

SCIENTIFIC FOUNDATIONS OF THE INTEGRATED USE OF SWEETENERS AND IODINE-CONTAINING RAW MATERIALS IN CONFECTIONERY TECHNOLOGY

Olena Sokolovska^{1*}, Olena Skyrda¹, Olga Chatchenko¹, Tetiana Letuta¹, Havrysh Andrii²

¹Faculty of Managing Commercial, Business and Customs Activities, Kharkiv State University of Food Technology and Trade, Klochkivska st., 333, 61051 Kharkiv, Ukraine

²Faculty of Hotel-Restaurant and Tourism Business, National University of Food Technologies, Volodymyrska str., 68, 01601 Kyiv, Ukraine

*e-mail:0997873437@ukr.net

Abstract

On the basis of this and meeting the consumers' needs the task of food and confectionery industry is to find the ways to replace the proportion of white sugar with sweeteners in order to reduce the glycemc index (GI) of confectionery products with simultaneous fortification of minerals especially iodine for diabetes and iodine deficiency prevention. Having conducted a number of analytical studies and in order to achieve the goal a simultaneous use of stevia -a sweetener of natural origin with zero glycemc index was suggested as well as an iodinated additive which can act as a structure forming agent - elamin. The aim of work was to find the ways to introduce sweetener and iodine-containing raw materials to the foaming system of confectionery products.

Given the features of their production a possibility of using a sweetener in the form of an aqueous extract of stevia during the introduction of gelation agent into the product system is implemented. Studies of the biopolymer swelling process was determined by the method of mass comparison of samples before and after swelling. Effective viscosity was determined by rotational viscometer "Reotest-2". Interaction of prescription components was performed by the method of infrared (IR) spectroscopy.

As a result it was found that the aqueous extract enables reducing biopolymer swelling process. Reduction of the effective viscosity of the solution of gelation agent with increased concentration of aqueous extract as well as reduction in the interval of its structure formation process minimizing production costs were determined. As a result of a research of structural-mechanical properties of gelation agent a rational concentration of aqueous extract of the stevia of 1.0% was determined. IR spectrometry proved that the aqueous extract provides a more stable structure of sugar syrup. The expediency of replacing the weight part of sugar with the introduction of dry stevia extract in the formation of the foam system by increasing its foam by 10.0 to 30.0% was determined.

In this regard, the formation of the confectionery products quality using stevia and elamine allows production of guaranteed quality products of a given composition with high nutritional value, which can be used for diabetes and iodine deficiency prevention, which is a timely task for commodity food science.

Key words: Sweeteners, Iodine-containing raw materials, Elamin, Stevia, Confectionery technology.