

## **IDENTIFICATION OF MOISTURE: NANOPARTICLES IN THE BUTTER SUBMICROSTRUCTURE**

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To date, the dispersiveness of moisture droplets in butter with sizes in the range of 15  $\mu\text{m}$  is firmly established. By means of the electron microscopy study of the butter samples obtained by freezing-and-cleavage technique we have shown that their submicrostructure contains spherical particles, 2 to 100 nm in diameter, which can also acquire anisotropic shapes. By dint of thermodynamic calculations these nanoparticles were attributed to the water phase. The moisture nanoparticles were found to form at flat interlaces between spilling layers of amorphous fat as well at interfaces between crystalline layers and intergrain boundaries. Long quasionedimensional chain of moisture nanoparticles aligned along the interfaces were also found.

Formation of anisotropic droplets result from coalescence of the spherical ones. The degree of the nanoparticles anisotropy increases abruptly upon their coalescence. Subsequently they form quasi-, nedimcnsional chains at the interfaces, and with further accumulation of the water nanoparticles the aqueous paths and channels are formed.