

Corn Flakes Produced from Different Cultivars of Zea Mays as a Functional Product

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Abstract : Extrusion technology is thermal processing that is applied to improve the nutritional, hygienic, and physical-chemical characteristics of the raw material. Overall, the extrusion process is an efficient method for the production of a wide range of food products. It combines heat, pressure, and shear to transform raw materials into finished goods with desired textures, shapes, and nutritional profiles. The extruded products' quality is remarkably dependent upon feed material composition, barrel temperature profile, feed moisture content, screw speed, and other extrusion system parameters. Given consumer expectations for snack foods, a high expansion index and low bulk density, in addition to crunchy texture and uniform microstructure, are desired. This paper investigates the effects of simultaneous different types of corn (white corn, yellow corn, red corn, and black corn) addition and different screw speed (350, 500, 650 rpm) on the physical, technological, and functional properties of flakes products. Black corn flour and screw speed at 350 rpm positively influenced physical, technological characteristics, mineral composition, and antioxidant properties of flake products with the best total score analysis of 0,59. Overall, the combination of Tukey's HSD test and PCA enables a comprehensive analysis of the observed corn products, allowing researchers to identify them. This research aims to analyze the influence of different types of corn flour (white corn, yellow corn, red corn, and black corn) on the nutritive and sensory properties of the product (quality, texture, and color), as well as the acceptance of the new product by consumers on the territory of Novi Sad. The presented data point that investigated corn flakes from black corn flour at 350 rpm is a product with good physical-technological and functional properties due to a higher level of antioxidant activity.

Keywords : corn types, flakes product, nutritive quality, acceptability

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