



Title: Comparison of Selected Properties of Extruded Gluten-free Crisps with the Addition of Freeze-Dried Quince, Cherry and Cranberry Fruits.

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Abstract:

The aim of this work was to investigate the extrusion-cooking process as well as the effect of extrusion-cooking parameters on selected properties of gluten-free crisps with the addition of freeze-dried quince, cherry and cranberry fruits. The crisps were made using corn grits and rice grits in an 80:20 ratio. Freeze-dried quince, cherry, or cranberry fruit was added to the base mixture in amounts of 5, 10, and 15%. The extrusion process was carried out at a mixture moisture content of 12.5%. Extrusion-cooking process was performed using the Polish prototype single screw extruder Zamak Mercator. A die diameter was 3 mm. Variable screw speed within 80-120 rpm range was used during the process.

Research has shown that the addition of fruit reduced the efficiency of the extrusion process. Increasing the speed of the extruder screw resulted in an increase in the expansion ratio coefficient and a decrease in the bulk density of the obtained crisps with the addition of fruit. Increasing fruit addition had a negative impact on crisps the expansion. Crisps with 15% of cherry and quince fruit added were characterized by the lowest expansion ratio. The fruits addition changed the colour of the obtained crisps. The crisps with more freeze-dried fruit added were darker, more red and less yellow than crisps without fruit. A freeze-dried fruit application had a varied effect on crisp texture. The addition of quince and cherries initially reduced the hardness and crispness of the snacks. Increasing the amount of these fruit increased

the hardness and crispness of the resulting snacks. The increasing amount of cranberry fruit added caused an initial increase in the hardness and crispiness of the snacks and then a decrease in the value of both these parameters.

The increasing amount of freeze-dried fruit resulted in a decrease in the water absorption and solubility of the resulting crisps.

It can be stated that the addition of freeze-dried fruit in an amount of up to 10% makes it possible to obtain extruded gluten-free crisps with good and acceptable colour and texture properties.

Biography

Marcin Mitrus is an Assistant Professor of technical sciences at the University of Life Sciences in Lublin. His scientific activity last years is focused on technological and nutritional aspects of functional foods, especially starch and starchy products. He is an author and co-author of 110 scientific papers and 60 conference proceedings.