

CLASSIFICATION NANOSTRUCTURE MULTICOMPONENT ORGANIC FAT

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We studied nanostructure of complex organic systems fat/water/natural organic material. Temperature interval of the experiment was 20-40°C. The main component was fat (70-71%). As natural additives we introduced components of plant raw materials - polysaccharides, sublimation powders. The composition of multicomponent additives was varied. There was researched nanostructure of fat phase of two types: fat globules with shell (1-10µm) and unceasing fat phase, presenting itself as emulsion water/fat. Classification of nanoelements and the mechanisms of their forming were designed. Nanostructure of fat phase of both types was flaky. When forming nanostructure unceasing fat phase was kept hierarchy: nanoaggregates, nanoblocks, nanograins. Shaping of crystal-amorphous glycerol nanolayer aggregates is connected with fractionation; glycerols phase conversions. Applying of the additives promoted formation of fi-actal nanostructure aggregates and liquid-crystal layers. Crystalline nanolayers consist of glycerol lamelies, having nanopores, which form nanocapillaries. The water phase in nanostructure exists as a layer between crystalline glycerol layers, nanograins, nanoblocks and nanoaggregates, where nanoparticles of water forms the quasionedimensional chains, nanolayers or polylayers (nanotracks, nanochannels). They consist of spherical or anisotropic form water particles or as a water film. Introduction of additives promotes changing of form, reduction of sizes and capacity increasing of nanoaggregates and other nanoelements, improves physic-chemical characteristics of the system. The designed classification and mechanisms of nanostructure elements fonning will serve for development of nanotechnologies for functional food products with medical-preventive properties.