COSMETICS/COSMECEUTICALS

NPARR, 7(3), 2016-216 Physical and chemical characterization and method for the decontamination of clays for application in cosmetics

Clays are materials originated from rock decomposition, made up of clay minerals and non-clayish minerals. Their applicability in the field of cosmetics depends on their chemical and mineralogical composition. In view of their huge bioburden there is the need to submit them to effective decontamination before they are incorporated into cosmetics. The present work involved the characterization of four different samples of clays originated from the sand extraction residue of mining activities in the hinterland of Sao Paulo state, Brazil. Characterization was performed with the aid of tools like X-ray fluorescence (XRF), X-ray diffraction (XRD), thermogravimetric analysis (TGA/DTA), particle size distribution by laser dispersion, surface area (BET method) and Fourier transform infrared spectroscopy (FTIR). Besides, it aims to evaluate the bioburden of these clays, as well as to propose a method for the decontamination of these samples. The average particle diameter varied from 3.6 to 24.1 µm, kaolinite and illite being the main mineralogical phases to be identified. The proposed method for decontamination employed a combination of ethanol 70% and dry heat at 120 degrees C in an oven for 24 h. The decontamination was effective in reducing samples bioburden, leaving the clays within the limits required for cosmetics application [J. D. Favero, J. Parisotto-Peterle, V. Weiss-Angeli, R. N. Brändalise, L. B. Gomes, C. P. Bergmann, V. dos Santos* (UCS, Ctr Exact Sci & Technol CCET, R Francisco Getúlio Vargas 1130, BR-95070560 Caxias Do Sul, RS, Brazil) Applied Clay Science, 124, 252-259].

NPARR, 7(3), 2016-217 Mineral oil and synthetic hydrocarbons in cosmetic lip products

Lipsticks and lip care products may contain saturated hydrocarbons which either stem from mineral oil saturated hydrocarbons (MOSH) or are synthetic, that is polyolefin oligomeric saturated hydrocarbons (POSH). Some of these hydrocarbons are strongly accumulated and form granulomas in human tissues, which prompted Cosmetics Europe (former Colipa) to issue a recommendation for their use in lip care and oral products. From 2012 to 2014, MOSH+POSH were determined in 175 cosmetic lip products taken from the Swiss market in order to estimate their contribution to human exposure.

Mineral oil saturated hydrocarbons and POSH were extracted and analysed by GC with FID. Areas were integrated as a total as well as by mass ranges with cuts at n-C-25 and n-C-34 to characterize the molecular mass distribution.

About 68% of the products contained at least 5% MOSH+POSH (total concentration). For regular users, these products would be major contributors to their MOSH+POSH exposure. About 31% of the products contained more than 32% MOSH+POSH. Their regular usage would amount in an estimated MOSH+POSH exposure exceeding the highest estimated dietary exposure. The majority of the products contained hydrocarbons with a molecular mass range which was not in line with the recommendations of Cosmetics Europe.

Taking into account that material applied to the lips largely ends up being ingested, MOSH and POSH levels should be reduced in the majority of cosmetic lip products. As the extensive evaluation of the data available on MOSH (EFSA J., 10, 2012, 2704) did not enable the specification of limits considered as safe, the present level of dietary exposure and its evaluation as of potential concern provide the relevant bench mark, which means that lip products should contain clearly less than 5% MOSH+POSH [M. Niederer, T. Stebler, K. Grob* (Off Food Control Author Canton Zurich, CH-8032 Zurich, Switzerland) International Journal of Cosmetic Science, 2016, 38(2), 194-200].
Formaldehyde in cosmetics in patch tested dermatitis patients with and without contact allergy to formaldehyde

Formaldehyde is a well-known contact sensitizer. Formaldehyde releasers are widely used preservatives in cosmetics.

To survey the release of formaldehyde in cosmetics brought by patients investigated because of suspected allergic contact dermatitis, to compare it with information given by the manufacturers on the packages, and to investigate whether formaldehyde-allergic patients are potentially exposed to more cosmetics releasing formaldehyde than dermatitis patients without contact allergy to formaldehyde.

