

## Antioxidant Potential of Common Sea Weeds, *Ulva lactuca* and *Sargassum* sp. in Dickwella Bay, Southern Sri Lanka

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A significant number of bioactive compounds extracted from marine plants acts as free radical scavengers. Such compounds have pharmaceutical value since many diseases are associated with oxydative stress caused by free radicals. The present study investigated the antioxidant properties in phytochemicals extracted from *Sargassum* sp. and *Ulva lactuca* collected from Dikwella bay, Southern Sri Lanka. Methanolic extractions were obtained to perform the phytochemical screening which indicated the presence of flavonoids, terpenoids, tannins, steroids, glycosides, and saponins in both samples. Following the extraction of phytochemicals, antioxidant activities were tested using DPPH (2,2-diphenyl-picryl-hydrazyl) radical scavenging activity, total phenolic content (TPC) and phosphomolybdenum assays. To determine the DPPH activity, light absorbance was measured at 517 nm and ascorbic acid was used as the standard reference solution. The TPC was determined by Folin-Ciocalteu colorimetric method using gallic acid as standard reference. Phosphomolybdenum assay was conducted to evaluate the total antioxidant activity by measuring the absorbance at 695nm. The crude concentrations of the *Sargassum* sp. and *Ulva lactuca* were  $40.20 \pm 7.62$  mg/mL and  $41.76 \pm 3.95$  mg/mL respectively. The DPPH radical scavenging activity of *Sargassum* sp., *U. lactuca* and ascorbic acid showed the IC<sub>50</sub> (half minimal inhibitory concentration) values of  $8.41 \pm 0.01$  mg/mL,  $5.01 \pm 0.01$  mg/mL and  $71.15 \pm 0.01$  mg/mL respectively. Extract of *U. lactuca* gave the highest IC<sub>50</sub> ( $p < 0.001$ ) value than that of ascorbic acid and *Sargassum* sp. showed significantly higher TPC ( $106.78 \pm 0.36$  mg GAE/g) than *U. lactuca* ( $84.75 \pm 0.35$  mg GAE/g). In phosphomolybdenum assay, *Sargassum* sp. ( $113.016 \pm 1.47$  mg) indicated a significantly higher antioxidant value ( $p < 0.05$ ) than *U. lactuca* ( $62.769 \pm 1.78$  mg AAE/g). Results indicated the presence of high DPPH radical scavenging activity of plant extracts than the standard ascorbic acid reference. *Sargassum* sp. exhibits the highest DPPH radical scavenging activity, total phenolic content and total antioxidant activity compared to the *U. lactuca*. Present study highlights the potential application of *U. lactuca* and *Sargassum* sp. as possible sources of natural antioxidants in pharmaceutical and food manufacturing industries.

**Keywords:** Seaweed, Antioxidant, Phytochemicals, DPPH, Reducing power