

IMPACT OF DIFFERENT FLOURS ON THE TECHNOLOGICAL AND SENSORY QUALITY OF GLUTEN-FREE SPONGE CAKE

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Abstract

Gluten-related disorders affect about 5–10% of the global population, while gluten-free products remain limited in the Republic of Moldova. Gluten-free flours differ widely in starch, protein, fiber, and lipid content, which influences their baking performance. This study analyzes the effect of different gluten-free flours on sponge cake quality. Physicochemical parameters (porosity, baking weight loss, color) and sensory acceptability were evaluated. Results showed higher porosity with increased starch and reduced protein, corn starch reaching the highest value (90.7%). High fiber content (buckwheat flour) led to lower baking weight loss (19.2%) compared to corn starch (25.7%). Sensory analysis using a hedonic scale gave the highest acceptability to the rice flour sample. Color parameters were similar between rice flour and wheat flour samples. The results confirm that wheat flour can be replaced in sponge cakes with suitable gluten-free alternatives, depending on their composition.

Key words: *gluten-free, sponge cake, flour composition, porosity, sensory acceptability*