Cosmetics from 10 formaldehyde-allergic and 30 non-allergic patients (controls) matched for age and sex were investigated with the chromotropic acid spot test, which is a semiquantitative method measuring the release of formaldehyde.

Formaldehyde was found in 58 of 245 (23.7%) products. Twenty-six of 126 (20.6%) leave-on products released formaldehyde, and 17 of 26 (65.4%) of these were not declared to contain formaldehyde or formaldehyde releasers. Among the rinse-off products, there were 32 of 119 (26.8%) formaldehyde-releasing products, and nine of 32 (28.0%) of these were not labelled as containing formaldehyde or formaldehyde releasers. Five of 10 formaldehyde-allergic patients brought leave-on products with >= 40 ppm formaldehyde, as compared with 4 of 30 in the control group (p=0.029).

Cosmetic products used by formaldehyde-allergic patients that are not declared to contain formaldehyde or formaldehyde-releasing preservatives should be analysed [I. Hauksson*, A. Ponten, M. Isaksson, H. Hamada, M. Engfeldt, M. Bruze (Skane Univ Hosp, Dept Occupat & Environm Dermatal, Jan Waldenstroms Gata 16, SE-20502 Malmo, Sweden) Contact Dermatitis, 2016, 74(3), 145-151].

A Study of the Possible Harmful Effects of Cosmetic Beauty Products on Human Health

The origins of the usage of different substances in beauty, skin, body, hair, and nails care products can be found in ancient times. To achieve better quality and enhance their effects, some additives such as preservatives, stabilizers, mineral pigments, dye, and shine were added to these products. Some of these substances may also have allergic, irritating, and harmful effects on human health. The aim of this study was the optimization of the potentiometric stripping analysis (PSA) for the purpose of determining the content of heavy metals (lead, cadmium, zinc), in some commercial cosmetic beauty products (lipsticks, lip glosses, eye shadows, and henna hair dye). In addition, in order to monitor the potential adverse effects of henna dye on hair quality, as well as the total body burden of heavy metals (Pb, Cd), the paper analyzed hair samples before and after henna dye treatment. Beauty products used for cosmetic purposes can have adverse effects to human health due to the fact that they contain lead, a highly toxic metal. The lead content in the tested samples varied depending on the additives used along with the method of production. The cosmetic products that were analyzed in this study contained a certain amount of zinc, which is an essential element, although its content above the prescribed limit may lead to side effects. Highly toxic metal, cadmium, was not detected in the tested samples. The presence of these metals in cosmetic products certainly indicate that it is necessary to monitor and determine the content of toxic heavy metals in these products, especially because they are in direct contact with skin or mucous membranes and are often used in daily life [B. Kalicanin*, D. Velimirovic (Univ Nis, Fac Med, Dept Pharm, 81 Dr Zoran Dindic Blvd, Nish 18000, Serbia) Biological Trace Element Research, 2016, 170(2), 476-484].

Brief analysis of causes of sensitive skin and advances in evaluation of anti-allergic activity of cosmetic products

This review focuses on the causes of sensitive skin and elaborates on the relationship between skin sensitivity and skin irritations and
allergies, which has puzzled cosmetologists. Here, an overview is presented of the research on active ingredients in cosmetic products for sensitive skin (anti-sensitive ingredients), which is followed by a discussion of their experimental efficacy. Moreover, several evaluation methods for the efficacy of anti-sensitive ingredients are classified and summarized. Through this review, we aim to provide the cosmetic industry with a better understanding of sensitive skin, which could in turn provide some theoretical guidance to the research on targeted cosmetic products [L. Fan, C. He, L. Jiang, Y. Bi, Y. Dong, Y. Jia* (Beijing Technol & Business Univ, Sch Sci, Beijing Key Lab Plant Resources Res & Dev, Beijing 100048, Peoples R China) International Journal of Cosmetic Science, 2016, 38(2), 120-127].