

รูปแบบ Abstract (บทคัดย่อ)

Project Code : DBG5380049

Project Title : Development of nanoemulsion formulation from pomegranate extract by low-energy emulsification method for skin delivery

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Abstract:

The focus of this study is to develop nanoemulsions containing ellagic acid extracted from pomegranate rind for skin delivery. The effect of types and amounts of oils and surfactants on nanoemulsion formation producing by low energy emulsification were investigated to screen for compositions used in formulations. This study found that the formulation which composed of rice bran oil could not form nanoemulsion, while sweet orange oil could form nanoemulsion easier than oleic acid. The different structures of surfactants formed nanoemulsion easier than the same structure. The optimal oil to surfactant ratios which could form nanoemulsions were not more than 2:1 depending on the types of surfactants. Moreover, ellagic acid loading did not affect the formation of nanoemulsion. The study of physical stability under the accelerated conditions found that all formulations were stable after centrifugation. However, the stable formulation which was kept at 45 °C for 17 days was the formulation composed of sweet orange oil (10%) and Tween®20 :Brij®97 (10%). This nanoemulsion had a slow release profile compared to its saturated solution. Thus, the developed nanoemulsions from this study would be of benefit for developing nanoemulsions containing other compounds that possess similar property of ellagic acid.

Keywords : nanoemulsion, ellagic acid, pomegranate extract, low energy emulsification method, skin delivery