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Formation of acylglycerol chloro derivatives in vegetable oils and mitigation strategy

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The most important acylglycerol chloroderivatives identified in foods are 3-chlorpropane-1,2-diol fatty acid esters (3-CPD esters) that are accompanied by epoxypropanol fatty acid esters formed in processed foods and, particularly, during the deodorisation of vegetable oils. Their content in refined vegetable oils is influenced by the oil composition, refining process conditions and process conditions of hydrogenation. Described and discussed here are the main pathways that lead to the formation of acylglycerols chloroderivatives and epoxypropanol fatty acid esters. The

article offers detailed explanation of the reaction mechanisms using the well-known chemical principals based on experimental data. The conditions suitable for removing the unwanted products from the refined vegetable oils were studied in models containing variable proportions of agents (bicarbonates or carbonates) causing the decomposition of 3-CPD fatty acid esters.

Keywords:

3-chloropropane-1,2-diol; 3-CPD, 3-MCPD; 3-chloropropane-1,2-diol esters; bound 3-CPD; processing contaminants; mitigation strategy

[fulltext]