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Bioactivity studies of *Dolichandra unguis-cati* flowers, *Elaeocarpus serratus*, and *Justicia adhatoda* leaves

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Many plant parts have been proven to contain bioactive properties. This study was conducted to determine the bioactivities of flowers of *Dolichandra unguis-cati* (DUC) (family Bignoniaceae), leaves of *Elaeocarpus serratus* (ES) (family Elaeocarpaceae) and *Justicia adhatoda* (JA) (family Acanthaceae). The plants in the mature stage were collected from home gardens in Kandy district, Central Province, Sri Lanka. Plant samples were washed with water, air-dried for a week, and then ground into a fine powder. Extracts were obtained using aqueous dichloromethane (CH₂Cl₂) and methanol (MeOH). Alpha-amylase inhibitory activity, cytotoxicity against Brine shrimps, and 2-2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging antioxidant activity, lipase inhibitory activity, phytotoxicity against germination of lettuce seeds, were assessed for dilution series of each crude extract ranging from 1000 mg L⁻¹ to 31.25 mg L⁻¹. The highest antioxidant activity was observed from methanol extract of ES (ESM) (IC₅₀ = 7.35 ± 0.81 mg L⁻¹), while CH₂Cl₂ extract of ES (ESC) (IC₅₀ = 127.61 ± 4.89 mg L⁻¹), MeOH extract of DUC (DUCM) (IC₅₀ = 270.31 ± 3.55 mg L⁻¹), CH₂Cl₂ extract of DUC (DUCC) (IC₅₀ = 235.94 ± 4.37 mg L⁻¹), MeOH extract of JA (JAM) (IC₅₀ = 129.98 ± 3.70 mg L⁻¹), CH₂Cl₂ extract of JA (JAC) (IC₅₀ = 161.79 ± 0.79 mg L⁻¹) showed high antioxidant activities. ESC showed lipase inhibition activity with IC₅₀ = 260.89 mg L⁻¹. ESM showed amylase inhibition (IC₅₀ = 350.54 mg L⁻¹). Both ESC and ESM showed root inhibition phytotoxicity (IC₅₀ = 598.37 mg L⁻¹, 701.06 mg L⁻¹ respectively). None of the extracts showed lethality against Brine shrimp. These results indicate that leaves of *Elaeocarpus serratus* can be used to isolate antidiabetic, anti-obesity, antioxidant, and phytotoxic compounds, while flowers of *Dolichandra unguis-cati* and leaves *Justicia adhatoda* can be used to isolate antioxidant compounds.

Keywords: α -Amylase, antioxidant, cytotoxicity, lipase, phytotoxicity