

COMPARISON OF OSMOTIC MEDIUM OSMOLALITY PROFILES OF CO- AND COUNTER-CURRENT PORK MEAT OSMOTIC DEHYDRATION

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Abstract

One of the potential preservation techniques for producing meat products with low water content and improved nutritional, sensorial and functional properties is osmotic dehydration. Osmolality represents solutions osmotic concentration, or number of dissolved substance particles in mass unit of water. It has been proven that osmotic solution osmolality measurement can be quickly and accurately used for osmotic dehydration process control and management. Goal of this research is to compare osmotic medium osmolality profiles in two different types of osmotic dehydration of pork meat: co- and counter-current process.

Osmolality was measured with VaproR-Vapor pressure osmometer model 5600. Dry matter content (DMC) was determined by convective drying at 105 °C until constant mass was obtained. DMC of osmodehydrated pork meat has shown that higher values were achieved in counter-current processes in all three osmotic solutions in comparison to the respective DMC values of co-current process.

Results of osmotic solutions DMC change during five hours of the process have shown that there is higher decrease of DMC values of osmotic solutions in co-current processes than in respective counter-current processes. This higher decrease in DMC of osmotic solutions has direct effect in lower obtained DMC of osmo-dehydrated meat in co-current processes. Measurement of osmolality of osmotic solutions has shown that, as in case of DMC change during process, osmolality has also decreased with the duration of the process and increase of DMC of meat. Osmolality of the solutions used in counter-current process were more constant and were less decreased during osmotic process in comparison to the co-current process.

From presented results it can be concluded that osmolality profiles of counter-current osmotic processes are less decreasing than respective co-current processes, indicating on higher efficiency of counter-current osmotic processes, which can be measured and controlled via osmolality measurement.

Key words: *Osmotic dehydration, Sugar beet molasses, Osmolality, Pork meat.*