***IN-VITRO* ANTIOXIDANT AND PHYTOTOXIC PROPERTIES OF THE LICHEN SPECIES *Parmotrema stuppeum* FROM SRI LANKA**

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Acute usage of synthetic antioxidants and weedicides are causing different adverse impacts on the environment and the human body, promoting the use of natural antioxidants and weedicides in order to minimize such impacts. Lichens are a promising source of natural bioactive compounds. However, a very few investigations have been carried out to identify the bioactivity of lichen substances in Sri Lanka. Hence, the present study investigated the antioxidant and phytotoxic properties in the lichen species *Parmotrema stuppeum*, also reported here as a new record for Sri Lanka from the Belihuloya area. We prepared acetone, methanol, and hexane extracts of the air-dried lichen *Parmotrema stuppeum*, and tested them for bioactivity as given below. Free radical scavenging antioxidant ability of extracts was measured using 2,2-diphenyl-1-picryl hydrazyl (DPPH), while the reducing ability was evaluated using ferric reducing antioxidant potential (FRAP) test. The total phenolic content (TPC) of the extracts was evaluated using the Folin–Ciocalteu reagent assay. Further, to evaluate the phytotoxicity of the lichen extracts, a seed germination inhibition assay and a root length inhibition assay were performed by using reddish seeds (*Raphanus sativus* L.). Methanol extract of the lichenshowed the highest free radical scavenging antioxidant activity against DPPH assay (IC50 = 300.3 ppm, R2= 0.923, p≤0.05) and the highest absorbance against FRAP assay (0.1633±0.0211). TPC of the same extract was significantly higher (9.6709±3.8018) compared to all other extracts (p≤0.05). Reddish seeds germination was significantly inhibited by the acetone extract of the lichen *Parmotrema stuppeum* after 24hr and 72hr (p≤0.05). Similarly, the methanol extract of the lichen had the highest root inhibition activity against Reddish seeds after exposure for five days. Hexane extracts of the lichen did not show any bioactivity. Hence, we propose the methanol extract of the *Parmotrema stuppeum* for further studies on applications of its bioactivity.