

Analytical characterization of plant materials used in cosmetics

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Abstract. The objective of the study was to report original results concerning trace metals (Cd, Cu, Pb and Zn) concentrations and total phenolic content (TPC) in plant material from Constanta district, Romania: poplar (*Populus nigra L*) leaf-buds, sea buckthorn (*Hippophae sp.*) male buds, snowdrop (*Galanthus sp.*) flowers and violet (*Viola sp.*) flowers, some of them reported for the first time as cosmetic raw materials to our knowledge. Trace metals have been analyzed by flame atomic absorption spectrometry (FAAS) after the appropriate sample dissolution and TPC determination was performed in alcoholic plant extracts using modified Folin Ciocalteu method. The determined metals concentrations by FAAS ranged from 0.44-1.98 (cadmium), 5.84-22.79 (copper), 2.73-9.43 (lead) and 33.13-124.65 (zinc) mg/kg dry weight. The highest antioxidant capacity measured by Folin Ciocalteu modified method as TPC from the studied plant extracts belongs to poplar leaf buds, followed by violet, sea buckthorn male buds and snowdrop flowers. All the studied plant materials have high concentration of phenolic compounds that contribute to antioxidant properties explaining their use for cosmetic purposes.

Keywords: cosmetics, plant materials, total phenolic content, Folin Ciocalteu, trace metals, FAAS
