

## Photoprotective and Antioxidant Activities of Leaf, Fruit and Seed Extracts of *Cynometra Cauliflora*: A Comparative Study

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At present, there is a growing interest in the development of broad-spectrum, safe herbal sunscreen products. This study aimed to investigate the sun protection potential of fruits, leaves, and seeds of *Cynometra cauliflora* (Naminan) by evaluating the Sun Protection Factor (SPF) and antioxidant activities. Plant extracts of unripe fruit (CUF), ripe fruit (CRF), seeds (CS) and mature leaves (CML) of *C. cauliflora* were prepared by ultra-sonication using methanol as the solvent. In vitro SPF of each extract was determined spectrophotometrically using the Mansur equation and antioxidant activity was analyzed in terms of Total Phenolic Content (TPC) and DPPH radical scavenging activity. The correlation between SPF and antioxidant activity was also analyzed. Data were statistically analyzed using Microsoft Excel 16.0 and IBM SPSS 23.0 software (n=3). The concentration of 0.5 mg/mL methanolic leaf extract of *C. cauliflora* exhibited the highest SPF of  $28.41 \pm 0.75$  compared to other extracts. The order of decreasing SPFs was CML > CS > CRF > CUF. The highest TPC ( $362.50 \pm 3.47$  mg GAE/g of extract) and the DPPH radical scavenging activity ( $IC_{50} = 11.22$   $\mu$ g/mL) were demonstrated by mature leaves of *C. cauliflora*. A strong positive correlation between SPF and antioxidant activities of extracts was also revealed. It can be concluded that mature leaf extract of *C. cauliflora* at a concentration of 0.5 mg/mL exhibits promising sun protective activity which may be mediated by the antioxidants. Further, results indicate the possibility of the formulation of sunscreens using *C. cauliflora* leaf extracts.

**Keywords:** *Cynometra cauliflora*, sun protection factor, antioxidant activity