INFLUENCE OF CRYOPASTES AND CRYOPOWDERS ON THE STATE OF MOISTURE IN MARMALADE

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Abstract

In this paper it was proposed use cryoadditives of plant origin in the production of marmalade not only as dyes and flavorings, but also to increase moisture retention. The expected effect was a positive impact on the product storage process. The aim is to study the effect on the content of adsorption-bound moisture of the introduction of cryoadditives to the formulations of jelly products.

Samples of marmalade (as a structuring pectin was used) with a mass fraction of cryopastes in the formulation from 10 to 30% (quince, apples, carrots, pumpkin, grapes cryopastes were used) were investigated. Samples in which, in addition to cryopastes, 1.5% of cryopowders were introduced (sea buckthorn, rose hips and grapes cryopowders were used) were also studied. The content of adsorption-bound moisture in marmalade with cryoadditives was investigated by the method of differential thermal analysis. The content of pectin substances in cryoadditives in marmalade samples was determined by titrimetric method. Energies of activation were calculated by the Freeman and Carol method.

The content of pectin substances in cryopastes, cryopowders, and then, which is especially important, in the samples of marmalade was determined. In the whole range of investigated temperatures for all samples of marmalade there is a continuous weight loss (from 43% to 52%). The content of adsorption bound moisture in the samples ranges from 90.51% to 92.34%. Activation energies were calculated for temperature intervals corresponding to the maximum removal of adsorption moisture.

For the technology of jelly products it is proposed to use combinations of cryoadditives for increasing of moisture retention.

Key words: *Moisture, Marmalade, Cryoadditives, Pectin.*