



Stability Study of a Cosmetic Emulsion Loaded with *Tamarindus indica* Seeds Extract

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SUMMARY. The aim of this study was to explain the physical stability (color, creaming, liquefaction, pH, conductivity, and centrifugation) of a new formulation of a cosmetic emulsion loaded with *Tamarindus indica* seeds extract. The formulation consists of polysiloxanepolyalkyl polyether copolymer (ABIL EM 90) which is a nonionic surfactant used as emulsifier and is characterized and monitored for various physico-chemical aspects. Twenty five formulations of W/O emulsions having different concentrations of oil and aqueous phases were prepared and analyzed for various *in vitro* parameters using suitable instruments. Physical stability was assessed by storing the formulations at 8°C, 25°C, 40°C, and 40°C with 75% RH (relative humidity) for a period of three months. The stable formulation consists of 4% *T. indica* seeds extract, 14% paraffin oil, 2.5% ABIL EM 90, 1% lemon oil and 78.5% distilled water. All the results derived from this study showed good stability over 12 week study period which indicate W/O emulsion can be used as carrier for 4% *T. indica* seeds extract to enhance desired effects.

RESUMEN. El objetivo de este estudio fue explicar la estabilidad física (color, formación de crema, licuefacción, pH, conductividad y centrifugación) de una nueva formulación de una emulsión cosmética conteniendo extracto de semillas de *Tamarindus indica*. La formulación consiste en un copolímero de poliéter polisiloxanopolialquilo (ABIL EM 90) y un tensioactivo no iónico usado como emulsionante, que se ha caracterizado y controlado por medio de diversos aspectos fisicoquímicos. Se prepararon y analizaron veinticinco formulaciones W/O que tienen diferentes concentraciones de aceite y fase acuosa mediante diversos parámetros *in vitro* utilizando instrumentos adecuados. La estabilidad física se evaluó mediante el almacenamiento de las formulaciones a 8 °C, 25 °C y 40 °C y 40 °C con 75% HR (humedad relativa) durante un período de tres meses. La formulación estable contiene 4 % de extracto de semillas de *T. indica*, 14 % de aceite de parafina, 2,5 % de ABIL EM 90, 1 % de aceite de limón y 78,5 % de agua destilada. Todos los resultados derivados de este estudio mostraron una buena estabilidad durante 12 semanas, indicando que la emulsión W/O puede ser utilizada como portador para que el extracto al 4 % de semillas de *T. indica* pueda lograr los efectos deseados.

KEY WORDS: Electrical conductivity, pH, Rheology, Stability, *Tamarindus indica*, W/O emulsion.

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