DSC MONITORING OF WHEAT BREAD DOUGH DURING FREEZING AND DEFROSTING

Petrović, A.[1]*, Vozárová, V.[1], Šmitalová J.[2]

Slovak University of Agriculture in Nitra, [1]Department of Physics, [2]Department of Storage and Processing of Plant Products, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, xpetrovica@uniag.sk
**presenter*

In the past couple years, frozen bread dough has been widely examined. The quality of frozen products depends on the raw materials and on the technology process; particularly important is the time required for freezing the dough. Using mixes of hydrocolloids, such as Xanthan and Guar gums, is another possibility to minimize the negative impact of frozen storage on dough quality, because of their high water retention capacity.

The present work deals with monitoring of freezing or defrosting processes of wheat bread dough and enthalpy of phase transitions by DSC method using device DSC 1 (METTLER-TOLEDO). Samples that were measured were standard dough (SD), than dough with Xanthan Gum (XG) and dough with Guar Gum (GG).

The addition of GG or XG resulted, among others, reduction in enthalpy during the freezing process. This result is in accordance with several authors and indicate an interaction of both gums on water binding capacity during the freezing process. The results obtained by DSC method showed that minimal changes were observed during frozen storage, and the most influential factor was the speed of heating or cooling.