

Characterization of fatty acids in selected freshwater fish in Sri Lanka

U.L.A. Majeed¹, Y.Suiltonbawa^{2*} and A. Bamunuarchchi³

^{1,3} *Department of Food Science & Technology, Faculty of Graduate Studies, University of Sri Jayewardenepura, Nugegoda, Sri Lanka.*

² *Industrial Technology Institute (ITI), 363, Baudhaloka Mawatha, Colombo-07, Sri Lanka.*

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Abstract

The proximate chemical composition and fatty acid profiles of the flesh of eight under utilized freshwater fish species namely: *Wallago attu* (Freshwater shark, (Vallaya)*, *Heteropneustus fossilis* (Stinging catfish, (Hunga*, Shunken**), *Macragnathus aculeatus* (Lesser spiny eel, (Batakolateliya*), *Etroplus suratensis* (Green chromidae, (Koraliya*, Sethel**), *Glossogobius giuris* (Bar eyed goby, Weligowa*, Kal katta*, Uluvai**), *Labeo dussumier* (Common labeo, Hirikanaya*, Gan kanaya*), *Labeo porcellus* (Orange finned labeo, Thambalaya*, Thambalavanna*) and *Oreochromis mosambica* (Tilapia*) obtained from the perennial freshwater reservoirs of Polonnaruwa, Sri Lanka were determined. The proximate analyses were done according to the AOAC, AOCS Official Methods and the oils were extracted as mentioned in the Bligh and Dyer method (Hanson and Olly, 1963). The fatty acid methyl esters were prepared by sodium methoxide method and identified as mentioned in the AOAC Official method (991.39). In this study, the highest EPA and DHA were found in *G. giuris*. In the fish samples analyzed, the % crude protein, moisture, fat and ash contents were 15.03 ± 0.02 to 20.36 ± 0.07 , 74.80 ± 0.33 to 81.70 ± 0.12 , 0.97 ± 0.03 to 3.08 ± 0.08 and 0.81 ± 0.02 to 1.43 ± 0.03 respectively. The fatty acid composition of saturated (SFA), monounsaturated (MUFA), polyunsaturated (PUFA), omega-3, omega-6 (arachidonic acid), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) were 11.96% to 45.54%, 28.70% to 55.89%, 18.05% to 47.83%, 9.70% to 25.72%, 1.25% to 7.57%, 0.86% to 3.80% and 0.83% to 12.95% respectively. Differences among the species in the fatty acid profiles were also observed. In this study, the highest EPA and DHA were found in *G. giuris*.

All these fish types though not reared are caught and consumed by the rural population in Sri Lanka. The study shows that rearing these fish types could have a positive bearing in the country's rural nutrition and employment generation.

*Correspondence: yasmina@iti.lk