

Dietary fiber content, fatty acid and starch digestible rate of seaweed and seaweed based products in Sri Lanka

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Seaweeds are marine algae rich with nutrients which played vital role in food industry. The diets rich in fiber and nutrients in marine algae and based products have positive effects on human health. The focus of this study was to evaluate the total dietary fiber (TDF) and fatty acids profiles (FA) in five native seaweed species, some extracts and prepared products. TDF analysis of the seaweeds were conducted by enzymatic digestion methods while fatty acids were analyzed by gas chromatography method. In addition *in vitro* starch digestibility rate was also determined in seaweed based vegetable soup samples compared to commercial soup. The TDF contents of *Sargassum species*, *Ulva reticulate* and *Ulva lactuca Gracilaria verrucosa* and *Kappaphycus alverazii* found 77%, 70%, 66%, 59% and 46% respectively. The seaweed extracted polysaccharides agar, carrageenan and alginic acid were also reported higher TDF values 77%, 74% and 73% respectively. The TDF values of seaweed incorporate three products *Ulva* and agar mixed vegetable soup, *Ulva* jam and agar added fruit jams (replace pectin) were 45%, 58%, and 40% respectively and lower compared to others. Fatty acid profile of *Gracilaria verrucosa* consisted of nine types (60%) of saturated fatty acids (SAFA), three types of (20%) mono unsaturated fatty acids (MUFA) and five types (5.8%) of polyunsaturated fatty acids (PUFA). The starch digestibility rate of seaweed mixed soup recorded half of the record that of commercial soup. The five seaweed species and related products were found to be rich sources of dietary fiber, and valuable source of poly unsaturated fatty acids with and n-6 FA and n-3 FA ratio at 1. This ratio recommended by World Health Organization to be less than 10 in order to prevent inflammatory, cardiovascular and nervous disorders in human body

Keywords: dietary fiber, unsaturated fatty acids, seaweeds, polysaccharides, digestibility

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