

Formulation of Sun Screen Cream and Sun Protecting Factor Activity from Standardized-Partition Compound of Mahkota Dewa Leaf (*Phaleria macrocarpa* (Scheff.) Boerl.)

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Abstract : Mahkota Dewa contains phalerin which has activity as sun screen. In this study, 13 formulations of cream oil in water (o/w) were prepared and tested for their physical characteristics. The physical characteristics were then used for determining the optimum formula. This study aimed to explore the physical stability of optimized formulation of cream, its sun protecting factor (SPF) values using in vitro and in vivo tests. The optimum formula of o/w cream were prepared based on Simplex Lattice Design (LSD) method using software Design Expert®. The formulation of o/w cream were varied based on the proportion of cetyl alcohol, mineral oil and tween 80. The difference of physical characteristic of optimum and predicted formula was tested using t-test with significant level of 95%. The optimum formula of o/w cream was the formula which consists of cetyl alcohol 9.71%, mineral oil, 29%, and tween 80 3.29. Based on t-test, there was no significant difference of physical characteristics of optimum and predicted formulation. Viscosity, spread power, adhesive power, and separation volume ratio of o/w at week 0-4 were relatively stable. The o/w creams were relatively stable at extreme temperature. The o/w creams from mahkota dewa, phalerin, and benzophenone have SPF values of 21.32, 33.12, and 42.49, respectively. The formulas did not irritate the skin based on in vivo test.

Keywords : cream, stability, In vitro, In vivo

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