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CHARACTERISTICS OF NEW VARIETIES OF TRITICALE GRAIN

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Bakery and cereal products of high biological value are gaining popularity, while the purchasing power of consumers is declining, so the search for promising ways to reduce the cost of finished products and at the same time improve their quality is a priority for the modern food industry. One of the ways to solve the corresponding problem is to expand the raw material base of grain due to new varieties and hybrids of high biological and economic value. One of the promising types of raw materials may be the grain of four species triticale.

Triticale grain appeared on the market relatively recently and is the first artificially created hybrid of wheat and rye [1]. However, due to the low quality of the first varieties of triticale, its use in the food industry was impractical. Therefore, traditionally triticale grain is positioned as raw material for feed production.

Despite the narrow scope of triticale grain, the work of breeders to improve its characteristics did not stop. This contributed to the development of new varieties, significantly superior in quality and safety to their predecessors [1]. As a result of crossing triticale grains with productive wheat (farro, spelt), varieties of four species triticale were obtained.

The varieties of four species triticale are able to form stable crops, have a low production cost and high protein content, balanced in amino acid composition, which determines the possibility of expanding its field of application.

Despite the external similarity of triticale and wheat grains, their technological properties differ, which makes the relevance of additional research and scientific justification of promising ways to use triticale grains in the food industry.

Triticale is characterized by a high mass of 1000 grains, which can vary from 36.0 g to 53 g [2, 3]. However, the information on technological properties provided in the literature refers to the classical triticale grain. Highly productive hybrids of triticale (four species) differ in technological properties from the classical ones and require additional study.

The mass index of 1000 grains has a high direct correlation with the grain size, however, in the case when the grain is not sufficiently fulfilled, this regularity is absent. The triticale grains of the studied varieties were characterized by high weight grains of 1000 grains compared to the Khlibodar Kharkiv triticale grains and Podolianka wheat varieties, due to their high fineness.

The nature of triticale grains corresponded to the first and second classes. It varied depending on the variety and ranged from 643 to 690 g/l, which is 38-85 g/l less compared to the nature of wheat grain (728 g/l). This is due to the greater duty cycle of triticale grains.

It was found that triticale grains are viscoplastic (98-99%). The Glassiness of the four species triticale grain did not change significantly depending on the variety. No differences were found between the four species triticale and the classic triticale in terms of glassiness, however, this indicator was significantly higher (by 9%) compared to wheat.

The quality of gluten in terms of its deformation index varied from satisfactory weak to medium depending on the variety. Four species triticale grains of varieties Strateg, Alkid and Tactic had good gluten of the first group, since the deformation index of gluten of these varieties was 78 d.u., 77 d.u. and 69 d.u., respectively. The quality of wheat gluten and grain triticale varieties line LP 195 was satisfactory weak second group.

Further study requires the chemical properties of the four species triticale. It is advisable to establish the possibility of developing dietary foods based on the four species triticale grain and to establish their culinary properties. Corresponding work is planned in further studies of the authors.

The research results presented in the work demonstrate the high cereal properties of the four species triticale and are useful for food manufacturers who seek to expand their assortment qualitatively.

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