INVESTIGATION OF THE INFLUENCE OF TECHNOLOGICAL FACTORS ON FOAMING PROPERTIES OF GELATIN SOLUTIONS

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In recent years, the modern food industry has witnessed a tendency to increase demand for new types of food products, in particular confectionery products, the creation of which is based on original technological ideas and inventions using non-traditional raw ingredients that allow a significant change in the structure and develop new types of semi-finished products and finished products.

Taking into account the current trends and on the basis of the theoretical preconditions, we proposed a model of the technology of a biscuit-type baked flour semi-finished product for use as a basis for cakes, pastries, cookies, etc. in the confectionery industry and restaurant industry. In the proposed semi-finished product, instead of egg products, it is planned to use gelatin solution as a foaming agent and foam stabilizer, as well as a transglutaminase enzyme to obtain a thermo stable structure that will resist the heat treatment typical of classical biscuit semi-finished products.

The article presents the results of researches on the establishment of regularities of the influence of the temperature and duration of slicing, the concentration of gelatin of the German company Gelita with the strength of the gel 240 bloom on the foaming capacity of its solutions. It has been determined that for the investigated temperatures 20...50 °C with a maximum foaming ability of 300–320%, model systems «water-gelatin» with a concentration of gelatin 3–5% possess. For low concentrations of gelatin – 1–2% this figure is 280–300%. It has been established that in order to provide a maximum foam volume, it is necessary to whip up within (8–10)×60 sec.

The influence of these parameters on the amount of residual solution as a result of the instability of foam-like systems after whipping is determined. The obtained data testify that when the modelling systems «water-gelatin» are whipped up with a concentration of 1% gelatin, there remains 10–40% of the solution, 2% – 5–20%, and after whipping of the model systems with the concentration of gelatin 3–5% during (8–10)×60 sec no solution was remaining.

Keywords: foaming ability, gelatin solution, shrinkage, foam-like systems.