

OSMOTIC DEHYDRATION IN SUGAR BEET MOLASSES- FOOD SAFETY AND QUALITY BENEFITS

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Abstract

In recent year's osmotic dehydration as a method of food preservation is drawing more attention due to many advantages regarding low energy processing conditions, mild temperatures and the possibility of reusing waste material. One of the most important factors that have a major influence on the efficiency of the osmotic dehydration process is a selection of the most convenient osmotic solution. At the Faculty of Technology, University of Novi Sad, sugar beet molasses has been introduced as an osmotic solution and turned out to be very efficient for the osmotic treatment of both animal and plant row materials.

Reasons that make molasses an excellent osmotic medium are high content off dry matter (80% w/w) and specific chemical composition. Great amount of water and high aw value make food perishable and reduce its shelf life. By treating raw food material with sugar beet molasses as an osmotic solution the water content has been significantly reduced as well as aw value making food safer and longer-lasting. The microbiological profile of food material osmotically treated in molasses indicated that osmotic dehydration is a hygienically safe method and obtained products are safe for further processing. Comparing molasses with other conventional osmotic solutions it has been shown that molasses reduce the total amount of microorganisms in a larger scale than sugar and salt solution do. Sugar beet molasses has rich nutritional composition and during the osmotic process, those nutrients penetrate into treated material and improve its chemical composition, especially the content of minerals. In comparison to traditional osmotic solution osmotic dehydration treatment in molasses leads to higher amount of important minerals in both plant and animal treated material improving their functional properties.

Osmotic dehydration in sugar beet molasses has proven to be valuable not only from food safety but from food quality aspects as well.

Key words: *Osmotic dehydration, Sugar beet molasses, Food safety, Food quality.*