PP-400

Development of Nanomaterials for Anti-Aging Applications

Sinan AKGÖL[1], Selami BAĞLAMIŞ[1], Fulden Zeynep URAL[1], Emir ÖZÇALIŞKAN[1], Ceren TÜRKCAN KAYHAN[2]
[1]Biochemistry Department/Faculty of Science, Ege University, Turkey
[2]Medical Laboratory Technique/ Vocational School of Healthy Services, Izmir University of Economics, Turkey
sinanakgol@gmail.com

Aim of the study: Aging is a complex process, which occurs by time and affects personal life adversely in many aspects. It appears with physiological, histological and metabolic changes on microscopic level and wrinkle, dryness, loss of elasticity and spotting on macroscopic level. Reversing of skin aging and minimising the effects of it with cosmetic products to decrease or annihilate the changes through this process, compose one of the most important subjects in cosmetic science. In this research we aim at developing nanomaterials containing chrysin which is a plant flavonoid that shows anti-aging impact, and characterization of nanomaterials and using controlled release on aging surface of skin.

Material and Methods: Anti-aging p(HEMAPA) nanomaterials are synthesized with emulsion polymerization technique. For the characterization of the synthesized p(HEMAPA) nanoparticles, surface area is calculated, SEM images are taken to view the morphological structure, FTIR spectrum is used to determine the chemical bonds and the size analysis were carried out with Zeta-Size. After characterization, pH, temperature, initial amount and time experiments carried out to optimize the adsorption conditions. After the determination of optimum adsorption conditions, controlled release conditions were determined with 5 range of pH and temperature.

Results: First of all, characterization results were obtained. The morphological structure of anti-aging p(HEMAPA) nanomaterials and the Zeta-Size analysis are reviewed; spheric 168 nm diametered nanoparticles were seen and the surface area has been calculated as 4149/g. After the characterization Optimum adsorption coditions were determined as 55°C, pH 12, 90 minutes for chrysin. The maximum adsorption capacity per gram of anti-aging p(HEMAPA) nanomaterials (Q_{max}) is 19,401 mg/g. Results of optimum controlled release were pH 5-6. It is thought that the developed nanomaterial can be used on skin. Considering all of these; when the material's toxic features, maximum bonding capacity and releasing conditions are reviewed, it's seen that the developed p(HEMAPA) nanomaterials are suitable for the anti-aging usage on skin and a promising nanotechnological material.

Keywords: Anti-aging, controlled release, flavonoids, chrysin, nanomaterials