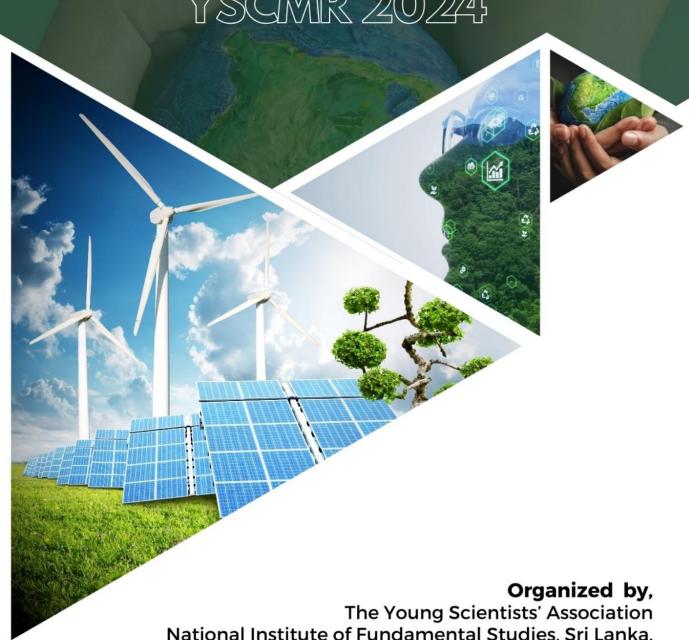


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Bioactivity studies of Eugenia uniflora L. and Vitex negundo L.

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Plants have been used to treat various ailments since ancient times. Eugenia uniflora (Suriname cherry) is used to treat low blood pressure. Vitex negundo (Sudu Nika) is used to treat asthma. This study was carried out to determine selected bioactivities of methanolic extract of E. uniflora leaves, V. negundo leaves, and stem. The dried, and ground samples were extracted into methanol using sonication. Extracts obtained were screened for antioxidant activity against 2,2'-diphenyl-1-picrylhdrazyl (DPPH) and ferric reducing antioxidant power (FRAP) assays, cytotoxicity against brine shrimps, phytotoxicity against lettuce seeds, and inhibitory activity against α-amylase enzyme. The highest DPPH scavenging ability was shown by E. uniflora $(IC_{50} 13.00 \pm 1.47 \text{ mg L}^{-1})$ compared with the positive control: ascorbic acid $(IC_{50} 7.67 \pm 0.47)$ mg L^{-1}). V. negundo leaves and stem showed IC₅₀ values of 174.54 \pm 4.63 mg L^{-1} , and 41.19 \pm 2.24 mg l⁻¹ respectively. The highest activity in the FRAP assay was shown by V. negundo stem (6.63 μ mol dm⁻³FeSO₄/g) which was lower than the positive control: Trolox (12.07 \pm 0.30 µmol dm⁻³FeSO₄/g). E. uniflora and V. negundo leaves showed 0.61 µmol dm⁻³FeSO₄/g and 2.10 µmol dm⁻³FeSO₄/g respectively. In the brine shrimp lethality assay, only *V. negundo* leaves and stem showed LC₅₀ values of 47.21 \pm 15.81 mg L⁻¹ and 527.91 \pm 11.43 mg L⁻¹ respectively, compared to the positive control: K₂Cr₂O₇ (LC₅₀ 35.16 mg L⁻¹). None of the extracts showed phytotoxicity. In the α -amylase inhibitory assay, the highest percentage inhibition was shown by E. uniflora (53.89 \pm 2.35%) for 1000 mg L⁻¹ compared with the positive control: acarbose (IC₅₀ 45.99 \pm 3.97 mg L⁻¹) and V. negundo leaves and stem showed $8.94 \pm 3.27\%$, $13.73 \pm 4.35\%$ respectively. The results demonstrated that all extracts exhibited antioxidant potential while displaying weak phytotoxicity. The study demonstrates the potentialities of extracts for further product development.

Keywords: α-Amylase, antioxidant activity, bioactivities, cytotoxicity, phytotoxicity