

**PHOTOPROTECTIVE PROPERTIES OF SELECTED MEDICINAL PLANTS
IN SRI LANKA, ON THEIR PHENOLIC AND FLAVONOID CONTENTS**

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In Sri Lanka, a diverse range of plant species has been employed in traditional medicine to treat various health issues. In our previous studies, a positive correlation between sun protection factor (SPF) and antioxidant activity (AA) has been observed on selected traditional medicinal plants; malabar nut (*Justicia adhatoda*), coffee (*Coffea arabica*), pomegranate (*Punica granatum*), guava (*Psidium guajava*), candle bush (*Senna alata*), snap ginger (*Alpinia calcarata*), and mimosa (*Mimosa pudica*) which are used in Asian countries, including Sri Lanka, to treat skin diseases. This study aimed to determine the total phenolic content (TPC) and total flavonoid content (TFC) in the leaves of malabar nut, coffee, pomegranate, guava, and candle bush, in the ground stem of snap ginger, and in the whole plant of mimosa. Further their correlation to the reported AA and SPF was studied. The TPC and TFC were assessed using the Folin-Ciocalteu method [gallic acid equivalent (GAE)] and the aluminium chloride colorimetric method [quercetin equivalent (QE)], respectively. The correlation of TPC and TFC with both AA and SPF was examined using Pearson correlation analysis. According to the results, TPC values ranged from 33.43 to 263.9 mg GAE/g, while the highest and the lowest TPC were observed in pomegranate and coffee, respectively. The highest TFC value was found in mimosa (48.82 mg QE/g) and the lowest in malabar nut (14.20 mg QE/g). Further, a strong positive correlation ($r = 0.921$) was shown between SPF and TPC, and only a moderate correlation ($r = 0.550$) was shown between IC₅₀ of AA and TPC. However, there was no correlation found between TFC with SPF, AA, or TPC. These results conclude that the other phenolic compounds, such as phenolic acids, tannins, and lignans, rather than flavonoids present in these plants, have higher potential towards AA and SPF values. Moreover, the phenolic compounds of these plants can be considered promising natural additives for enhancing photoprotective formulations.

Keywords: Antioxidant activity, Sun Protection Factor, Total flavonoid content, Total phenolic content