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Antioxidant, cytotoxic and phytotoxic activities of methanolic leaf extract of *Bombax ceiba* L. and *Anisomeles indica* L.

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Bombax ceiba L. (Katuimbula) and *Anisomeles indica* L. (Yakwanassa), two medicinal plants traditionally used in Sri Lanka, were evaluated for their in vitro biological activities. Methanolic extracts were prepared from healthy, air-dried leaves and assessed for antioxidant, cytotoxic, and phytotoxic properties. Antioxidant activity was determined using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay and the Ferric Reducing Antioxidant Power (FRAP) assay. Cytotoxicity was evaluated via the brine shrimp (Artemia salina) lethality assay, while phytotoxicity was assessed using the lettuce (Lactusa sativa) seed germination assay. *Anisomeles indica* exhibited high antioxidant potential with an IC_{50} value of 37.71 ± 2.18 mg L^{-1} in the DPPH assay, compared to *B. ceiba*, which showed an IC_{50} of 162.13 ± 5.54 mg L^{-1}. Both extracts were less potent than the positive control, ascorbic acid ($IC_{50} = 7.90 \pm 0.10$ mg L^{-1}). In the FRAP assay, *A. indica* displayed a higher reducing capacity (683.06 ± 1.25 µmol Fe^{2+} g^{-1}) than *B. ceiba* (353.06 ± 8.16 µmol Fe^{2+} g^{-1}), although both values were lower than the reference compound Trolox (1260 ± 0.01 µmol Fe^{2+} g^{-1}). In the brine shrimp lethality assay at 1000 mg L^{-1}, *B. ceiba* exhibited $70.14 \pm 7.64\%$ mortality, indicating moderate cytotoxicity, while *A. indica* showed $35.42 \pm 2.08\%$ mortality. These values were significantly lower than the cytotoxic effect of the positive control potassium dichromate ($LC_{50} = 7.97 \pm 0.97$ mg L^{-1}). Phytotoxicity results indicated minimal to no inhibitory effects on lettuce seed germination. *B. ceiba* demonstrated root and shoot growth stimulation, with inhibition values of $-12.50 \pm 1.54\%$ and $-25.92 \pm 2.34\%$, respectively. *A. indica* showed a moderate root inhibition of $27.09 \pm 16.70\%$ and a slight stimulatory effect on shoot growth ($-10.79 \pm 18.83\%$). In conclusion, *Anisomeles indica* exhibited notable antioxidant activity and mild cytotoxicity, suggesting potential as a natural antioxidant source. Further phytochemical studies and in vivo evaluations are warranted to isolate active constituents and assess their therapeutic potential.

Keywords: *Brine shrimp lethality, dpph, frap, seed germination.*