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Czech J. Food Sci.

V. Spěváčková, I. Hrádková, M. Ebrtová,

V. Filip, M. Tesarova: Lipid Oxidation in Dispersive Systems with Monoacylglycerols

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Model fat blends with a monoacylglycerol emulsifier with different acyl chain (C10, C12, C14, C16, C18, C18:1, C20, C22) were prepared and stored under oxygen atmosphere 8 weeks at temperature 20 °C. Influence of monoacylglycerol on oxidation and oxidation stability of the model fat blends was studied. The model fat blends were prepared by mixing of fully hydrogenated structured fats that contained only palmitic and stearic acid (fully hydrogenated zero-erucic rapeseed oil and fully hydrogenated palmstearin) and half-refined soybean oil. Lipid oxidation was measured by determination of the peroxide value. Volatile oxidation products were detected by the solid phase microextraction in connection with gas chromatography-mass detector

(SPME/GC-MS). The oxidative stability was measured by the Rancimat method. Lipid oxidation in model system with 1-octadecenoylglycerol (MAG18:1) was the most extended. On the other hand minimal lipid oxidation was found out in the presence of 1-tetradecanoylglycerol (MAG14) and 1-hexadecanoylglycerol (MAG16).

Keywords:
lipid oxidation; fat blend; emulsifier; monoacylglycerol

[fulltext]