



**EuChemS**  
European Chemical Sciences  
Division of Food Chemistry



# *EuroFoodChem XIX Conference*

*October 4-6, 2017  
Budapest, Hungary*



*Program & Book of Abstracts*

**EuroFoodChem XIX Conference**

**4-6 October 2017**

**Budapest, Hungary**

**Program & Book of Abstracts**

**Published by Hungarian Chemical Society**

**Cover page:**

**Work of Art by András Koncz**

**Parliament 2012**

**Graphics 70 X 50 cm**

**ISBN 978-963-9970-79-3**

## FOOD PRODUCTS IN TWO COSMETIC FORMULATIONS: DETERMINATION OF THE STABILITY AND TOXICITY

Joana Frazão<sup>1</sup>, Maria João Sousa<sup>1</sup>, Vitor Manuel R. Martins<sup>1,2</sup>

<sup>1</sup>Centro de Investigação de Montanha (CIMO), Campus de Santa Apolónia,  
5301-855 Bragança, Portugal

<sup>2</sup>QOPNA, Universidade de Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal  
joaos@ipb.pt

The cosmetic market is extending to millions of consumers worldwide and its industry is worth tens of billions of US\$<sup>[1]</sup>. The competitive environment and the demands made by the consumers pushed the manufactures to develop new types of cosmetic products and to use new ingredients, such as bee products, to produce formulations with higher quality and efficacy.

The aim of this work was to develop two cosmetic formulations for topical application that combine bee products and essential oils from medicinal plants, as well it was to extract and analyse the essential oils of an edible wild mushrooms *Clitocybe odora* (Bull.) P. Kumm, grown *in vitro*, to understand the potential of it, as a source of bioactive compounds usable in cosmetics. The effect of two different bee products (hydroalcoholic extract of propolis and two honeys of *Lavandula* spp. with different geographic provenance) and essential oils from two different species (*Thymus Zygis* L. subsp. *Zygis* and *Mentha pulegium* L.) was tested. For that purpose, several preparations were elaborated to witch one essential oil and a bee product were added.

For each type of formulation, one preparation with essential oils but without a bee product was also prepared. In relation to the bee products, the *Lavandula* spp. honey was used in the proportion of 1:50 (v/m) and 1:20 (v/m); the hydroalcoholic extract of propolis, using ethanol, was add in a concentration of 5% (m/v). The concentration of essential oil used was  $7.86 \times 10^{-4}$  g/g (e.o./ emulsion). Additionally was also tested the toxicity of the two essential oils and the *Clitocybe odora* volatiles, through the LD<sub>50</sub> determination, using *Artemia Salina* L..

To determine the effect of the bee products in the formulations stabilization were made physicochemical tests and stabilization tests. Was not verified alterations in the relative density of the samples, in the pH or in a vibration test made placing the samples 10 seconds in the vortex. When the samples were place during 15 days in a daylight lamp, was observed, by comparing with samples just with essential oil in the same conditions, that all the samples with propolis extract changed the colour and the odour. The effect of the bee products in the viscosity of the formulations was also tested. When using a lower spindle rotation velocity, the use of the honey from the North of Portugal and of the propolis extract increased the viscosity of the emulsions. Both the two essential oils tested as the *in vitro* *Clitocybe odora* volatiles show to have a LD<sub>50</sub><0,1 mg/ml.

[1] Taofiq, O.; González-Paramás, A. M.; Martins, A.; Barreiro, M. F.; Ferreira, I. C. F. R. *Ind. Crops Prod.* 2016, 90, 38–48.

