

Comparison of Fatty Acids Composition of Three Commercial Fish Species Farmed in the Adriatic Sea

Authors : Jelka Pleadin, Greta Krešić, Tina Lešić, Ana Vulić, Renata Barić, Tanja Bogdanović, Dražen Oraić, Ana Legac, Snježana Zrnčić

Abstract : Fish has been acknowledged as an integral component of a well-balanced diet, providing a healthy source of energy, high-quality proteins, vitamins, essential minerals and, especially, n-3 long-chain polyunsaturated fatty acids (n-3 LC PUFA), mainly eicosapentaenoic acid (20:5 n-3 EPA), and docosahexaenoic acid, (22:6 n-3 DHA), whose pleiotropic effects in terms of health promotion and disease prevention have been increasingly recognised. In this study, the fatty acids composition of three commercially important farmed fish species: sea bream (*Sparus aurata*), sea bass (*Dicentrarchus labrax*) and dentex (*Dentex dentex*) was investigated. In total, 60 fish samples were retrieved during 2015 (n = 30) and 2016 (n = 30) from different locations in the Adriatic Sea. Methyl esters of fatty acids were analysed using gas chromatography (GC) with flame ionization detection (FID). The results show that the most represented fatty acid in all three analysed species is oleic acid (C18:1n-9, OA), followed by linoleic acid (C18:2n-6, LA) and palmitic acid (C16:0, PA). Dentex was shown to have two to four times higher eicosapentaenoic (EPA) and docosahexaenoic (DHA) acid content as compared to sea bream and sea bass. The recommended n-6/n-3 ratio was determined in all fish species but obtained results pointed to statistically significant differences ($p < 0.05$) in fatty acid composition among the analysed fish species and their potential as a dietary source of valuable fatty acids. Sea bass and sea bream had a significantly higher proportion of n-6 fatty acids, while dentex had a significantly higher proportion of n-3 (C18:4n-3, C20:4n-3, EPA, DHA) fatty acids. A higher hypocholesterolaemic and hypercholesterolaemic fatty acids (HH) ratio was determined for sea bass and sea bream, which comes as the consequence of a lower share of SFA determined in these two species in comparison to dentex. Since the analysed fish species vary in their fatty acids composition consumption of diverse fish species would be advisable. Based on the established lipid quality indicators, dentex, a fish species underutilised by the aquaculture, seems to be a highly recommendable and important source of fatty acids recommended to be included into the human diet.

Keywords : dentex, fatty acids, farmed fish, sea bass, sea bream

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