

TECHNOLOGY OF SHELF LIFE BREAD EXTENDING

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The problem of bread staling is of great social and economic importance. Using of food additives and non-traditional raw materials is an effective way to prolong shelf life of bread and to increase its nutritional value. The influence of rye-malt extract and enzyme preparation Novamyl on biochemical and microbiological processes in dough, its structural-mechanical characteristics, influence of additives on bread staling has been analyzed.

The estimation of physical and chemical properties of crumb on the degree of its compression on automated penetrometer of AP 4/1 just after baking and during 11 days of bread storage has been conducted. Research of moisture connection forms in bread-crumbs and change of their correlation in the process of storage was conducted by the method of differential-thermal analysis on the device «Derivatograf Q-1000» in the range of $t = 0 \dots 250^\circ\text{C}$. Samples of 1 g mass were heated at a speed of $1,25^\circ\text{C}\cdot\text{min}^{-1}$. The change of moisture connection forms in bread in 3, 72, 109 hours and 12 days was studied.

The content of CPLD water in bread with extract and enzyme preparation Novamyl is more than in control samples. It can be explained that bread with additives has plenty of dextrans which were partly brought in with rye-malt extract, and partly appeared in the starch hydrolysis process under the enzyme preparation Novamyl.

Adding rye malt extract and enzyme preparation Novamyl to the dough results in formation of more plastic crumb. This pattern is true for bread storage.

The amount of CPLD water in bread with RSE goes down in less degree than in bread without additives due to water holding ability of dextrans, that allows to prolong rye-wheat bread shelf-life.

The usage of rye-malt extract and enzyme preparation Novamyl in dough increases total contents of dextrans in bread so prolong bread shelf-life.

Making of rye – wheat bread with addition of 5% rye – malt extract and 0,04% of enzyme preparation Novamyl allows to prolong time of bread storage by 10 days.