Use of Rice and Soy Flour in Obtaining Assortment „Pogăcele with Cracklings”

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Abstract. „Pogăcele with cracklings” are a traditional Transylvanian product, highly valued by consumers. They are usually served as appetizers or snacks. The purpose of this study was to optimize the classical recipe of „Pogăcele with cracklings” by gluten-free flours and wheat grass addition to a contribution of bioactive compounds. Two experimental (V2 and V3) variants were obtained by substituting wheat flour with either 30% of soy or rice flour. The addition of soy and rice flour in the traditional product improved its sensory and nutritional qualities. The results showed that the V3 achieved the highest degree of acceptability. Also, comparative with V1 this variant recorded a decrease of fat content and an increase of protein and ash.

Keywords: rice flour, soy flour, cracklings

Introduction. „Pogăcele with cracklings” are a traditional Transylvanian product, highly valued by consumers, they are usually served as appetizers or snacks. Due to the high content of lipids and proteins from the raw material (cracklings) their caloric intake is high, about 620 calories/100 g product. The consumers demand has increased for the quality food products with taste, safety, convenience and nutrition. Considering current trends and concerns of consumers for a healthy lifestyle, it requires optimization of new recipes for this type of product. Rice flour is commonly used in gluten-free baked products due to its low levels of sodium, protein, fat and a high amount of easily digested carbohydrates (Selen et al., 2015) but and due to soft taste, colorless appearance, hypoallergenic properties, low levels of sodium and easy digestible carbohydrates (Paucean et al., 2015). Soybean contain complex carbohydrates, vegetable protein, dietary fiber, oligosaccharides, phytochemicals (especially the isoflavones), and minerals. Soy protein is now recognized as a “complete” protein, with a protein digestibility-corrected amino acid score of 1, equivalent to the gold standard, egg albumin (Anderson et al., 1999). Wheat grass can be freshly juiced or dried into powder and used for animal and human consumption, containing important nutrients and vitamins (Mujoriya and Bodla, 2011). The addition of wheat grass intended to replace the cumin (Carum carvi) that is used in traditional recipe and for its bioactive compounds.

Aims and objectives. The purpose of this study was to optimize the classical recipe of „Pogăcele with cracklings” by using rice, soy flour and wheat grass in order to enrich the product on bioactive compounds.

Materials and Methods. There were obtained three experimental samples of „pogăcele with cracklings”: Variant 1 (blank sample-V1) which was used wheat flour in 100%, 30% cracklings; Variant 2 (V2) consists of: 30% soy meal, 70% wheat flour, 10% cracklings; Variant 3 (V3) composed of 30 % rice flour, 70% wheat flour, 10% cracklings. To the three manufacturing recipes other ingredients were added, such as:
wheat grass, sour cream, butter, yeast and spices. Experimental variants were analyzed in terms of physicochemical (fat, protein, dry matter, acidity and ash) according to current standards (AOAC, 2000; Tofană and Mureșan, 2012). For the sensory analysis the traditional 9-point hedonic test was used, to assess the average degree of liking or disliking of products.

Results and Discussion. The content in dry matter, acidity, ash, fat and protein of the analysed samples is presented in table 1. Two experimental variants obtained by substituting wheat flour with 30% of soy and rice flour were obtained. Physicochemical analyses of products were determined, as dry matter (84-92.60 %), acidity (1.05-1.10 %), ash (1.56-2.93 %), fat (26.73-31.58 %) and protein (9.60-19.40 %). Comparative with blank sample (V1) the others two samples have recorded a decrease of fat content and an increase of protein.

Conclusion. The addition of soy and rice flour in the traditional product improved its sensory and nutritional qualities. The results showed that the V3 achieved the highest degree of acceptability. Also, comparative with V1 this variant recorded a decrease of fat content and an increase of protein and ash.

References


Tab. 1. The content of dry matter, acidity, ash, fat and protein of samples

<table>
<thead>
<tr>
<th>Parameter</th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
</tr>
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<tbody>
<tr>
<td>Dry matter %</td>
<td>89.45</td>
<td>84</td>
<td>92.60</td>
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<tr>
<td>Acidity %</td>
<td>1.05</td>
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<td>1.06</td>
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<tr>
<td>Ash %</td>
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<tr>
<td>Fat %</td>
<td>31.58</td>
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<td>28.92</td>
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<tr>
<td>Protein %</td>
<td>9.60</td>
<td>19.40</td>
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</tbody>
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