3rd International Conference on Ayurveda, Unani, and Siddha Medicine (ICAUS 2026), Postgraduate Institute of Indigenous Medicine, University of Colombo, Sri Lanka |ISSN: 3121-567x(Printed)
|Web: https://pgiimed.cmb.ac.lk/icaus-2026

Phytochemical Screening and Evaluation of Antioxidant Activity of Different Coloured Flowers

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Different coloured flowers are rich sources of phytochemicals with medicinal, nutritional, and antioxidant properties. Their bioactive compounds may serve as natural alternatives for pharmaceutical and functional food applications. Flowers contain diverse groups of phytochemicals, including tannins, terpenoids, alkaloids, flavonoids, flavonols, flavones, gallic acid, and anthocyanins, which have demonstrated various biological activities, including antioxidant and anticancer properties. However, comparative information on the phytochemical composition and antioxidant activity of different coloured flowers is limited.To evaluate the phytochemical composition and antioxidant activity of selected coloured flowers and assess their potential medicinal and nutritional value.To analyse the major phytochemical constituents, evaluate antioxidant activity using the DPPH assay, and compare the antioxidant potential among selected flower species.Fresh coloured flowers were collected and authenticated by Head/Deapartment of Gunapadam, Faculty of Siddha Medicine, University of Jaffna, shade-dried, and extracted using cold methanol. Preliminary phytochemical screening was performed using standard qualitative methods at the Research Laboratory, Faculty of Siddha Medicine. Antioxidant activity was evaluated using the DPPH free radical scavenging assay at the Palmyrah Research Institute.Flavonoids and tannins were detected in all flower extracts. Flavonoids were prominent in the methanolic extracts, particularly in *Nelumbo nucifera*, *Rosa centifolia*, *Punica granatum*, and *Cassia auriculata*, while terpenoids were less frequently detected, mainly in *Punica granatum*, *Rosa centifolia*, *Hibiscus rosa-sinensis*, and *Cassia auriculata*. Glycosides were identified in *Rosa centifolia*, *Nelumbo nucifera*, *Musa sapientum*, *Azadirachta indica*, *Punica granatum*, *Clitoria ternatea*, and *Jasminum sambac*. Saponins were detected in *Cassia auriculata*. *Punica granatum* and *Rosa centifolia* exhibited very strong radical-scavenging activity at lower concentrations.The antioxidant activity was associated with the presence of phenolic phytochemicals, particularly flavonoids and tannins. These compounds are known for their hydrogen-donating and free-radical-neutralising properties.Selected coloured flowers possess significant phytochemical constituents and antioxidant potential. The findings provide preliminary evidence supporting their potential as natural sources of bioactive compounds for pharmaceutical, nutraceutical, and functional food applications. This study also provides comparative information on the phytochemical profiles and antioxidant activities of selected coloured flowers, which may be useful for further pharmacological and nutritional investigations.

Keywords: different coloured flowers, phytochemicals, antioxidant activity, DPPH assay

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