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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 (CH<sub>2</sub>Cl<sub>2</sub>) 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<sup>-1</sup> to 31.25 mg L<sup>-1</sup>. The highest antioxidant activity was observed from methanol extract of ES (ESM) (IC<sub>50</sub> = 7.35 ± 0.81 mg L<sup>-1</sup>), while CH<sub>2</sub>Cl<sub>2</sub> extract of ES (ESC) (IC<sub>50</sub> = 127.61 ± 4.89 mg L<sup>-1</sup>), MeOH extract of DUC (DUCM) (IC<sub>50</sub> = 270.31 ± 3.55 mg L<sup>-1</sup>), CH<sub>2</sub>Cl<sub>2</sub> extract of DUC (DUCC) (IC<sub>50</sub> = 235.94 ± 4.37 mg L<sup>-1</sup>), MeOH extract of JA (JAM) (IC<sub>50</sub> = 129.98 ± 3.70 mg L<sup>-1</sup>), CH<sub>2</sub>Cl<sub>2</sub> extract of JA (JAC) (IC<sub>50</sub> = 161.79 ± 0.79 mg L<sup>-1</sup>) showed high antioxidant activities. ESC showed lipase inhibition activity with IC<sub>50</sub> = 260.89 mg L<sup>-1</sup>. ESM showed amylase inhibition (IC<sub>50</sub> = 350.54 mg L<sup>-1</sup>). Both ESC and ESM showed root inhibition phytotoxicity (IC<sub>50</sub> = 598.37 mg L<sup>-1</sup>, 701.06 mg L<sup>-1</sup> 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:**  $\alpha$ -Amylase, antioxidant, cytotoxicity, lipase, phytotoxicity