Quantitative determination of fatty acids in marine fish and shellfish from warm water of straits of Malacca for nutraceutical purposes

ABSTRACT

This study was conducted to quantitatively determine the fatty acid contents of 20 species of marine fish and four species of shellfish from Straits of Malacca. Most samples contained fairly high amounts of polyunsaturated fatty acids (PUFAs), especially alpha-linolenic acid (ALA, C18:3 n3), eicosapentaenoic acid (EPA, C20:5 n3), and docosahexaenoic acid (DHA, C22:6 n3). Longtail shad, yellowstripe scad, and moonfish contained significantly higher ($P<0.05$) amounts of eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and alpha-linolenic acid (ALA), respectively. Meanwhile, fringescale sardinella, malabar red snapper, black pomfret, Japanese threadfin bream, giant seaperch, and sixbar grouper showed considerably high content (537.2-944.1 mg/100g wet sample) of desirable omega-3 fatty acids. The polyunsaturated-fatty-acids/ saturated-fatty-acids (P/S) ratios for most samples were higher than that of Menhaden oil (P/S=0.58), a recommended PUFA supplement which may help to lower blood pressure. Yellowstripe scad (highest DHA, ω-3/ω-6=6.4, P/S=1.7), moonfish (highest ALA, ω-3/ω-6=1.9, P/S=1.0), and longtail shad (highest EPA, ω-3/ω-6=0.8, P/S=0.4) were the samples with an outstandingly desirable overall composition of fatty acids. Overall, the marine fish and shellfish from the area contained good composition of fatty acids which offer health benefits and may be used for nutraceutical purposes in the future.

Keyword: Fatty acids; Fish; Shellfish; Warm water; Nutraceutical; Malaysia