

OP 15

Formulation and Evaluation of Herbal Sunscreen Lotion Employing *Clitoria ternatea* Floral Extract as Active Ingredient

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Background: Intermittent exposure to solar UltraViolet (UV) radiation is considered to increase the risk of photo-dermal pathogenesis. Herbal extracts and herbal cosmeceuticals rich with flavonoids have proven their effectiveness as UV filters in terms of absorption, scattering, reflection of UV photons and due their free radical scavenging activity. *Clitoria ternatea* (*C. ternatea*) (Katarolu) is a plant known for its versatility in therapeutic and cosmeceutical applications.

Objective: To formulate and evaluate herbal sunscreen lotion employing floral extract of *C. ternatea* as UV filter

Methods: *In-vitro* photo protective property of freeze-dried floral extract of *C. ternatea* and lotion were determined according to the Mansur equation and expressed in terms of Sun Protection Factor (SPF). Antioxidant capacity of crude extract was determined using Nitric Oxide (NO) Radical Scavenging Assay with minor modifications. Total antioxidant capacity of the plant extracts and optimized formulation were determined using DPPH assay with minor modification.

Results: Solution containing 0.2 mg/mL of freeze-dried floral extract showed SPF value of 20.49 ± 1.04 . Percentage of NO radical scavenging capacity of floral extract (1 mg/mL) was 40.37 ± 5.47 with respect to 92.24 ± 6.54 obtained for positive control. DPPH radical scavenging capacity of floral extract was 1418.25 ± 125.89 mg ascorbic acid equivalents/100 g dry weight. SPF of optimized formulation was 21.38 ± 0.77 and total antioxidant capacity of optimized formulation was 571.82 ± 116.29 mg ascorbic acid equivalent/100 g of optimized formulation.

Conclusions: Floral extract of *C.ternatea* and optimized sunscreen lotion containing the floral extract have demonstrated significant photo protective and antioxidant capacity. Hence chemical UV filters with inherent toxicities can be successfully replaced with the *C. ternatea* floral extract.

Keywords: Antioxidant, *Clitoria ternatea*, Lotion, Nitric Oxide, Sun Protection Factor