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A preliminary study on selected biological activities of *Psychotria sarmentosa*

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Psychotria sarmentosa, locally known as "Gonika," is a climbing plant in the Rubiaceae family. It is used in Sri Lankan folk medicine, particularly for treating bone fractures and inflammatory conditions. Despite its traditional use as a folk medicine, scientific validation of its biological properties remains limited. This study aimed to conduct a preliminary investigation on selected bioactivities of *P. sarmentosa* leaves, including: antioxidant activity, phytotoxicity, and cytotoxicity. Fresh leaves were collected, dried, and extracted with methanol via ultrasonication. Then the resulting crude extract was subjected to standard bioassays. Antioxidant activity was assessed using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay and Ferric Reducing Antioxidant Power (FRAP) assay. The extract exhibited DPPH radical scavenging activity with an IC_{50} of 18.16 ± 6.45 mg/L, however, the positive control (ascorbic acid), showed stronger activity (IC_{50} value of 7.90 ± 0.10 mg/L) compared to the *P. sarmentosa* extract. In the FRAP assay, the extract showed strong ferric reducing power (1434.94 ± 31.88 µmol $FeSO_4$/g), showcasing a good electron-donating ability. Phytotoxicity was evaluated using the lettuce seed (*Lactuca sativa*) germination assay with a 1000 ppm crude extract. The results showed 25.92 ± 3.51% inhibition of root growth and 16.03 ± 11.48% stimulation of shoot growth. Cytotoxicity was tested using the brine shrimp lethality assay, where the extract demonstrated a relatively high LC_{50} value of 3542.39 ± 1015.77 mg/L, compared to the positive control $K_2Cr_2O_7$, (LC_{50} of 7.97 ± 0.97 mg/L), indicating that *P. sarmentosa* is a plant with very low cytotoxicity. Overall, this research supports the traditional medicinal relevance of *P. sarmentosa* by demonstrating its strong radical scavenging activity, strong ferric reducing power, weak phytotoxicity, and non-cytotoxicity. Further investigations, including *in vivo* studies and isolation of bioactive compounds, are required to confirm its potential and safety for pharmaceutical, agricultural, cosmetic, or other commercial applications.

Keywords: *Antioxidant activity, cytotoxicity, Gonika, methanolic extract, phytotoxicity*