

## Endemic Asteraceae from Mauritius Islands as Potential Phytomedicines

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**Abstract :** *Psiadia* species from the Asteraceae are traditionally used in the folk medicine of Mauritius to treat cutaneous and bronchial infections. The present study aimed at validating the phytomedicinal properties of the selected species from the Asteraceae family, namely *Psiadia arguta*, *Psiadia viscosa*, *Psiadia lithospermifolia*, and *Distephanus populifolius*. Dried hexane, ethyl acetate, and methanol leaf extracts were studied for their antioxidant properties using the DPPH (1, 1-diphenyl-2-picrylhydrazyl), FRAP (Ferric Reducing Ability of Plasma), and Deoxyribose assays. Antibacterial activity against human pathogenic bacteria namely *Escherichia coli* (ATCC 27853), *Staphylococcus aureus* (ATCC 29213), *Enterococcus faecalis* (ATCC 29212), *Klebsiella pneumonia* (ATCC27853), *Pseudomonas aeruginosa* (ATCC 27853), and *Bacillus cereus* (ATCC 11778) was measured using the broth microdilution assay. Qualitative phytochemical screening using standard methods revealed the presence of coumarins, tannins, leucoanthocyanins, and steroids in all the tested extracts. The measured phenolics level of the selected plant extracts varied from 24.0 to 231.6 mg GAE/g with the maximum level in methanol extracts in all four species. The highest flavonoids and proanthocyanidins content was noted in *Psiadia arguta* methanolic extracts with  $65.7 \pm 1.8$  mg QE/g and  $5.1 \pm 0.0$  mg CAT/g dry weight (DW) extract, respectively. The maximum free radical scavenging activity was measured in *Psiadia arguta* methanol and ethyl acetate extracts with  $IC_{50}$   $11.3 \pm 0.2$  and  $11.6 \pm 0.2$   $\mu$ g/mL, respectively and followed by *Distephanus populifolius* methanol extracts with an  $IC_{50}$  of  $11.3 \pm 0.8$   $\mu$ g/mL. The maximum ferric reducing antioxidant potential was noted in *Psiadia lithospermifolia* methanol extracts with a FRAP value of  $18.8 \pm 0.4$   $\mu$ mol Fe<sup>2+</sup>/L/g DW. The antioxidant capacity based on DPPH and Deoxyribose values were negatively related to total phenolics, flavonoid and proanthocyanidins content while the ferric reducing antioxidant potential were strongly correlated to total phenolics, flavonoid and proanthocyanidins content. All four species exhibited antimicrobial activity against the tested bacteria (both Gram-negative and Gram-positive). Interestingly, the hexane and ethyl acetate extracts of *Psiadia viscosa* and *Psiadia lithospermifolia* were more active than the control antibiotic Chloramphenicol. The Minimum inhibitory concentration (MIC) values for hexane and ethyl acetate extracts of *Psiadia viscosa* and *Psiadia lithospermifolia* against the tested bacteria ranged from (62.5 to 500  $\mu$ g/ml). These findings validate the use of these tested Asteraceae in the traditional medicine of Mauritius and also highlight their pharmaceutical potential as prospective phytomedicines.

**Keywords :** antibacterial, antioxidant, DPPH, flavonoids, FRAP, *Psiadia* spp

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