

INFLUENCE OF MIXING PROCEDURE OF WHEAT DOUGH WITH ADDED OXIDATIVE IMPROVERS ON THE TEXTURE AND COLOR OF WHEAT BREAD

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Abstract

The importance of oxidative improvers and dough mixing, knowledge of their interdependence on achieving the optimal quality of wheat bread properties is still actual problem. In this experiment influence of the mixing procedure on the wheat bread quality with added oxidative improvers is determined.

Dough is prepared from wheat flour obtained with addition of oxidative improvers at fast and intensive mixing. Oxidative improvers added to wheat flour are: commercial pure L-ascorbic acid (0.005; 0.008, and 0.011%), hydrogen peroxide (0.001; 0.002 and 0.003%) and glucose oxidase (0.002; 0.004 and 0.006%).

In order to clearly establish relations between added oxidative improver and mixing procedure, texture and color measurement is performed. Hardness of bread crumb is measured by means of Texture Profile Analysis - TPA. Color is measured by CIELAB color system and specific volume of bread is determined by millet seed displacement.

It was found that all added oxidative improvers influence in a different way texture and colour of wheat bread crumb, respectively the finished products obtained from them. Samples with added glucose oxidase exhibit lower parameter of hardness as compared with the other two oxidative improvers. Glucose oxidase cause greatest changes in crumb colour as well as negative effect on specific volume of samples, similar to hydrogen peroxide, observed accordingly to fast mixing procedure. Intensive mixing procedure produce positive effect on specific volume and causes lower parameter of hardness, compared to fast mixing when samples of same oxidative improvers are compared.

Thus depending on the type of oxidative improver and added quantity of oxidative improver, the quality of produced wheat bread is different. On the basis of the results obtained, glucose oxidase used with L-ascorbic acid should provide the optimal improvement of investigated parameters when their ratio is adjusted to the mixing procedure used.

Key words: Color, Mixing, Oxidative improver, Texture, Wheat.