Sugar, oat malt

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The article is devoted to the study of the impact of the changes solodoroschennya sugar content of different varieties of oats.

Hulled, holozernyy, grain, malt, sugar, starch.

Problem. Products of grain oats are widely used in various fields of food industry, due to its valuable chemical composition. Years of research Institute of Pediatrics, Obstetrics and Gynecology Ukraine proved that when germination grain cereals enriched with biologically active substances. Therefore oatmeal malt (sprouted grain) in other germinated cereals used in the production polisolodovyh extracts that have medicinal properties [1].

Analog recent research. In recent years dawned many new varieties of oats, including new, so-called holozernyh. From traditional they are more protein and starch and lower - fiber [2, 3]. This greatly increases their nutritional value and simplifies processing.

A significant contribution to the development of varieties of oats holozernoho and their processing made known domestic and foreign scholars Podobed LI, G. Stankevich, CER EA, but scientific data on the chemical composition holozernoho oats in the scientific literature is not enough, and information about changes in its solodoroschenni absent, despite the significant benefits of these varieties.

It is known that when grown grain enriched biologically active substances: carbohydrates, low molecular weight proteins, including amino acids, vitamins, sugars, enzymes and phytohormones. Oat malt used in the production of various food products.

Ago **for research** was to study changes in carbohydrate composition in solodoroschenni conventional hulled oats and holozernyh grades. These results will justify the choice of varieties of oats, processing which ensure production of the most valuable food product.

Results. With grain oats seed conditions on existing experimental setup instructions for preparing malt.

In the samples of grain and malt derived from it were tested for starch by Evers, quantity and composition of free sugars - by paper chromatography [4, 5]. The paper used chromatographic paper Filtrak №1, solvent flow - upward.

It is known that an important indicator of quality grain for food is starch. As can be seen from the table. 1, oat starch content holozernyy filmy dominated by almost 16% per dry matter (CP).

1. Changes in starch content solodoroschenni oats% CP.

The sample day solodoroschennya	Hulled oats		Holozernyy oats	
	Racer	Neptune	Salomon	Samuel
Grain to solodoroschennya	46.8	48.9	64.7	63.7
1	46.3	48.6	64.6	62.6
3	45.9	47.3	62.2	61.0
5	44.8	46.9	59.6	59.2
7	44.0	46.1	58.4	57.9

In germinating grain under amylolytic enzymes is the hydrolysis of starch to form sugars that are partly used for embryo formation of new cells and partly remain in the grain and give it a sweet taste. From Table. 1 shows that the oats grown for 7 days starch content gradually decreases by about 4% in hulled and 6% holozernoho oats. Similar results were previously obtained by other researchers and barley malt [6]. It is known that experimental results are presented in graphs, give them a clearer picture. Therefore, the findings were presented graphically.

Sugar content in the studied varieties of oats and their changes in solodoroschenni shown in Fig. 1 and Fig. 2, of which her shows that grain oats both grades have enough high sugar content. Precious high glucose content in it (1.0 ... 1.1) and fructose (0.4 ... 0.9)% by weight of a grain.

