

ANTIOXIDANT POTENTIAL OF *Salicornia brachiata*, AS A HALOPHYTE FOR FUNCTIONAL FOOD AND PHARMACEUTICAL APPLICATIONS

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Salicornia brachiata, also known as sea glasswort, is an euhalophytic plant from the Chenopodiaceae family, recognized for its traditional medicinal value, and used to treat constipation, hepatitis, diarrhea, diabetes, cancer, hypertension, obesity, and chronic inflammation. It is also commercially exploited for functional food, nutraceutical, and pharmaceutical purposes. Therefore, the present study aimed to evaluate the antioxidant activity, total phenolic content (TPC), and total flavonoid content (TFC) of the crude extract of *Salicornia brachiata* leaves in Kandakuliya-Kalpitiya, Sri Lanka. Antioxidant activity was assessed using the DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging assay with L-ascorbic acid as the reference standard. TPC and TFC were determined using gallic acid and rutin as standards, respectively, with all tests conducted in triplicate. The crude extract demonstrated moderate antioxidant activity, with the highest scavenging activity of $59.91 \pm 2.00\%$ observed at a concentration of 800 $\mu\text{g/mL}$. TPC of the crude extract was tested, with the highest phenolic content of 26.57 ± 0.31 mg GAE/g observed at a concentration of 250 $\mu\text{g/mL}$. TFC of *Salicornia brachiata* crude extract was measured, with a flavonoid content of 19.75 ± 1.89 mg RE/g recorded at 100 $\mu\text{g/mL}$. Statistically significant variations ($p < 0.05$) were observed in antioxidant activity, TPC, and TFC across concentrations. These preliminary findings highlight the potential of *Salicornia brachiata* crude extract, with its notable antioxidant, phenolic, and flavonoid content, as a natural source for functional foods, nutraceuticals, and pharmaceutical development, warranting further in vivo research.

Keywords: Antioxidant, DPPH assay, *Salicornia brachiata*, Total flavonoid content, Total phenolic content