Preparation and characterization of Korean red ginseng nano-powders

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Abstract

The objective of this study is to fabricate Korean red ginseng (Ginseng Radix Rubra) nano-powders and characterize their physical and chemical properties. Ginseng has been orally consumed as a traditional herbal medicine in many Asian countries because it contains various functional compounds such as ginsenosides, polyacetylenes, polyphenols, etc. Currently, Korean red ginseng has been one of the most popular functional health products in Korea. Korean red-ginseng is produced by steaming raw ginseng at 98-100 °C for 2-3 hr and the ginseng powders are obtained by a Micronizing Mill. To fabricate the nano-scale ginseng powders, pre-milled ginseng powders were ground using a ball milling machine with porcelain balls. Milling time was varied from 1 hr to 24 hr and the particle size and size distribution were investigated. Particle size was significantly depending on the milling time. The average particle size was ranged from 100 nm to 1 μm using a dynamic light scattering (DLS) and spherical particle shape was proved using a scanning electron microscope (SEM). Zeta potential, specific surface area, and solubility of Korean red ginseng nano powders were also investigated.