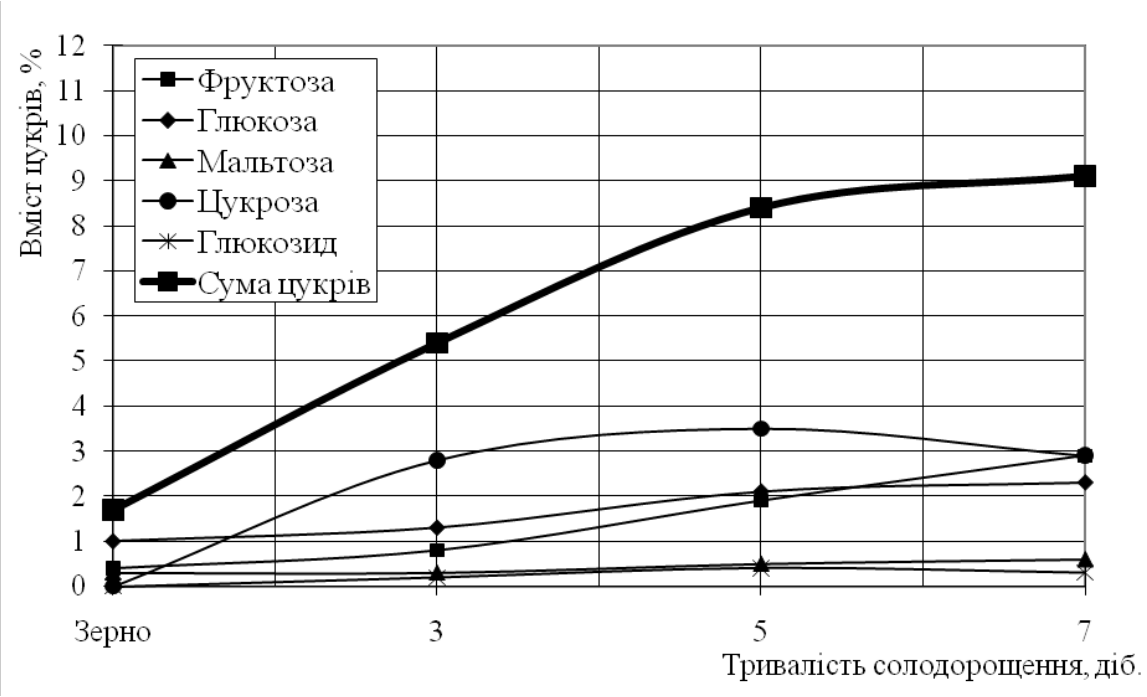

Fig. 1. Change of sugars in the solodoroschennya hulled oat varieties "jumper".

It should be noted that most of the sugars efficiently and quickly absorbed by the human body glucose. The most favorable biological effects of fructose belongs. It does not increase the concentration of blood sugar does not cause tooth decay.

In both varieties of oats solodoroschenni glucose increased by 2 ... 3 ... 3 fructose 7, maltose 2 times. It is noteworthy that when solodoroschenni with the products of hydrolysis of starch (glucose, maltose, and maltodextrins maltotryoza) the significant amount of sucrose.

According to the scientific literature [6, 7, 8], sucrose and other carbohydrates comprising fructose, synthesized in the embryo and later appear in other parts of the grain. Addition of sucrose produced from starch. Under the action of enzymes hexokinase and fosfoheksoizomerazy formed fructose-1, 6-diphosphate, which goes into sucrose.

