



STUDY OF LIPIDS AND COMPONENT FATTY ACIDS OF MARINE SPECIES WITH SPECIAL REFERENCE TO OMEGA-3 FATTY ACIDS

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ABSTRACT

Beneficial health effects of n-3 fatty acids of fish oils on health disorders, such as high blood pressure, heart diseases, rheumatism etc, are well known. This study was undertaken to assess the nutritional value of Sri Lankan fish with respect to n-3 fatty acids. Lipids, fatty acid composition and cholesterol content of ten species of Sri Lankan edible fish namely Balaya (Katsuwonus Pelamis), Kumbalawa (Rastrelliger kanagurta), Talapath (Histioporus gladius), Katuwalla (Chirocentrus dorab), Salaya (Sardinella spp.) Seer (Scomberomorus spp), Parawa (Karanx stellatus), Flying fish (Exocoetus volitans), Shark (Carcharhinus spp), Hurulla (Amblygaster sirm) purchased from Fisheries Corporation and four species of prawns namely Giant tiger prawn (Penaeus monodon), Banana prawn (Penaeus merguensis), Kurutu issa (Penaeus semisalcatus), Wali issa (Metapenaeus ensis), obtained from Lever brothers prawn farm at Thoduwawa were analysed using gas liquid chromatography.

All fish species studied contained relatively low content of lipid (0.5-7.2%). Even Salaya a fatty fish with a reported lipid content of 19.4% had a low value (1.6%) in our study. As expected palmitic

acid (16:0) was the major saturated fatty acid in fish oil and odd numbered fatty acids were found in small amounts in all species studied. Arachidonic acid (20:4 n-6) the precursor of prostaglandin 2 series was present in high levels in the species studied. Salaya , Hurulla, Kumbalawa the small pelagics were the most nutritionally valued fish as they were rich in omega-3 (n-3) fatty acids. In prawns the total omega-3 fatty acid content was low, but the relative eicosapentaenoic acid(EPA) (20:5 n-3) level was high.

Cholesterol level of fish were found to fall within 2.6-56.3 mg/100g. In the case of prawns the observed value for cholesterol were found to be lower than expected.

Supercritical fluid extraction was tried out as a method of preparation of omega-3 fatty acid concentrates. The work carried out in this study is not adequate to evaluate the feasibility of this method as a way of getting fish oil concentrates. However preliminary results indicate Salaya to be a potential source for fish oil concentrates.

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