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Antibacterial activity of aqueous solutions of essential oils as an indicator for their content

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According to market forecasts, annual consumption of essential oils on the world market is growing steadily, reaching 403 thousand tonnes in 2025. The steam distillation of the plant materials to produce essential oils generates vast amounts of aqueous fractions as by-products. Certain amounts of essential oils remain dissolved in these fractions, predetermining their biological activity. If discarded into the environment they have a negative impact on the ecological balance. At the same time, these aqueous fractions are an attractive source of high value-added substances if subjected to valorization. A preliminary appraisal of their quality is required prior to both disposal and valorization. In the present work, antibacterial activity is suggested as an indicator of the content of essential oils in the analyzed products, as far as they are known for their bactericidal potential. To prove the concept, antibacterial activity of pure essential oils dissolved in water in different concentrations was determined using Gram-negative *Escherichia coli* K12 and Gram-positive *Bacillus subtilis* 356 bacterial strains. The minimum inhibitory concentrations of essential oils and antibacterial activity using the agar-diffusion method were determined.

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Characterization of Romanian honeys according to their physicochemical parameters and FTIR spectroscopy

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email address: giorgiana.blaga@ugal.ro. The aim of this study was to characterize monofloral and multifloral honey samples through various physicochemical

parameters. For this purpose, eighteen honey samples were collected directly from beekeepers in 2015 from different Romanian regions and with different botanical origins. Microscopic analysis of the pollen in the honey was used to determine its botanical origin. Physicochemical analysis included the determination of pH, electrical conductivity, moisture, ash and colour parameters: L^* , a^* , b^* . The FTIR-ATR analysis of the honey samples allowed the identification of several bands characteristic to different organic compounds functional groups present in these samples. The obtained results showed considerable differences in the physicochemical parameters, between honeydew and blossom honeys. Concerning the physicochemical parameters, all the samples met the EU Council Directive 2001/110 for all the parameters.

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Genetic polymorphism of glutenin subunits with high-molecular weight in grain *Triticum aestivum* L., *Triticum spelta* L. and *Triticum durum* DESF

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email address: zdenka.galova@uniag.sk. The collection of 45 genotypes of bread wheat (*Triticum aestivum* L.), 33 genotypes of spelt wheat (*Triticum spelta* L.) and 18 genotypes of durum wheat (*Triticum durum* DESF.) were analyzed by SDS-PAGE. Variability of electrophoretic spectra of storage proteins was monitored and based on this a dendrogram of relationships was prepared. Bread wheat genotypes were found to be homogenous and nine electrophoretic profiles were detected. Bread wheat genotype with component composition of HMW-GS 0, 7+9, 5+10 was the most frequent (78%) of all genotypes. The genotypes Magvas, SK 76, Favorit and Astela revealed the highest Glu-score value (9). Secalin block – Gld 1B3, a marker for resistance against wheat rust and also a marker for worse technological quality was observed in gliadin spectra of 12 classified bread wheat genotypes. Genotypes of spelt wheat were characterized as a multiline and 43 different