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HMF screening in honey

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Honey is characterized by a tendency to crystallize spontaneously at room temperature. The way to avoid crystallization during honey storage and handling is to apply thermal processing, but it can be followed by number of undesirable reactions, among which browning and color changes as well as the development of some food contaminants, e.g. formation of *Hydroxymethylfurfural* (HMF) occur. The generation of HMF also happens under inadequate handling and storage conditions of honey. For these reasons, the attention has been focused on the continuous screening of HMF in honey samples from the region of the Autonomous Province of Vojvodina (Serbia) and Eastern Slavonia (Croatia). Forty-five honey samples of three honey types (acacia, sunflower and meadow) harvested in 2016 from Vojvodina and 45 samples of four honey types (acacia, sunflower, meadow and forest) harvested in 2017 from Vojvodina and Slavonia were analyzed for HMF. The separation and quantification of HMF were performed using HPLC-DAD system. The maximum level for HMF (40.00 mg/kg) in honey originated from non-tropical regions was defined by Codex Alimentarius Commission. All honey samples harvested in 2016 fulfilled this requirement (HMF in the range of 0.44-8.20 mg/kg) except one sample (69.5 mg/kg) meaning that 2% of all samples were not in accordance with EU regulative. Contrary to 2016, in 2017 acacia honey possessed HMF ranging from 2.14-31.8 mg/kg, while this parameter was in the range of 0.25-84.8, 6.95-150 mg/kg and 0.89-47.8 mg/kg for meadow, forest and sunflower honey samples, respectively, meaning that 33%, 17% and 40% of examined honey types had elevated HMF content. From the obtained results it can be concluded that there were a significant number of honey samples in 2017 that had the HMF values above the maximum allowed, pointing out to inadequate storage or processing conditions of honey.

Biography

Marijana Sakac was graduated from University of Novi Sad, Novi Sad, Serbia in 1984. She defended MSc and PhD at the Faculty of Technology, University of Novi Sad, Serbia in 1992 and 2000 in the scientific field of Food Science. She was employed at the Faculty of Technology, University of Novi Sad, Novi Sad until 2007, since then she has been employed at the Institute of Food Technology, Novi Sad, Serbia. Her research interests are functional food, lipid oxidation, antioxidants, and polyphenols. Until now she published five chapters, five monographies published at the national level, 165 research papers and 245 research works presented at conferences.

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