

# **The Influence of Refining Process on the Polyphenolic Compounds of Rapeseed Oil**

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Rafination is the last stage of edible rapeseed oil production and it determines the quality of the final product. It is designed to remove undesirable substances, but can also cause significant loss of valuable compounds, especially polyphenols.

The aim of this study was to investigate influence of each refining step on polyphenol composition of rapeseed oil. Crude rapeseed oil and industrially neutralized, bleached and deodorized rapeseed oil were obtained from Zvijezda d.d., Zagreb, Croatia. Polyphenolic composition of oil samples was determined using high performance liquid chromatography with mass spectrometry.

Crude rapeseed oil contained the highest amount of total polyphenols. Total polyphenol content decreased with every step of the refining process, and in comparison with crude oil, total polyphenolic content of edible rapeseed oil was 10 times lower. The greatest loss of polyphenolic compounds was observed in the processes of deodorization (67%) followed by neutralization (63%) and bleaching (16%).

The dominant polyphenolic compound of the crude rapeseed oil was canolol, derivate of sinapic acid, while phenylindane, dimere of canolol, was dominant polyphenolic compound of the edible rapeseed oil. The content of canolol in the process of neutralization declined 80%. Bleaching and deodorization further reduced the content of canolol whose content in the edible oil is negligible. Such great loss of canolol can partially be explained by processing conditions and partially by formation of phenylindane. Because of much lower loss of phenylindane in processes of bleaching and deodorization, one could conclude that phenylindane is more stable compound.