INVESTIGATION OF THE FERMENTATION PROCESS OF JERUSALEM ARTICHOKE TUBERS

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Analysis of the existing range of products and technologies of fermented products led to the conclusion that there is a reasonable use of Jerusalem artichoke tubers as raw materials to produce this group of foods.

The process of Jerusalem artichoke tubers’ fermentation is investigated. It is found that fermentation took place in three stages. The exudation of cell sap and intensive development of lactic acid bacteria were observed during the first phase. The second stage of fermentation was characterized by the accumulation of lactic acid. The third stage is characterized by a change in organoleptic qualities and physicochemical characteristics of the product. The criterion of the fermentation completion was achieving of total acidity 0.8–0.9% (calculated as lactic acid).

Fermentation provides the opportunity to get a product with original flavoring properties. It was important to explore the stages of the process. Identify factors that affect product quality. After 8 days of fermentation there is a slowdown in the accumulation of acidic components, which is explained by the reduction of nutrients for microorganisms in the culture medium. In order to determine the optimal mode of fermentation of Jerusalem artichoke tubers, the effect of temperature and amount of fermentation on the duration of the process was investigated.

The fermentation temperature also affects the transparency of the juice from the fermented Jerusalem artichoke. At higher temperatures, we get juice with pronounced turbidity. The degree of transparency of juice was determined using a photoelectrocolorimeter based on the light transmission coefficient.

The fermentation parameters were determined: temperature – 20 °C, time – 10 days, the amount of yeast – 1% (prepared from raw materials). Lactic acid bacteria Lactobacillus plantarum strain AN 11/16 were selected for fermentation of tubers.

Keywords: Jerusalem artichoke, fermentation, ferment, total acidity.