Dispersion stability of citrate- and PVP-AgNPs in biological media for cytotoxicity test

김영훈*, 노진규[1]
광운대학교 화학공학과; [1]광운대학교
(korea1@kw.ac.kr*)

Silver nanoparticles (AgNPs) with antimicrobial property have been used for years in various applications, such as antibacterial coating and air/water purification to eliminate microorganisms. In recent years, a number of studies on the potential risk of nanomaterials in humans and the environment have appeared, and thus a great amount of studies regarding the toxic effects of AgNPs on cells and micro-organisms have been reported. Various biological media were used in in-vivo and in-vitro cytotoxicity tests and revealed that dispersion stability of AgNPs in media is important to a successful toxicity test. Therefore, we investigated the dispersion stability of AgNPs in various biological media; PBS, FBS, DW (pH 2, 7, and 9) with and without light. Herein, citrate and PVP (polyvinylpyrrolidone) stabilized AgNPs were used as target materials. In short- and long-term stability tests, we found that PVP-AgNPs stabilized by steric hindrance have good dispersion stability in biological media, compared to citrate-AgNPs stabilized by electrostatic repulsion.