

Analysis of phenolic contents and in vitro sunscreens activity of different solvent extracts obtained from *Nymphaea nouchali* (nil manel) flower

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Natural substances obtained from plants have been recognized as potential sun screening agents due to their UV absorption properties. *Nymphaea nouchali* flowers are being widely used in the treatments in Ayurvedic medicine in Sri Lanka. The aims of this study were to determine phenolic contents and evaluate sun protective activity of *N. nouchali* flower petals grown in Sri Lanka. Two different solvent systems namely, acidified 70% aqueous acetone and acidified 80% aqueous methanol were used to prepare extracts of flower petals of *N. nouchali* by steeping the fresh petals in each solvent overnight in dark conditions. The freeze dried powders of extracts were subjected to preliminary phytochemical tests. The total phenolic, total flavonoid contents and *in vitro* sunscreens activity of two extracts were evaluated by Folin-Ciocalteu assay, aluminiumchloride colorimetric method and spectroscopic measurements followed by Mansur equation for the calculation of SPF values respectively. The results of the preliminary phytochemical screening tests exhibited the presence of phenolic compounds, flavonoids, carbohydrates, reducing sugars, alkaloids, phytosterols and saponins in both extracts. The total phenolic content of two extracts were 302.865± 2.074 (acidified 80% aqueous methanol petal extract/AAMP) and 377.987± 1.309 (acidified 70% aqueous acetone petal extract/AAAP) mg Gallic acid equivalent (GAE)/100 g fresh weight (FW) of petals. Total flavonoid content of extracts were 43.568±0.238 (AAMP) and 69.254±0.716 (AAAP) mg Catechin equivalents (CAE)/100 g fresh weight (FW) of petals. The AAMP showed promising sunscreens activity (SPF=34.26) which is comparable to Dermatone® (reference) at the concentration of 0.35 mg/ml (SPF=33.16). These findings indicated that *N. nouchali* flower petals have high total phenolic, flavonoid contents, and promising sunscreens activity.

Keywords: *N. nouchali* petals, sunscreens activity, total phenolic, flavonoid contents

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