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Czech Journal of Food Sciences

Concentrating n-3 fatty acids from crude and refined commercial salmon oil

Pando Ma E., Bravo B., Berrios M., Galdames A., Rojas C., Romero N., Camilo C., Encina C., Rivera M., Rodríguez A., Aubourg S.P.:

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The urea complexation was used to concentrate n-3 fatty acids (FA) from crude and refined commercial salmon oils. The experimental procedure included salmon oil saponification, free fatty acid (FFA) collection, formation of urea-FFA inclusion complexes, extraction of free n-3 FA and further analysis by gas-liquid chromatography of the corresponding FA methyl esters. Differences between crude and refined salmon oil could be observed. Crude oil provided higher typical odour, viscosity and suspension particle values, whereas crude salmon oil showed higher FFA and impurities content while *p*-anisidine and iodine values, moisture content and formation of conjugated dienes and trienes did not provide any significant differences between both oils; refined oil showed lower *a** and *b** scores when compared to its counterpart crude oil. Related to the n-3 PUFA concentration, a decrease in

saturated fatty acids C 14:0, C 16:0, and C 18:0 and monounsaturated fatty acids C 18:1 9c, and C 18:1 11c, as well as a high yield of n-3 PUFA, EPA+DHA and total PUFA recovering could be observed starting from both crude and refined oils, which confirmed salmon oil to be a profitable source of such highly valuable constituents. Factors such as reaction temperature and ureaFFA ratio showed to be markedly significant to achieve higher value concentrations.

Keywords:

salmon oil; crude oil; refined oil; n-3 fatty acids; urea complexation; quality

[fulltext]