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EMULSION STABILIZING CAPACITY OF THE SUNFLOWER MEAL PROTEINS

***Nemanja Bojanić*[1], *Strahinja Vidosavljević*[2], *Jelena Šurlan*[1], *Danka Dragojlović*[2], *Emilija Fodor*[1], *Aleksandar Fišteš*[1], *Nikola Maravić*[1]**

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Sunflower meal represents a by-product massively obtained after the extraction of oil from sunflower seeds. With its relatively low price, high protein content, and optimal amino acid composition it can be potentially suitable as an emulsifying agent. Thus, the aim of this study was to investigate the influence of the addition of the sunflower meal on the stability of oil-in-water emulsions. Five sunflower meal fractions, each with different protein content (16.78, 23.23, 29.67, 36.12, and 42.56%) were obtained and used in stabilization of 10% oil/water emulsions. The obtained emulsions were analyzed, where responsive variables were: creaming index, droplet size and droplet size distribution, and zeta potential. Creaming of investigated emulsions was monitored visually for seven days and the creaming index was calculated. Droplet size and droplet size distribution were measured using the laser light scattering method, while zeta potential was measured by using Zetasizer Nano ZS. Results indicated higher physical stability of the emulsions stabilized using the sunflower meal fractions with higher protein content. The creaming index decreased with an increase in protein content whereas emulsion with a protein content of 42.56%, after seven days, had the lowest creaming index of 58%. The obtained emulsion droplet D4.3 diameter ranged from 238.61 μm (sunflower meal fraction with lowest protein content) to 86.78 μm (sunflower meal fraction with highest protein content), while higher protein content contributed to the lower zeta potential values of observed emulsions. Zeta potential of emulsion obtained from sunflower meal fraction with a protein content of 16.78% was -6,80 mV, while zeta potential of emulsion obtained from sunflower meal fraction with a protein content of 42.56% was -12,20 mV.

Keywords: Sunflower meal, Protein content, Emulsion stability

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