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In vitro sunscreening and antioxidant activity of different solvent extracts obtained from *Tibouchina urvilleana* (princess flowers) grown in Sri Lanka

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Background: *Tibouchina urvilleana* is identified as a plant with anthocyanins, flavonoids, and isoflavonoids. Flavonoids and anthocyanins are the predominant floral pigments and act as photo protectants according to their ultra violet absorption spectra and high antioxidant activity.
Objective: To evaluate *in vitro* sun screening and antioxidant activity of different extracts obtained from princess flowers grown in Sri Lanka.
Method: Two solvents namely, acidified 70% aqueous acetone, and 70% aqueous acetone were selected to prepare crude extracts from dried flowers obtained from *Tibouchina urvilleana*. The freeze dried powders of crude extracts were subjected to phytochemical tests. The total phenolic and total flavonoid contents were evaluated by Folin-Ciocalteu assay and aluminiumchloride colorimetric method. *In vitro* antioxidant activity was evaluated by 2, 2-diphenyl-1-picrylhydrazyl assay and ferric reducing antioxidant power assay. Sun protective factor was calculated by Mansur equation. Results are expressed as mean ±SD. Means are not significantly different if $p \geq 0.05$.
Results: Phytochemical tests exhibited the presence of phenolic, flavonoids, carbohydrates, and reducing sugars in both extracts. The results of the total phenolic were 8346.0±293.2 (acidified 70% acetone), 8562.9±838.2 (70% acetone) mg Gallic acid equivalents (GAE)/100 g dry weight (DW) of flowers. Total flavonoid content for the extracts were 1116.3±111.6 (acidified 70% acetone), 1389.3 ± 345.6 (70% acetone) mg Catechin equivalents (CAE)/100 g (DW) of flowers. Radical scavenging activities were calculated as 28.0±2.8 (acidified 70% acetone), 28.2 ± 3.0 (70% acetone) mmol Trolox equivalents (TE)/100 g DW of flowers. Ferric reducing antioxidant power of the extracts were 38.5±1.5 (70% acetone) and 36.7±2.1 (acidified 70% acetone) mmol Fe(II) equivalents /100 g DW of the flowers respectively. The 70% acetone extract showed sun screening activity (SPF=38.7) whereas Dermatone (reference) showed SPF=34.2 at the concentration of 0.4 mg/mL.
Conclusion: It is concluded that *Tibouchina urvilleana* flowers have promising total phenolic, flavonoid content, antioxidant and sunscreening activity, which should be further investigated.