The safety of using nanotechnology in cosmeceuticals and their availability in the albanian market

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Abstract

Nanoparticles are nowadays used from all major cosmetic industries leading to the development of so-called nanocosmetic products. The different types of nanoparticles employed in cosmetics include liposomes, niosomes, SLNs, fullerenes, TiO₂, ZnO etc. Due to their novel properties mainly derived from the reduction of particle size up to the nano size, nanocosmetic products have brought novelties in antiage treatment and prevention of age signs. Many scientists consider these products as cosmeceuticals. Recently, a number of concerns have been raised regarding the safety of these products. Researchers believe that nanoparticles may enhance penetration through the skin layers and may gain access to the blood stream and from there they can be transported to the various organs. Other concerns are the exposure of workers and the release of such particles in the environment. The purpose of this work is to review the scientific literature which sustains the efficacy and safety of nanocosmetic products and to conduct descriptive survey in the city of Tirana in order to assess the presence and knowledge level on nanocosmetic products in this district. 100 pharmacists participated in this survey during a period of 3 months. Participants were asked about their knowledge about the subject and asked their opinion regarding the presence of nanocosmetics in Albanian pharmacies.

Key words: nanoparticles, cosmeceuticals, nanocosmetics, anti age treatment, study. **References**

[1] J. Lademann, H.-J.Weigmann, C. Rickmeyer et al., "Penetration of titanium dioxide microparticles in a sunscreen formulation into the horny layer and the follicular orifice," Skin Pharmacology and Applied Skin Physiology, vol. 12,no. 5, pp. 247–256, 1999. 46

[2] P. Filipe, J. N. Silva, R. Silva et al., "Stratum corneum is an effective barrier to TiO2 and ZnO nanoparticle percutaneous absorption," Skin Pharmacology and Physiology, vol. 22, no. 5, pp. 266–275, 2009.

[3] J. T. Simonnet, O. Sonneville, and S. Legret, "Nanoemulsion based on phosphoric acid fatty acid esters and its uses in the cosmetics, dermatological, pharmaceutical, and/or ophthalmological fields," U.S. Patent 6274150 B1, August 2001.
[3] E. B. Souto and R. H. Muller, "Cosmetic features and applications of lipid nanoparticles (SLN, NLC)," International Journal of Cosmetic Science, vol. 30, no. 3, pp. 157–165, 2008.

[4]. Nel A, Xia T, Mädler L, Li N. Toxic potential of materials at the nanolevel. Science.2006; 311: 622-627.