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Formulation and evaluation of extra virgin olive oil nano-emulsion as anti-aging

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Extra virgin olive oil contains many antioxidants and vitamin E. Therefore, it is thought to have anti-aging effects. The purpose of this study was formulated and evaluated the physical properties and the anti-aging effects of extra virgin olive oil nano-emulsion. Nano-emulsion was prepared by using 5% extra virgin olive oil and various concentrations of Tween 80 (24, 25 and 26%) as surfactant and sorbitol (36, 35 and 34%) as co-surfactant. Extra virgin oil nano-emulsion was prepared by spontaneous emulsification technique by the addition drop-wise of oil phase to water phase with stirring at 4000 rpm and the result was continued stirring for 6 hours and sonification for 30 minutes to obtain nano-emulsion. Extra virgin olive oil nano-emulsion was evaluated for particle size, thermodynamic stability, transmission electron microscopy, surface tension, viscosity and anti-aging effect in six volunteers. The results of this study showed that the average particle size of extra virgin oil nano-emulsion using the combination of 25% Tween 80 and 35% sorbitol was 189.82 nm with the range particle size was 67.63-338.93 nm, pH was 6.2, viscosity was 113 cP, surface tension was 46.67 dyne/cm, and no creaming after centrifugation at 3750 rpm for 5 hours. The application of extra virgin olive oil nano-emulsion two times a day on the cheek region of volunteers caused no irritation and increase of skin hydration, the smaller of skin pores, decrease of spots and wrinkles. It is concluded that extra virgin olive oil can be formulated as nano-emulsion dosage form and potentially used as anti-aging.

Biography

Anyanti Arianto is a Senior Lecturer of Department of Pharmaceutical Technology, Faculty of Pharmacy, University of Sumatera Utara. Since 1986 she has been working as Academic Staff of Faculty of Pharmacy, University of Sumatera Utara. She has completed her Doctoral course in 2015 from Faculty of Pharmacy, University of Sumatera Utara. Her research interest is about the application of alginate and chitosan in pharmaceutical preparation such as gastro-retentive drug delivery system, sustained release, transdermal and cosmetic preparations. She has published about 15 papers in reputed journals.

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