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The Effects of Extraction Methods on Fat Content and Fatty Acid Profiles of Marine Fish Species

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Abstract : It has been well documented that polyunsaturated fatty acids (PUFAs), especially eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) have beneficial effects on health, regarding prevention of cardiovascular diseases, cancer and autoimmune disorders, development the brain and retina and treatment of major depressive disorder etc. Thus, an adequate intake of omega PUFA is essential and generally marine fish are the richest sources of PUFA in human diet. Thus, this study was conducted to evaluate the efficiency of different extraction methods (Bligh and Dyer, soxhlet, microwave and ultrasonics) on the fat content and fatty acid profiles of marine fish species (Mullus babatus, Upeneus moluccensis, Mullus surmuletus, Anguilla anguilla, Pagellus erythrinus and Saurida undosquamis). Fish species were caught by trawl in Mediterranean Sea and immediately iced. After that, fish were transported to laboratory in ice and stored at -18oC in a freezer until the day of analyses. After extracting lipid from fish by different methods, lipid samples were converted to their constituent fatty acid methyl esters. The fatty acid composition was analysed by a GC Clarus 500 with an autosampler (Perkin Elmer, Shelton, CT, USA) equipped with a flame ionization detector and a fused silica capillary SGE column (30 m x 0.32 mm ID x 0.25 mm BP20 0.25 UM, USA). The results showed that there were significant differences ($P < 0.05$) in fatty acids of all species and also extraction methods affected fat contents and fatty acid profiles of fish species.

Keywords : extraction methods, fatty acids, marine fish, PUFA
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