

❖ **NEW HEALTHY AND SUSTAINABLE FOOD PRODUCTS AND PROCESSES**

**The active biological potential of triticales in the production of a functional beverage**

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**Abstract**

Global and regional climatic, energy and food crises impose on the current scientific society the task of acquiring new fundamental and applicative knowledge in highlighting, evaluating and directing the genetic and physiological mechanisms of the production process and the ecological resistance of plants. One of these examples is the triticale species - it has a relatively short evolution constituting a species of synthesis by the amphiploidisation a hybrid between wheat (*Triticum* sp.) and rye (*Secale* cereals) for the first time by scientist Wilson in 1875. Optimized characteristics described by: increased production capacity, rapid adaptation to environmental conditions, considerable agricultural potential and high protein content with a balanced amino acid level, agronomic parameters and enhanced quality attributes, etc. have enabled tritium crops to be harnessed in human food, industry and animal feed.

Triticale species homologated in the Republic of Moldova Inger 35 cultivated on the experimental field of the Institute of Genetics, Plant Physiology and Plant Protection was studied in the Biochemistry Laboratory of the Genetic-Vegetable Resources Center and Bioalimnet Platform of the University of Dunarea de Jos, Galati. Research aimed to obtaining a functional drink based on triticale species, with the optimization of its biological potential by controlled germination. The fermentation process of functional drink was carried out by the *Lactobacillus plantarum* species (concentration  $3,2 \cdot 10^9$  UFC/ml) for 4 hours by administering 5 g honey per 100 ml. The obtained beverage was kept for 40 days at the temperature of 4°C and in the dynamics every 7 days the specific and technological parameters were determined. The experimental results described a growth dynamic of lactic acid (0,5 g/100 ml beverage), log UFC / ml (0,42) and the descendant content of reducing sugars, starch and pH. The high content of antioxidants, obtained by fermentation and maintained at high level during storage, has attributed to this drink the title of functional food quality with a benefic potential for human health. The number of viable *Lactobacillus plantarum* cells was maintained at high level during the conservation, thus giving the drink the quality of probiotic food and providing the human body with a quarter of the daily need for soluble and insoluble fiber at a consumption of 150-200 ml/day. The optimization of the functional beverage production process by mathematical treatment of the results made it possible to establish the technological scheme that keeps the highest content of polyphenols, reducing sugars, fibers and NTG for 35 days of conservation.

**Keywords:** Functional drink, Germination, Triticale, Technological process.