

Effects of various cooking methods on fatty acid profiles and chemical composition of lobster (*Thenus orientalis*)

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Abstract

This study investigates the effects of various cooking methods (barbecued, fried, or steamed) on chemical compounds and Fatty acids of Lobster *Thenus orientalis* (2016). Chemical compounds of body were determined by standard methods and combining fatty acids of samples after extraction and esterification of fats using gas chromatography apparatus. Most dominant saturated fatty acids (SFA) were Palmitic and Stearic fatty acids and the highest and lowest concentrations of saturated fatty acid were observed in frying ($34.76 \pm 0.44\%$) and barbecuing ($27.9 \pm 0.89\%$) methods, respectively. Dominant MUFA fatty acids were identified as Oleic and Palmitoleic acids and, generally, the highest and lowest concentrations of MUFA fatty acids were observed in raw ($33.28 \pm 0.42\%$) and steamed ($28.29 \pm 1.02\%$) samples, respectively. The highest concentration of PUFA fatty acids was associated with Eicosapentanoic acids and docosahexanoic acids. PUFA fatty acids had their highest concentrations in steam (41.62 ± 1.22) and barbecue ($41.17 \pm 0.77\%$) cooking methods with the lowest concentration observed in fried (32.6 ± 1.67) samples. The highest and lowest moisture content was obtained from steamed (66.1 ± 0.01) and fried ($53.5 \pm 0.10\%$) samples, respectively. The highest and lowest concentrations of fat were observed in frying ($16.49 \pm 0.10\%$) and steaming ($4.03 \pm 0.01\%$) methods, respectively. Comparing fat concentration between raw and steamed samples, no significant difference was observed ($p > 0.05$). The highest and lowest concentrations of ash were related to fried ($2.39 \pm 0.001\%$) and steamed ($1.46 \pm 0.01\%$) samples, respectively. The highest and lowest concentrations of protein were observed in barbecuing ($24.15 \pm 0.00\%$) and frying ($20.64 \pm 0.10\%$) methods. Omega-3 fatty acids constituted a higher portion of PUFA fatty acids (DHA, EPA). That steamed and barbecued samples, compared to the fried ones, are preferred in terms of nutritional value of DHA, EPA and ω_3 fatty acids.

Keywords: *Thenus orientalis*, cooking methods, Chemical composition, Fatty acid.