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## Evaluation of photo protective and antioxidant property of *Azadirachta indica* leaf extract

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Chronic exposure to ultraviolet radiation is the major cause of photoaging and photo carcinogenesis. *Azadirachta indica* (Neem) is a plant known for its versatility in therapeutic applications due to its rich phytochemical constituents. Hence, this study focused on the evaluation of photoprotective and antioxidant properties of *A. indica* leaves. Air-dried leaves were powdered and extracted using 80% (v/v) aqueous methanol. The organic solvent was evaporated using a rotary evaporator and lyophilized to obtain the lyophilized extract. *In-vitro* photoprotective property of the extract was evaluated using 0.2 mg/mL methanolic solution and expressed in terms of spectrophotometric Sun Protection Factor (SPF) according to Mansur equation. The antioxidant activity of the extract was evaluated using 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay and nitric oxide (NO) radical scavenging assay. Leaf extract (0.2 mg/mL) exhibited moderate photoprotective activity and SPF value was  $12.932 \pm 0.857$ . The antioxidant capacity of the leaf extract was  $2567.28 \pm 147.47$  mg ascorbic acid equivalents/100g of dry weight with reference to the standard curve ( $y = 0.7328x - 0.1471$ ,  $R^2 = 0.9979$ ). NO radical scavenging capacity (%) of the leaf extract (1 mg/mL) was  $43.902 \pm 7.581$ . Hence, *A. indica* leaf extract can be successfully incorporated into cosmeceuticals as a natural active ingredient to enhance the photoprotective property and antioxidant capacity.

**Keywords:** *Azadirachta indica*, SPF, Antioxidant, NO Radical

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