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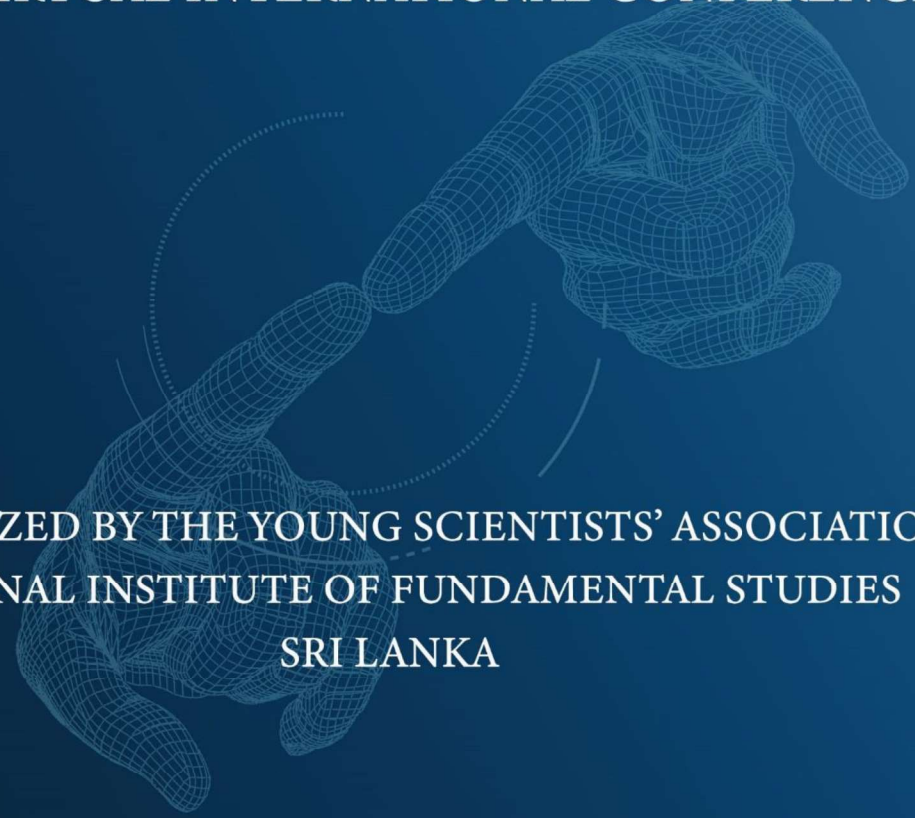

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In vitro antioxidant, cytotoxic, and phytotoxic potential of leaf extracts of four Sri Lankan plants

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Plant kingdom is rich in secondary metabolites with different bioactivities. This study determines antioxidant potential, cytotoxicity, and phytotoxicity of four abundantly distributed plant species in Sri Lanka. Leaves of *Averrhoa bilimbi* (Oxalidaceae/Bilin), *Nyctanthes arbortristis* (Oleaceae/ 'Sepalika'), *Rivina humilis* (Petiveriaceae/ 'Bloodberry'), and *Swietenia mahogani* (Meliaceae/ 'Mahogany') were collected from the Central Province of Sri Lanka and shade dried. They were ground and extracted into methanol (MeOH). The antioxidant potential of crude extracts was tested by 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay, cytotoxicity by brine shrimp lethality assay, and phytotoxicity by the lettuce seed germination assay for a concentration series (2000 mg L^{-1} – 31.25 mg L^{-1}). The results revealed that *S. mahogani* leaves have strong antioxidant potential (IC_{50} of 7.74 ± 2.21 mg L^{-1}) compared with the IC_{50} of positive control: ascorbic acid (IC_{50} 1.84 ± 0.12 mg L^{-1}). Antioxidant potential of *N. arbortristis, A. bilimbi and R. humilis* extracts showed IC_{50} of 122.42 ± 2.09 mg L^{-1}, 790.48 ± 9.12 mg L^{-1}, 837.78 ± 8.25 mg L^{-1} respectively. In the brine shrimp lethality assay, *S. mahogani*, *N. arbortristis,* and *R. humilis* showed LC_{50} of 830.38 mg L^{-1}, 4419.09 mg $L^{-1,}$ and 7295.5 mg L^{-1}. Cytotoxicity for *A. Bilimbi* was not detected due to 0% Lethality. $K_2Cr_2O_7$ was used as the positive control for this assay (LC_{50} 35.16 mg L^{-1}). The IC_{50} for root inhibition of *R. humilis*, *A. bilimbi*, *S. mahogani* and *N. arbortristis* were 1032.78 mg L^{-1}, 1085.72 mg L^{-1}, 1587.63 mg L^{-1} and 2779.43 mg L^{-1} and for shoot inhibition, the values were 2059.05 mg L^{-1}, >10000 mg L^{-1}, 0.76 mg L^{-1} and 1619.71 mg L^{-1} respectively. Compared to the inhibition of abscisic acid (shoot inhibition IC_{50} 0.99 mg L^{-1}, root inhibition IC_{50} 1.11 mg L^{-1}), *S. mahogani* displayed strong shoot inhibition. These results revealed that *S. mahogani* leaf extract has high antioxidant potential, cytotoxicity, and strong shoot inhibition. *R. humilis* showed a mild potential to inhibit root germination of lettuce seeds.

Keywords*: A. bilimbi, N. arbortristis, R. humilis, S. mahogani*