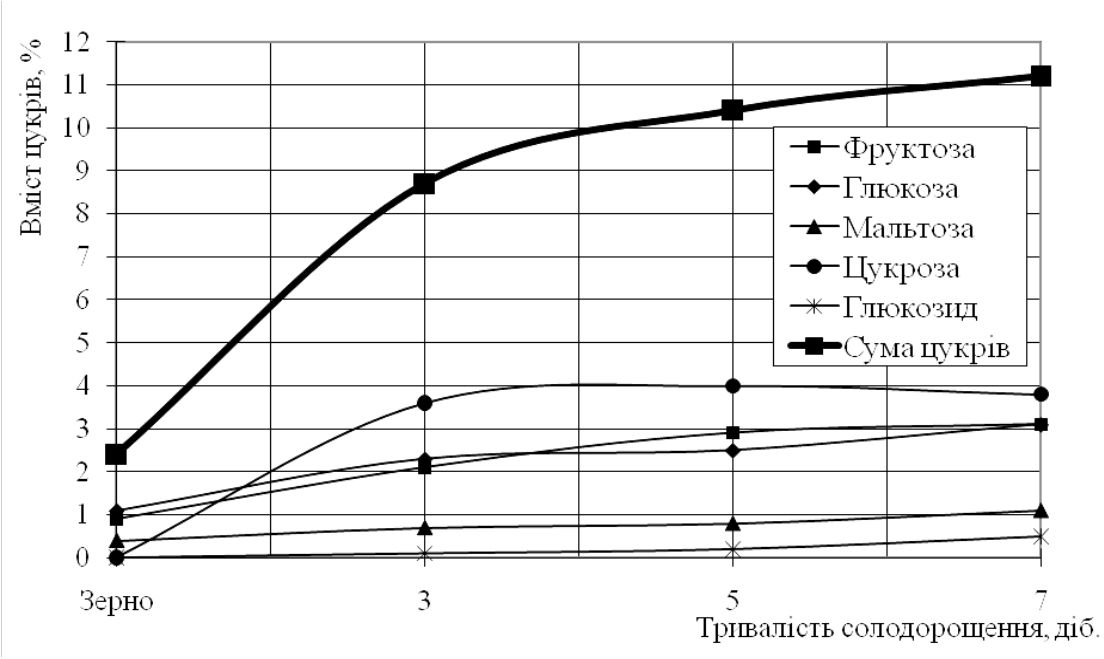

Fig. 2. Change of sugars in the solodoroschennya holozernoho oat varieties "Salomon".

When solodoroschenni both varieties of oats from the third to the fifth day sucrose content increases and decreases on the seventh day, which can be attributed to the loss of her breathing. Yet in svizhoproroschenomu oats sucrose content is 2.9 ... 3.8%.

Content maltose, glucose and fructose increases for all 7 days solodoroschennya both varieties of oats. But growth in their number considerably occurs at the beginning of germination. Thus it reaches a maximum in the fourth holozernoho, and the film - the fifth day, and then slows down.

The results of this study show that the total number of free sugars to germination hulled oats at 1.7%, holozernoho - to 2.4%. When germination content of free sugars increased 5 times. This can be explained by the fact that during germination of grain under amylolytic enzyme hydrolysis of starch to form sugars and dextrins. Holozernyy oats and malt derived from it by the content of starch and sugars prevails filmy free. Therefore, the replacement hulled oats holozernym will have a positive impact on the value of food, raw materials which are oats.

As shown earlier studies, sprouted oats, especially holozernyy different valuable chemical composition. To elucidate the possible use of malt holozernoho oats in the production of health products was produced pilot batch of the malt in a production environment FOP "Neretina IM" Dnipropetrovsk region.

It is known that the production of food sugar usually is an indispensable component of the formulation. Add it to give them nice

food edibility. But to add sweet taste are sugar from beets, and it in composition is sucrose.

What to sugars germinated grains, including oats, they are a mixture of sugar, composed of sucrose fraction takes no more than 20-25%, and the rest belongs glucose, fructose, maltose. These sugars except sweet taste, have medicinal properties. So adding to food products malt will improve health properties of food. The composition of oat malt sugars party research presented in Table. 2.

2. The content and composition of sugars experimental batch holozernoho oats% CP.

Fructose	Glucose	Maltose	Sucrose	Hlyukozid	Total sugars
2.8	3.5	1.2	3.0	1.2	11.7

From Table. 2 shows that obtained in a production environment oatmeal malt was quite high glucose (3.5%) and fructose (2.8%).

Note that in oat malt with holozernoho sufficiently high sucrose content (30% by weight of malt).

Conclusion. The experiments showed that an experimental batch of malt has a significant sugar content (about 12% by weight) and presented them with a mixture of sugars (glucose, fructose, maltose). This can be argued that the composition and content of malt sugar oatmeal is a valuable raw material for health products.

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Article posvyaschena Study of influence on the process solodoraschenyya Changing CONTENT sugars raznыh ovsa varieties.

Plenochnыy, holozernыy, grain, malt, solodoraschenye, fermentы, Sugar, starch.

The paper is devoted to study of mpact of the malting process on sugar content changes of different varieties of oats.

Filmy, bare-grained, grain, malt, malting, enzymes, sugars, starch.

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PROBLEMS USING HUMAN RESOURCES

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This paper examines the current state and trends of ergonomics in developed countries

Ergonomics, human factor, ergonomic performance.

Problem. The social orientation of the economy calls attention to ergonomic problems whose solution is a prerequisite for development. The transition to a post-industrial society to be analyzed for its impact on people, their role and prospects of the economy and the world. Humanization economy manifested "in uniting the objective needs of the economy with those rights, the development of creative activity."

In response to the contradictions of social development trends for the humanization of the economy are becoming more widely reflected in the fundamental economics late XX - early XXI century. However, they did not find adequate coverage of applied economics such as ergonomics. This is due to the relevance and performed the study.

Ergonomics is a property of an object or process to be functional and comfortable for human life. It stands compatibility criteria things, services or process of the human body, and expresses the degree of