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## Evaluation of hardness and color of model cakes prepared from buckwheat flours fermented by selected lactic acid bacteria

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**Background:** Fermentation of buckwheat flour by selected species of lactic acid bacteria could lead to some physico-chemical and functional changes in obtained products.

Aim: The aim of this study was evaluation of hardness and color of model cakes prepared from buckwheat flours fermented by selected lactic acid bacteria.

**Materials & Methods:** The material used in this study was freeze-dried buckwheat flour (*Fagopyrum esculentum* Moench) fermented by six selected lactic acid bacteria: *L. acidophilus* (145, La5, V); L. casei (LcY); L. plantarum (W42, IB). Fermentation of 5% buckwheat flour suspension was carried out at 37°C for 24 hours. Baking process was carried out at 220°C for 30 min acc. procedure by Hidalgo and Brandolini (Food Chem, 18, 2011). The texture of model buckwheat cake was determined by a biscuite penetration, using a TA.HDplus Texture Analyser. The instrumental measurement of the cake colour was carried out with a ColorFlex (HunterLab, USA).

**Results:** The hardness of freshly prepared cakes was not significantly dependent on used lactic acid bacteria. But after 24 h of storage the highest value of hardness was found for cake obtained from buckwheat flour fermented by *L. acidophilus* V, and the lowest for *L. acidophilus* La5 and *L. casei* LcY. Generally, the cake obtained from fermented flour is lighter compared to the control sample. Only for the cake prepared from buckwheat flour fermented by *L. plantarum* IB lower values of L\* and  $\Delta E$  were noticed.

**Conclusion:** The obtained results indicate the possibility of selection of lactic acid bacteria for fermentation of buckwheat flour focusing on functional properties of obtained model cakes.

## Biography

Malgorzata Wronkowska focused on rheological and technological properties of different types of dough and bread, buckwheat flour as a component of glutenfree bread or fermented products. She has managed two projects and co-operated in different projects connected with different types of starch fractions and their biological activity, furthermore with technological and nutritional properties of different type of bread products. In this area, she received 12 research fellowships and training courses abroad at relevant scientific institutes. She is the author and co-author of 60 scientific publications.

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