

# Influence of Reaction Conditions on the Properties of Enzymatically Interesterified Chicken Fat and Rapeseed Oil Mixture

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In recent years, meat from chickens has been the one of the most produced and consumed in Poland as well as in the whole world. Chicken fat is a rich source of polyunsaturated fatty acids, however, as a animal fat contains a relatively high proportion of saturated fatty acids, located primarily at the *sn*-1,3 positions of the triacylglycerols (TAG). Application of selective lipases as a catalysts of the lipids modification process allow to obtain a lipid products with a structure and composition unparalleled in nature.

The objective of this study was to determine the impact of enzymatic interesterification of a mixture of chicken fat and rapeseed oil (40 : 60 w/w) on some selected properties of this mixture. Starting mixture and fats which are the products of the interesterification reaction were divided into polar fraction (MAG, DAG and FFA) and nonpolar fraction (TAG). The following parameters were analyzed of the starting mixture and of the crude products after the interesterification: acid value, the fatty acid composition in TAG and the *sn*-2 and *sn*-1,3 distributions of fatty acids in the triacylglycerols.

It was found that the interesterification influence on the change in content mainly of the C16:0, C18:1 cis acids and in insignificant degree C18:0, C18:2 all-cis i  $\alpha$ -C18:3 all-cis acids in products after modification, in comparison to starting mixture. Parameters such as acid value and polar fraction content increased after interesterification. Their increase was proportional to the water content in the enzymatic preparation. Modification of the mixture with participation of the Lipozyme IM preparation was occurred in external TAG positions. Changes in the composition of some fatty acids in the *sn*-2 TAG positions can be caused by possible acyl migration during a prolonged time of interesterification or increased water content in biocatalyst.