OSMOTIC DRYING AND SHRINKAGE OF QUINCE (Cydonia blonga mill.) IN SUCROSE SOLUTION

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The combined technology of quince drying resulted in obtaining better quality products than the conventional convective drying process. The product obtained has a very nice aroma, taste and favorable mechanical properties. Successful implementation of this technology and process optimization in practice requires great knowledge of drying kinetics. Less shrinkage during osmotic drying ensures better form of final products. The aim of this study was to research the impact of relevant factors of osmotic drying on the physical properties of dried quince.

The experiments were conducted on the domestic variety of quince "Leskovacka". The osmotic solution was composed of water and sucrose. Fruit quarters were used in the course of drying kinetics research. The experiment was based on three factors. The experimental factors were: solution temperature, solution concentration and process duration. The concentration of the solution was varied at two levels of 50 °Bx and 65 °Bx, the solution temperature at 40 °C and 60 °C, and the durations of drying process were 100 and 180 min. The influence of factors on the kinetics of drying, the change of length and volume of quince samples (shrinkage) were studied. The results of the experiment were shown graphically. By applying statistical methods, the analytical models of regression functions were determined. Shrinkage was from 23 % to 31 %. The changes in physical properties were more significant at higher values of osmotic solution temperatures and concentration. The changes in physical properties were more intensive in the first 100 min of osmotic drying.