The significance of glass transition temperature in processing of selected fried food products : a review

ABSTRACT

This paper emphasized the significance of the glass transition temperature (Tg) by highliting its applications in drying (hot air and freeze drying) for various food systems such as skim milk powders, rice kernels, starch and sugar products and some freeze-dried products such as strawberries and surimi. The study revealed that the major components of the specified foods (which consist of mixture of ingredients), for example lactose in skim milk powder and sucrose in sugar mixtures, will influence the glass transition temperature of the food. Moreover, Tg is an important parameters for determining the optimum processing conditions of dried products. Thus, it is used in designing drying equipment to meet the purpose. In general, Tg affects the physical properties of food such as stickiness, caking and agglomeration. The effect of moisture content on Tg was covered by almost all studies focusing on Tg of foods. Meanwhile, the effect of pressure on Tg was not well covered due to its scarce availability in the existing literature. In term of test methods for determining the Tg of foods, it seems that not all test methods are suitable for certain type of foods, accordingly, more study on the recommended test methods should be carried out.

Keyword: Glass transition temperature; Applications; Hot air and freeze drying