

F.38. BIOACTIVE SUBSTANCES IMPACT PROFILE OF HEMP SEEDS (*CANNABIS SATIVA L.*) ON HUMMUS FUNCTIONAL PROPERTIES

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Abstract. Functional foods have gained popularity within health and wellness circles. The development of these products is quite complex, expensive, and risky because they must meet high and clear requirements especially for some special categories of consumers. The solution to the problem lies in the area of creating new functional products using bioactive compounds extracted from local plant materials. The technology of functional hummus has been developed using refined hemp (*Cannabis sativa L.*) seeds of local origin. The Republic of Moldova is a favorable country for growing hemp. Consequently, the development of technologies for obtaining functional products based on hemp seeds could become a key direction for the development of the national economy. The high nutritional value and potential functionality of this local raw material were proved by the presence of a significant amount of polyphenols ($295 \pm 7 \mu\text{g}\cdot\text{ml}^{-1}$) and tannins ($4.25 \pm 0.54\%$) in it. UV/VIS spectra analysis showed that the seeds contain various groups of flavones and flavonoids, the antioxidant activity being more than 88%. *Cannabis sativa L.* seeds stand out from other species in the low content of sugar ($5.71 \pm 0.01\%$), high protein potential ($25.33 \pm 0.13\%$), and a good mineral composition: $438 \text{ mg}\cdot 100 \text{ g}^{-1}$ magnesium, $918 \text{ mg}\cdot 100 \text{ g}^{-1}$ potassium, $949 \text{ mg}\cdot 100 \text{ g}^{-1}$ phosphorus, and $7.82 \text{ mg}\cdot 100 \text{ g}^{-1}$ manganese. As a consequence, the technology of obtaining hummus based on hemp seeds determines its high functional potential. Hummus experimental samples demonstrated the increase of more than 2 times of protein content, comparing with control samples (classical recipe), from 6 to 13%, respectively. The dry matter content raised to 27%, the sugar level remained practically unchanged. The tannins amount increased almost 40 times and the total polyphenols content by 30%. Particular attention should be paid to the vitamin and mineral potential of hemp seed hummus, which content of vitamins B2 and B6 increased 1.5 times, nicotinic acid - 3 times, potassium - 70, phosphorus - by 175%, magnesium - by almost 215%, copper - 1.5 times, zinc - 2 times, manganese – 2.5 times. It is also should be noted the remarkable amount of essential fatty acids that raised 2 and 19 times for ω -6 and ω -3, respectively. Appearance, color, taste, and flavor parameters of functional hummus received the highest points in comparison with control samples within the organoleptic examination.

Keywords: Functional food products, hemp, *Cannabis sativa L.*, antioxidant activity, polyphenols, tannins, high protein content.