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INVESTIGATION OF CHANGES IN PROTEIN COMPOSITION OF RYE GRAIN AND OAT GRAIN DURING GERMINATION AS THE RAW MATERIALS FOR BABY FOOD PRODUCTION

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Nowadays consumer is quite knowledgeable and at the same time interested in a rational nutrition and healthy diet. Particularly acute, this problem arises when examining the issue baby food. As the proper, high quality and valid nutrition of the baby is the foundation for its growth and development, and therefore their health in adulthood.

Baby's body is actively growing, so it needs a significant amount of all of necessary macro- and micronutrients. And a good source of all these elements is exactly grain. A malt, germinated of grains, has a high amount of water-soluble substances that can be very easy digested and absorbed by the body, which is especially important for a baby's digestive system.

In order to develop a balanced chemical composition of dry baby food product with the addition of malt is necessary to study the chemical composition of raw components and their changes during processing. As an objects of research were selected rye grain "Flora" and oat grain "Neptune" and had gotten of them malt in a laboratory.

The experimental part was carried out in the laboratory of the Department Bakery and Confectionary Goods Technology. Malt was germinated in the laboratory conditions with air-water method. Selection of samples and their preparation for analysis was performed according to GOST 13586.3-83.

Determination of protein content was performed by nephelometric method.

Amine nitrogen was determined by titration with mixed indicators.

Experiments were carried out with grains and fresh malt. As a result, studies have found that when grain is geminating the protein content of the grain is changing: the protein content of rye is reduced by 3% of dry matter, and in oats grain - 4.2% of dry matter. Mass fraction of amino nitrogen decreased slightly (by 2,8-3,2% of dry matter). After analyzing the results, we can make a conclusion about a decreasing the protein content during the germination.

This is explained by the fact that under action of enzymes in the grain that is growing proteins undergo of hydrolysis to form the amino acids which diffuse to a germ for the synthesis of new protein structures, including them in the newly formed tissue. The energy, which germ needs for this biochemical reactions, it gets by the oxidation of carbohydrates and fats during breathing.

The obtained experimental issues show an increase of the content of amino nitrogen during germination.

It is known that during germination of grain passing two processes - hydrolysis and synthesis and therefore the data obtained from the analysis describing the overall result of these two processes.

Thus, the results which were obtained in the study of rye and oat malt make it possible to develop formulation of dry milk-based baby food with malt.