Pectin's influence on the forming of the butter structure

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Pectin is a polysaccharide consisting of methoxylarized remains of the polygalacturonic acid. Its jelly-like properties are widly known, due to which it's used by the confectionery industry.

We have investigated the possibility of pectin usage for the stabilization of the butter and dessert butterlike pastes with the low content of the fat. Pectin's influence on the forming of products' textures has been investigated as well as on original raw material and final products. Optical, polarized and electronic microscopy, DSC (differential scanning calorimetry) and Raman spectroscopy have been used for definition of the rheological properties.

Data of the researches show that pectin swells in uninterrupted liquid phase creams' plasma and foms high-viscosity solution which surrounds fatty globules. Thus it hinders their rapprochement and mutually isolates them, due to which the system is a stabilized .The influence of the pectin doze, temperature and duration of the storage on the structure formation has been investigated. It has been noted that the quantity of the pectin added into creams raises creams' viscosity considerably, much more than the fatty content increases. The critical concentration of pectin is determined. If the critical concentration would be exceeded the exfoliation could result .

On the base of the results obtained with the help of the spectroscopy it has been ascertained that the hydrocarbonic radicals of the triglycerides contact with the macromolecules of pectin .

It has been determined that pectin's adding decelerates crystallization of the product fatty phase. It can be explained by the high viscosity of the system. This deceleration inforces differentiation of the triglycerides in the crystalline phase of the fat and favours plastic and thermostable coagulation-crystallization structure of the product at the same time, which makes it poseible to hold considerably liquid fat. The data obtained have been used for elaboration of new kinds of butter.