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PRELIMINARY CHEMICAL INVESTIGATION OF TWO BROWN MARINE ALGAL SPECIES IN SRI LANKA

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Brown marine algae are currently of great interest due to their abundance of bioactive compounds that can be used for several therapeutic and other applications. About 320 species of marine algae belonging to different families have been identified along the coast of Sri Lanka. In the present study, brown marine algal species *Sargassum polycystum* and *Turbinaria ornata* found in the Jaffna coastal area were studied for their phytochemicals, functional groups, minerals and fatty acid profile with standard assays. Aqueous algal extracts for the phytochemical screening were prepared by mixing dried, powdered samples in distilled water (1:10 w/v) followed by sequential extraction for 24 hours, while dried powdered samples were used for functional group analysis by FTIR and mineral content by ICP-MS. The fatty acid profile was analysed by direct transesterification of fatty acids followed by GCMS. Phytochemical screening results revealed the presence of reducing sugars, saponins, glycosides, triterpenoids, tannins, phenols, and alkaloids in both algal species. FTIR analysis indicated the presence of functional groups corresponding to alkaloids, amino acids, polysaccharides such as pectins and polymers such as lignins and cutins. Both algal species contained calcium, potassium, sodium, copper, iron and zinc. Trace amounts of heavy metals chromium, nickel, arsenic, mercury and lead were detected in both dried and powdered samples. *Sargassum polycystum* had the highest calcium content (6.8% dry weight [DW]), while *T. ornata* contained the highest potassium (7.2% DW). Both algal dried powders are good sources of iron due to their relatively high content (881 mg/kg *S. polycystum* and 583 mg/kg *T. ornata* DW). Pentadecanoic acid and hexadecanoic acid (palmitic) were the most prevalent fatty acids present in *S. polycystum* (50%) and *T. ornata* (38%). According to the results of the present study, both algae are good sources of bioactive compounds, essential minerals and bioactive fatty acids.

Keywords: Functional groups, Minerals, Phytochemicals, *Sargassum polycystum*, *Turbinaria ornata*