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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 ± 1.47 mg L^{-1}) compared with the positive control: ascorbic acid (IC_{50} 7.67 ± 0.47 mg L^{-1}). *V. negundo* leaves and stem showed IC_{50} values of 174.54 ± 4.63 mg L^{-1}, and 41.19 ± 2.24 mg l^{-1} respectively. The highest activity in the FRAP assay was shown by *V. negundo* stem (6.63 µmol $dm^{-3}FeSO_4$ /g) which was lower than the positive control: Trolox (12.07 ± 0.30 µmol $dm^{-3}FeSO_4$ /g). *E. uniflora* and *V. negundo* leaves showed 0.61 µmol $dm^{-3}FeSO_4$ /g and 2.10 µmol $dm^{-3}FeSO_4$ /g respectively. In the brine shrimp lethality assay, only *V. negundo* leaves and stem showed LC_{50} values of 47.21 ± 15.81 mg L^{-1} and 527.91 ± 11.43 mg L^{-1} respectively, compared to the positive control: $K_2Cr_2O_7$ (LC_{50} 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 ± 2.35%) for 1000 mg L^{-1} compared with the positive control: acarbose (IC_{50} 45.99 ± 3.97 mg L^{-1}) and *V. negundo* leaves and stem showed 8.94 ± 3.27%, 13.73 ± 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*