

THE COURSE OF BIOCHEMICAL PROCESSES IN FERMENTING-FORMING AGGREGATE

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Nowdays the extrusion technology in rusk goods production becomes widely used in Ukraine due to its significant advantages, the main of which is to intensify technological processes.

The main idea of this investigation is using the novel technology where the dough prepared for processing is given in a closed hermetic vessel and kept under excess pressure of 0,2 MPa. The forming of dough plait happens directly on the oven without standing of dough by forming matrix, i.e. by cold extrusion. The loosening of goods happens in the extruder's outlet due to the pressure overfall.

It was investigated the influence of higher pressure and higher content of carbon dioxide in the extruder's chamber on the course of biochemical processes in the dough, which was characterized by accumulation of regenerated sugars and changes in fractional composition of protein substances in semi-finished products.

To study changes in the carbon-amylase complex of dough it was determined the dynamics of sugars in the dough, which was in the fermenting-forming aggregate, by the intensity of accumulation and fermentation of maltose. It was established that the accumulation of sugars in dough under pressure was by 14...15 % less than that of under the control, and fermentation slowed down by 35...36 %.

Protein substances in dough were divided into such fractions: the total amount of protein of dough, the total amount of water-soluble protein and also free amino acids alone. Determination of fractional composition of protein substances took place in dough after 30 min of its fermentation in the thermostat (beginning) and in 180 min of autolysis at 30 °C (the end).

The research showed that water-soluble protein content in 3 hours of autolysis in the dough which was ripening at higher pressure and higher carbon dioxide content in the medium (in the fermenting-forming aggregate) had increased by 27...28 %, including free amino acids – by 9...10 % compared to the controlling sample.

Thus, in the fermenting-forming aggregate under the influence of higher pressure the accumulation of sugars in dough slows down, whereas the intensification of proteolysis process in dough proteins is observed.