradiation. Using fluencies of up to 100 Jcm⁻² we could show a dose-dependent increase of reactive oxygen species, and we established protein carbonylation as a novel marker of blue light induced skin damage. We found that distinct compounds like vitamin B3 as well as an extract of the freshwater microalga *Scenedesmus rubescens* could suppress blue light induced damage significantly (p<0.05) ex-vivo.

P4 - CYTOTOXICITY EVALUATION OF SULFATED ANTIOXIDANT COMPOUNDS IN A HUMAN KERATINOCYTE CELL LINE

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Palavras-chave: citotoxicidade, antioxidante

Chlorogenic acid and ascorbic acid are well recognized antioxidant compounds used in cosmetic products. In our group, we have experience working with polysulfated derivatives and one aim of our research is obtaining new topical antioxidants; for that, chlorogenic acid persulfate (CAP) and ascorbic acid persulfate (AAP) were synthesized. The antioxidant potential, copper ion-chelating ability and high water solubility of chlorogenic acid persulfate were previously established leading to the conclusion that the use in skin care products, namely as anti-pollution active could be favored (1). In this work, cytotoxicity of these new compounds was evaluated in human keratinocytes (HaCaT cell line) with MTT reduction assay. HaCaT cells (104 cells/well, 96 wells microplates) were incubated for 24 h in DMEM supplemented with 10% fetal bovine serum and containing CAP or AAP (100-5000 µM). Cells were washed with phosphate-buffered saline 1x and incubated for 2 h with MTT solution (0.5 mg/mL). Formazan crystals were solubilized by adding DMSO and absorbance was measured at 570 nm. The AAP compound promoted a slight decrease in cell viability (78.88±0.67) at the lowest concentration studied (100 µM). However this effect was not concentration-dependent and up to 1000 µM, cell viability was around 75%, and may result from other effects such as an antiproliferative activity. For CAP, a significant decrease in cell viability has been detected only from the concentration of 500 µM. in comparison with the negative control. For this compound, a concentration dependent decrease of cell viability was observed. These results support the interest of application of these derivatives for skin care formulations, in particular chlorogenic acid persulfate. (1) M Correia da Silva, H Cidade, E Sousa, M Pinto. Searching for Small Molecules with Antioxidant and Anticoagulant Properties to Fight Thrombosis, Journal of Pharmaceutical Sciences and Nanotechnology, 2014, 1(1), 43-50.