

MICRO-AND NANOSTRUCTURE A BUTTER WITH INULIN

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Abstract

Last years inulin it is widely used for the medical and food purposes. In NUFT the butter with inulin "Immune" (BI) is developed. By results of clinical tests recommended BI application in a treatment-and-prophylactic and dietary food. In the order the specifications and technical documentation on BI as on a product of functional food is authorized.

Electronic-microscopic researches of BI have shown, that entering inulin essentially influences formation micro-and nanostructure of butters. On environments of fatty balls additional monomolecular layers are formed, thickness of environments and size of fatty balls accordingly increases. In fresh BI on environments of fatty balls is formed dendrite structure. The microstructure in between-spheres areas will consist of crystal layered blocks having the form of five and hexahedron, and also blocks of type spheres. On their surface it was generated inulin-lipid an amorphous - crystal layer which was formed as a result of intermolecular interaction inulin and fusible glycerides fat. On border of the unit of nanoblock layers of a water phase are located. Crystal layers of blocks have different types nanostructures: granular, filamentous, etc. During storage of butter at -18°C the density and thickness of environments in addition increases. It specifies ability inulin to form complexes with fusible glycerides dairy fat. Change of structure of five and hexahedron crystal blocks is revealed during storage of butter. In them nanostructure were formed spheres the spherical anisotropic form in size up to 1 micron.

It is established, that entering inulin promotes formation cap-similar relief in structure of butter and to change of the mechanism of destruction of structure of a butter from layered cruble (characteristic for butter without the additive) up to viscous. It specifies connectivity of structure and plasticity of a consistence of butter with inulin.

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