

Functional Features of Breadcrumbs with the participation of Lupine Preparation

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INTRODUCTION

Breading is the process of coating products in layers of breading mix composed usually of flour, bread crumbs, egg white and spices. The process of breading is applied in order to: give the desired golden-brown color and crispiness to the products, seal in moisture and meat aroma, reduce the amount of absorbed fat, provide better resistance to mechanical stress, prolong product durability, protect proteins from direct heat. In order to improve its health quality, breading was enriched with the preparations of lupine (flour or protein isolate). Pulses have health promoting properties due to the presence of functional components. Proteins present in the lupine have a hypocholesterolemic and antioxidant activity. Another very important functional component are essential fatty acids EFAs (they account for about 80% of the total lipid fraction, of which 60% is oleic and linolenic acid). In addition to aforementioned lupine seeds components, also phenolic compounds are present which exhibit anticarcinogenic, anti-inflammatory and anti-allergenic activity[1, 2].

EXPERIMENTAL METHODS

Due to the high ability of breading to absorb excessive amounts of fat, a modification of the recipe was introduced towards obtaining the product of functional features and, at the same time, with reduced ability to absorb fat and with the relevant textural characteristics, i.e. crispy. In order to obtain a product of the assumed properties, the preparation of flour and lupine protein in various concentrations was used. The resulting breadings were analyzed in terms of the fat fraction polymorphism by DSC method and the fatty acid composition by GC/MS chromatography. Moreover, crispiness of the breading and the amount of absorbed fat were also measured.

RESULTS AND DISCUSSION

The results of analysis of fatty acid composition as well as the thermodynamic changes of the lipid fraction polymorphism indicate that the addition of protein and lupine flour to breadings increases the nutritional value of these products. The breadings then contain a larger share of the unsaturated lipid fraction (especially oleic and linoleic acids) and less harmful trans fatty acids in comparison to the not enriched product. At the same time, it is possible to obtain products with a suitable organoleptic properties, i.e. more crispy and absorbing less fat.

CONCLUSIONS

The enrichment of breadings with lupine preparations (flour or lupine protein) allows for obtaining a product with functional properties (due to the change in the nature of the lipid fraction), while meeting the consumer's expectations regarding organoleptic properties, i.e. crispiness and less content of fat.

REFERENCES

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2. Lampart-Szczapa E. et al., *Przemysł Spożywczy* 11:29-31, 2011.