

INFLUENCE OF BREWER'S SPENT GRAIN ON QUALITATIVE INDICATORS OF BREAD FROM WHEAT FLOUR

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Brewer's spent grain is a secondary raw material obtained during the production of beer. Studies have shown that the beneficial properties of brewer's grains (content of micro- and macro-elements, B vitamins and fiber) can be used in the production of food products for people with diabetes, obesity or simply watching their lifestyle. The purpose of this work is the production of bread with the addition of brewer's spent grains and their influence on quality indicators in comparison with control sample.

Brewer's spent grain was used in the production of sourdough from wheat wholemeal flour in proportions of 25%, 50%, 75% and 100%. The main raw material was got from the Î.M. "Efes Vitanta Moldova Brewery" S.A. Brewer's spent grain was obtained from light malt and dried at a temperature of $62 \pm 2^\circ\text{C}$ in order to further grind it to the state of flour. The fermentation of sourdough was 8 days at a temperature of $27 \pm 1^\circ\text{C}$ it was renewed every 24 hours. When acidity reached 8 ± 1 degrees, one part of the sourdough was used in the production of bakery products from wheat flour of superior quality and the other of this was used to renew the sourdough.

There are prepared 4 types of bread with the addition of sourdough and wheat flour of the superior quality, prepared by the monophasic method according to classic technology. These products were used to determine the effect of brewer's spent grain on the quality of bread made from wheat flour. Samples 25%, 50%, 75% of brewer's spent grain differed from the control sample in the golden color of the rind, pleasant aroma of malt and without foreign aftertastes. It was observed that with increase of concentration of brewer's spent grain in dough is increase in the time of proofing. Bakery products with 25% and 50% brewer's spent grain, in accordance with the regulatory documents for products made from wheat flour, were characterized by high porosity, as well as the corresponding acidity and moisture of the crumb. The sample obtained from the sourdough of 100% brewer's spent grain differed by poorly developed crumb porosity and low acidity. According to the sensory indices, the sample was distinguished by the presence of a gray shade of the crust and crumb, with an elastic and clogged texture and a crunch was felt.

There was studying the influence of sourdough with different content of brewer's spent grain on the microbiological safety of wheat bread during storage. Analyzing the results obtained, it was found that the first signs of the manifestation of rope spoilage were observed in the standard sample. The presence of whole wheat flour and brewer's grains had a bacteriostatic effect on spores of microorganisms that cause infection of bread with rope spoilage. Thus, test baking showed that the use of sourdough from whole wheat flour and brewer's spent grain increases the shelf life of bread by 24...48 hours, thus slowing down the development of rope spoilage in the bread.

Key words: brewer's spent grain, sourdough, bread, quality, rope spoilage.

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