Abstract

Title: Formulation and physicochemical evaluation of cream-gel containing *Salvia hispanica* seed extract

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Background: Herbal medicine always have had particular status among all the people around the world. In the vast medicine market which consumers demand is rising in herbal skincare products. In this project we provide a stable cream-gel formulation by using *Chia seed* oil. Although *Chia seed* oil had satisfying result in the skincare there was no similar product in the market.

Materials and Methods: The oily extract obtained by soxhelt with n-hexan solvent. The cream-gel formulation was designed by using oily extract of *Salvia hispanica* in 16% W/W for oily phase. In Aqueous phase, we examined Carbomer 934-940, Chitosan in medium molecular weight and Cellulose derivative gelling agents. Moreover, these physicochemical parameters were studied in this process: Appearance, Spreadability, Stability (in 1,3 and month 6 in the 4,25 and 40 ℃ with 75% humidity), Rheology, Freeze-thaw cycle, Release and quantification of Linoleic acid in oil and cream-gel formulation by gas chromatography, pH and o/w or w/o emulsion type.

Results: The final formulation is made from carbomer 934 with 2% W/W, distilled water 60% W/W, glycerin 7% W/W, propylene glycol 7.5% W/W, emulwax BP 2% W/W, propyl paraben 0.3% W/W, methyl paraben 0.3% W/W, sodium hydroxide 6% W/W and the oily extract of *Salvia hispanica* 16% W/W (pH~5.95±0.01). The formulation demonstrated plastic rheology behavior. Also, there was no release from franz diffusion cell as expectations. Stability test was satisfying. The quantity of linoleic acid in oily extract and cream-gel formulation was 20.03% W/W and approximately 2.91% W/W respectively, which were measured by gas chromatography.

Discussion and Conclusion: Based on the results of physicochemical and stability tests, the cream-gel formulation contains *Salvia hispanica seed* extract has the potential to be used as a new stable herbal skin whitening product.

Keywords: Cream-gel, Formulation, *Salvia hipanica*, hyperpigmentation, carbomer, Linoleic acid,