

Development Of nanoemulsion incorporated with Hibiscus sabdariffa for cosmeceutical application

ABSTRACT

Hibiscus sabdariffa (HS) has been reported to possess a crucial content of bioactive compounds, such as phenolic acids and flavonoids, therefore, HS was recognized as a source of antioxidants. Due to that, the development of nanoemulsion incorporated with HS appears promising for cosmeceutical application. This study is focused on the formulation of oil-in-water (O/W) nanoemulsions of HS to enhance the bioaccessibility of its active compounds. The influences of hydrophilic-lipophilic balance (HLB) value of surfactant and grapeseed oil (GSO) to olive oil (OO) ratio on the droplet size, zeta potential, PDI and stability of the nanoemulsions were investigated. The results showed that the smallest particle size was obtained at 145.9 nm with PDI = 0.388 and zeta-potential = -41.1 mV in the systems prepared using HLB value of 12 and 2:1 ratio of GSO to OO. Then the selected nanoemulsion which based on the lowest particle size (NE-F6, GSO:OO = 2:1, and HLB = 12) showed good stability over time and temperature without no phase separation, creaming or cracking was spotted. The pH value of the NE-F6 was obtained at 5.2.

Keyword: Hibiscus sabdariffa; Nanoemulsion; Oil ratio; HLB value