

Investigation of Antioxidant Activity of Selected Sri Lankan Marine Algal Extracts

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In recent years, there has been significant interest in isolating the bioactive molecules from marine algae for antioxidant activity. Sri Lankan marine algae have received very little attention as a source of secondary metabolites. This study aimed to analyse the content of bioactive compounds and determine their antioxidant activity using 1,1-diphenyl-2-picrylhydrazyl (DPPH) as free radicals. In this study two species of red algae (*Chondeophycus sp.*, *Gracilaria sp.*), two species of brown algae (*Sargassum sp.*, *Padina sp.*), and one species of green algae (*Halimeda sp.*) were collected from Barberine reef, Beruwala and Aluthgama beach. These marine algae samples were subjected to chemical extraction to obtain the crude extracts which were tested for antioxidant activity and subjected to TLC studies. The DPPH assay was used to determine antioxidant properties by measuring the decrease in absorbance at 518 nm. The extracts of *Sargassum sp.*, *Gracilaria sp.*, *Halimeda sp.*, *Padina sp.*, and *Chondrophycus sp.* which were collected have some antioxidant activity and red algae and brown algae were more active than green algae. The *Chondrophycus sp.*, *Padina sp.* and *Gracilaria sp.*, showed the highest total antioxidant activity compared with other species with a IC_{50} value of $138.4 \mu\text{g mL}^{-1}$, $143.7 \mu\text{g mL}^{-1}$ and $149.3 \mu\text{g mL}^{-1}$ respectively. Based on these results and TLC studies, *Padina sp.* was selected for bioassay-guided fractionation by using reversed-phase column chromatography yielded fractions with significant antioxidant activity.

Keywords: *marine algae, antioxidant activity, DPPH*