Fatty Acid Composition, Thermal Characteristic and Spread Ability of Certain Margarines

S. Szakaly[1], J. Csapo[2], B. Schaffer[1] and D. Lőrinczy [3,C,S]

[1]*Hungarian Dairy Research Institute, Pécs, Hungary*

[2]*Faculty of Animal Sciences, Department of Chemistry-Biochemistry, University of Kaposvár, Kaposvár, Hungary*

[3]*Faculty of Medicine, Biophysical Institute of University Pécs, Pécs, Hungary*
denes.lorinczy@aok.pte.hu

The margarines were started on their conquering way after the First World War. Their success was amplified by the cholesterin hystery in sixties and they were chosen to be the healthiest among the spread able fats for the causeless fear of unsaturated fats. The nutrition science made clear in the last century the value of individual meal-fats and it was shown that trans-fatty acids made by hydrogenization are unhealthy. Today most of the margarine firms apply a technology where the ratio of trans-fatty acids is below 2% or the final product does not contain them at all.
For our experiments we have collected 16 margarines that were put into circulation in 2005 in Hungary. The following parameters were examined: fatty acid composition with gas chromatography, melting and crystallization of fat with DSC. To judge the spread ability the penetration of samples was measured at different temperature.
The followings were drawn from our experiments:

-The fatty acid composition of margarine fats varied from firm to firm because of the variety of the deviation of the used basis.
-The ratio of the trans-fatty acid was below 2 % in 14 among the 16 margarines. In the remainings one was 10 % and one 16 % respectively.
-Those margarines contained omega-3 fatty acid of greater amount (>4%) where it was separately signed on the packaging.
-The melting-crystallization characteristic varied parallel with the fatty acid composition. The melting properties varied in case of the same manufacturer too mainly because the fat of similar fatty acid composition was crystallized in different forms because of the manufacturing technology fitted to the fat content.
-The firmness (spread ability) of spread able products depended on the fatty acid composition, the melting-crytallization characteristics (spread ability) and physical structure of fat being inside them.
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