



Proceedings of the YOUNG SCIENTISTS' CONFERENCE ON MULTIDISCIPLINARY RESEARCH

VIRTUAL INTERNATIONAL CONFERENCE

YSCMR 2024



Organized by,
The Young Scientists' Association
National Institute of Fundamental Studies, Sri Lanka.

Nature's hidden potentials: bioactivity assessments of *Commelina benghalensis*, *Erythrina variegata* L. and *Symplocos cochinchinensis*

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Nature offers a rich abundance of bioactive compounds with diverse medicinal benefits. *Commelina benghalensis*, *Erythrina variegata* L., and *Symplocos cochinchinensis* are ayurvedic medicinal plants in Sri Lanka, which are used to treat various ailments such as intestinal worms, cholesterol imbalance *etc.* The objective of this study was to evaluate the bioactivities of methanolic extracts of the plants. Leaves of plants were collected from the Central Province of Sri Lanka. They were cleaned, air-dried, and powdered using a grinder and extracted into methanol by sonicating for 30 minutes. The crude extracts were evaluated for antioxidant activity using 2,2-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay and Ferric Reducing Antioxidant Power (FRAP), α -amylase inhibitory, cytotoxicity against brine shrimp lethality and phytotoxicity against lettuce seed germination. In DPPH radical scavenging, the extract of *C. benghalensis* showed the highest activity ($IC_{50} = 28.26 \pm 2.74$ mg L⁻¹), when compared to the extract of *E. variegata* and *S. cochinchinensis*, which displayed IC_{50} values 53.64 ± 5.38 mg L⁻¹ and 35.29 ± 3.34 mg L⁻¹ respectively, where the IC_{50} of positive control ascorbic acid was 1.97 ± 0.06 mg L⁻¹. In the FRAP assay, positive control trolox showed a reducing potential of 12.07 ± 0.30 μ mol dm⁻³ of 1 g of FeSO₄. FRAP values of *C. benghalensis*, *E. variegata* L. and *S. cochinchinensis* were obtained as 2.741 μ mol dm⁻³, 2.367 μ mol dm⁻³, and 3.430 μ mol dm⁻³ of FeSO₄ respectively. *S. cochinchinensis*, *C. benghalensis*, *E. variegata* L. showed 594.66 mg L⁻¹, 6647.52 mg L⁻¹ and 26903 mg L⁻¹ cytotoxicity compared to the positive control K₂Cr₂O₇ ($LC_{50} = 35.16$ mg L⁻¹). None of the extracts showed α -amylase inhibitory activity or phytotoxicity. In conclusion, *C. benghalensis* leaf extract shows strong antioxidant potential, weak root inhibition, and reduced brine shrimp lethality, indicating its therapeutic promise and the need for further research into its bioactive compounds.

Keywords: α -Amylase, antioxidant, cytotoxicity, phytotoxicity