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Biochemical Analysis of Underutilized Seaweed *Ulva lactuca* from Matara, Sri Lanka and Its Application in the Development of a Nutribar

Udayangani Rathnayake¹, Isuru Wijesekara^{1*}, Indika Silva², Indira Wickramasinghe¹. (1) Department of Food Science & Technology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka. (2) Faculty of Graduate Studies, University of Sri Jayewardenepura, Nugegoda, Sri Lanka. * Corresponding author: (isuruw@sci.sjp.ac.lk)

The green seaweed *Ulva lactuca* is currently underutilized in Sri Lanka and it was manually collected during July, 2017 from Matara, Sri Lanka to develop *U. lactuca* enriched nutribars. The cleaned seaweeds were subjected to oven dry at 60 °C for 8 h. Proximate composition, minerals from inductively coupled plasma optical emission spectrometry (ICP-OES), swelling capacity (SWC), water holding capacity (WHC) and oil holding capacity (OHC) were evaluated. Finally crude protein contents and radical scavenging activities were investigated for 0, 5 and 10% seaweed incorporated nutribars. Moisture content of fresh algae was 80.08 ± 0.61% and dry matter content was 19.92 ± 0.61%. The crude protein content found to be in green seaweed was 20.16 ± 0.16%. Iron (Fe) was dominant mineral presence in *U. lactuca* (363.03 ± 13.54 mg kg⁻¹). Cell wall polysaccharide content obtained was 17.21%. In this study WHC of pulverized *U. lactuca* was about 4.39 g of water per g of dry matter. SWC was 1.00±0.10 mg/g and OHC was 2.22 g/g at room temperature (25°C). Significantly the highest protein content (8.55 ± 0.38%) was inspected for 10% algal added nutribar while 7.54 ± 0.15% for 0% and 7.89 ± 0.03% for 5% algal added nutribar also the highest radical scavenging activity (34.47%) was observed in 10% *U. lactuca* added nutribar. Therefore, incorporation of under-utilized green seaweed *U. lactuca* can significantly increase the protein content and antioxidant activity of the nutribars. Moreover, it can be processed to develop novel healthy and nutritious foods for Sri Lankan market.

Keywords: Functional foods, Nutraceuticals, Nutribars, Seaweeds, *Ulva lactuca*