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Abstract

Phenolics and Flavonoid Content in Selected Seeds from the Serbian Market †

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Abstract: Objectives: Edible seeds are usually consumed as common food ingredients. They are considered to have a rich nutrient profile, containing different macro and micronutrients, as well as some biologically active compounds with positive health effects, such as different phenolics. The aim of this work was to determine total phenolics (TPC) and total flavonoid content (TFC) in selected commercial seeds samples from the Serbian market. Methods: Samples of nine seeds were investigated (sesame and black sesame, raw and roasted sunflower, raw and roasted pumpkin, hemp, chia and linseed). The samples of native seeds and those defatted using dichloromethane (maceration and Soxhlet extraction) were extracted with 80% methanol. Obtained hydro-methanol extracts were dried and further analysed using spectrophotometric methods: TPC was determined using Folin–Ciocalteu (FC) reagent and expressed as gallic acid equivalents (GAE), while TFC was measured based on the reaction between flavonoids and aluminium chloride and expressed as catechin equivalents (KE). Results: In general, hydro-methanol extracts of seed samples defatted using Soxhlet extraction had the highest TPC and TFC contents. TPC values ranged from 9.47 g GAE/mg (raw pumpkin seed) to over 170 g GAE/mg (raw sunflower seeds). As for TFC, the highest amount was measured in extracts of defatted raw sunflower seeds (over 150 g KE/mg), while roasted pumpkin and hemp seeds' extracts were practically devoid of flavonoids. Conclusion: Our results confirmed the fact that certain defatted seeds, which are usually considered as waste products in oil production, could be considered as valuable sources of certain secondary plant metabolites, implicating further investigations on their composition and potential in the development of functional foods.

Keywords: seeds; phenolics; flavonoids

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