Title	DEVELOPMENT OF NIACINAMIDE-LOADED SERICIN NANOPARTICLES AS COSMETIC ACTIVE
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ABSTRACT

The aim of this study is to develop the sericin nanoparticles as a cosmetic active. In this study, sericin nanoparticles were developed using solvent evaporation method. The condition of sericin nanoparticles preparation was optimized. Niacinamide-loaded sericin nanoparticles were characterized in terms of particle size, morphology, entrapment efficiency, niacinamide loading, *in vitro* niacinamide release, niacinamide stability and *in vitro* skin permeation. The optimum condition for producing nanoparticles was 2% of sericin, 8% of calcium chloride, 1000 rpm of homogenizing speed and 15 minutes of homogenizing time. Sericin particle size at optimum condition was 264.66 ± 9.83 nm. Morphology of sericin nanoparticles was observed using scanning electron microscope. Spherical shape of the nanoparticle was obtained. Entrapment efficiency of the nanoparticles depended on the amount of niacinamide loading, heating temperature and time. The entrapment efficiency and niacinamide loading were 59.41 ± 8.26 % and 0.50 ± 0.04 % respectively. The releasing behaviors of niacinamide-loaded sericin were observed in pH 5.5 and 7.4 buffered solutions. The niacinamide was completely released from nanoparticles within 2 hours. Niacinamide in sericin nanoparticles was stable at both pH 5.5 and pH 7.4. The temperatures up to 50°C was also no effect on niacinamide stability. *In vitro* skin permeation of niacinamide-loaded sericin nanoparticles was investigated using Franz diffusion apparatus with human skin. Niacinamide-loaded sericin nanoparticles permeated through human skin more than free niacinamide.