Value addition to commercial shark liver oil

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Fish oils have recently become a subject of extensive research following reports of their health promoting effects attributable to their high content of omega-3-fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Sharks are very strong candidates as source of oil rich in omega-3-fatty acids. Generally shark liver oil contains 20-25 % omega-3 fatty acids (total), 15-18 % DHA and 2.5-4 % EPA. In Sri Lanka very small quantities of oil extracted from shark livers are presently being used for the preparation of animal feeds. Large quantities of shark livers are wasted, and no value addition is done for edible purposes. The objective of this study was to develop a blended oil incorporating shark liver oil and to evaluate its properties. Overall objective of this study was to add value to shark liver oil for human consumption in Sri Lanka. Specific objectives were: masking of fishy flavour of shark liver oil, development of a blended oil incorporating shark liver oil, sensory evaluation of blended oil and determination of the shelf life of blended oil.

Ten percent charcoal (w/w %) treatment was applied to remove the off flavour and reddish brown colour of crude shark liver oil. Lemon oil of 0.2 % (w/w %) was used as the flavour-masking agent. A blended oil was developed in 1:3 (shark liver oil: vegetable oil) weight ratio, which can supply 35.7 % of omega-3-fatty acids (total), 55.9 % of DHA and 34.1 % of EPA from the average daily requirement by consuming 10 g/day (1 table spoon). Stir-fried leeks and prawns using prepared blended oil were subjected to a sensory evaluation along with a commercially available vegetable oil as the reference. According to the results of the sensory evaluation there was no significant difference ($P>0.05$) between the blended oil and the vegetable oil, used. Prepared blended oil showed greater stability against oxidation at elevated temperatures. Shelf life and hydrolysis qualities of blended oil were also at a satisfactory level. Prepared blended oil could be promoted as a source of omega-3-essential fatty acids in Sri Lanka.