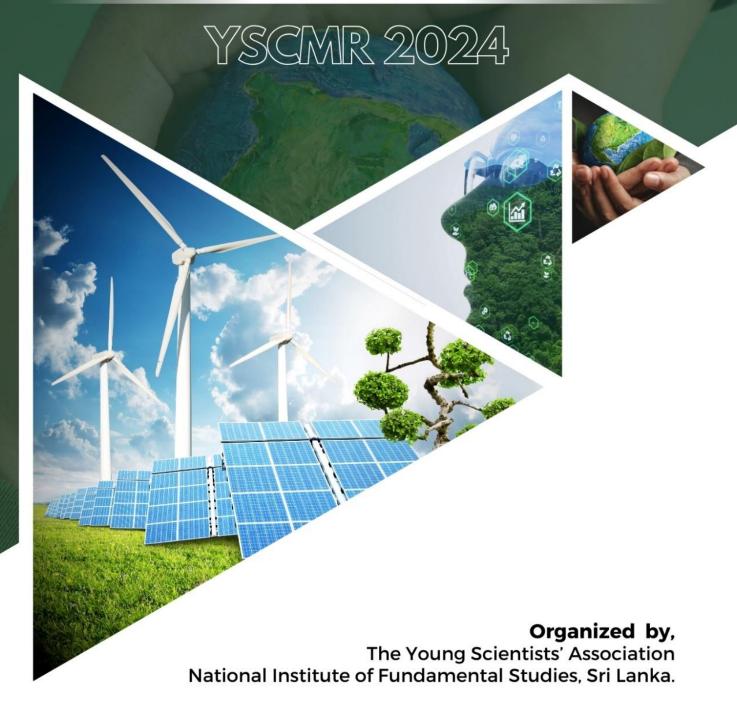




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Nature's hidden potentials: bioactivity assessments of *Commelina* benghalensis, Erythrina variegata L. and Symplocos cochinchinensis

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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-picrylhyrdazyl (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 (IC₅₀ = 28.26 ± 2.74 mg L^{-1}), when compared to the extract of *E. variegata* and *S. cochinchinensis*, which displayed IC₅₀ values 53.64 ± 5.38 mg L⁻¹ and 35.29 ± 3.34 mg L⁻¹ respectively, where the IC₅₀ 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 \pm 0.30 µmol dm⁻³ of 1 g of FeSO₄. FRAP values of C. benghalensis, E. variegata L. and S. cochinchinensis were obtained as 2.741 µmol dm⁻³, 2.367 µmol dm⁻³, and 3.430 µmol 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 $K_2Cr_2O_7$ (LC₅₀ = 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*