



IVC/2020/8

An exploratory study to utilize seaweed protein as a protein alternative in food industry

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Abstract

The food consumption patterns of people around the world are now moving towards plant oriented foods due to various reasons. Although the protein requirement of people is mostly fulfilled by the animal sources; today, people consume plant based foods since some animal foods can lead to infectious viral diseases. Seaweeds are recognized as an excellent source of protein. This is a preliminary study done to evaluate protein content of different seaweed species in Sri Lanka and extract proteins to utilize as a protein alternative in foods. Initially, naturally grown; *Turbinaria ornata* (Phaeophyta), *Gracilaria salicornia* (Rhodophyta), *Caulerpa lentilifera* (Chlorophyta) and a cultivated variety; *Kappaphycus alvarezii* (Rhodophyta) were collected from Jaffna in December 2019 and their crude protein contents were determined. The freshly harvested samples were washed well and oven dried (60°C, 10h). And the dried samples were grounded and sieved to obtain similar particles. The crude protein contents (%) of the dried powder samples that were determined using Kjeldhal method are 8.1586 ± 0.0059 , 9.6193 ± 0.0119 , 14.511 ± 0.009 , 10.528 ± 0.0652 respectively. Moisture contents (%) of these dried samples were 8.52 ± 0.01 , 9.09 ± 0.08 , 8.74 ± 0.03 , 9.33 ± 0.04 respectively. Generally, the protein content of seaweeds varies with factors like species, season, geographical location etc. According to the above results, protein content of the selected seaweeds varied as *Caulerpa lentilifera* > *Kappaphycus alvarezii* > *Gracilaria Salicornia* > *Turbinaria ornata* ($p < 0.05$ at 95% confidence interval). In addition, the determination of the soluble proteins and the protein profiles of the above seaweeds are in progress.

Keyword: Seaweeds, protein, extract, protein profile