

## **Antioxidant Activity of the Crude Extract of *Ulva lactuca* (Sea Lettuce) Collected from the South Coast of Sri Lanka**

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*Ulva lactuca* is one of the famous edible seaweeds around the world. It is a rich source of many nutrients and bioactive compounds. Solvent extraction method is commonly used in extracting bioactive compounds in seaweeds which may be non-food grade. The objective of this study was to develop a simple, food grade extraction method to extract bioactive compounds from *Ulva lactuca* and identify the antioxidant activity of the crude water soluble extract and compare with a commonly used solvent extraction method. Four types of seaweed treatments (05 g) namely Fresh, Air-dried (AD), Oven-dried (OD) and Freeze-dried (FD) were used for the water extraction using three different ratios as 1:10, 1:20 and 1:30 and Air-dried sample using Methanol as the control. The crude extracts derived from different extraction methods were used for analyzing the antioxidant activity by Thiobarbituric Reactive Substance (TSARS) assay and 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay. All the trials were done in triplicates. Data were analyzed using the Minitab 18. In TBARS assay, methanol extracts showed the lowest TEARS value ( $-1.10 \pm 0.08$ ) and AD (1:30) and OD (1:10, 1:20, 1:30) showed no significant difference ( $p > 0.05$ ) compared to antioxidant activity of the methanol extracts. Almost all the samples showed antioxidant activity except Fresh (1:10, 1:20) and AD (1:10). However, In DPPH scavenging assay, DPPH scavenging activity of Fresh (1:10, 1:20, 1:30), AD (1:10, 1:20, 1:30), OD (1:10, 1:30) and FD (1:30) showed no significant difference ( $p > 0.05$ ) compared to that of methanol extracts. AD (1:10) showed the highest DPPH scavenging activity ( $89.54 \pm 4.56\%$ ) which is higher than methanol ( $87.75 \pm 2.87$ ) and Ascorbic acid ( $85.73 \pm 0.19$ ). Therefore it can be concluded that considering the time of production, simplicity, toxicity and cost; water extraction of Fresh (1:10) or AD (1:10) can be used as a best extraction for producing antioxidant agents in food industry.

*Keywords:* *Ulva lactuca*, Water extraction, Antioxidant, TBARS, DPPH