

Application of BBOT-doped silica nanoparticles in bioimaging

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Blue light emitting silica nanoparticles with very low toxicity were fabricated using ultrasound-assisted Stöber method. Formation of nanoparticles was promoted by large amount of energy from collapse of microbubbles generated by ultrasound. Morphological and photoluminescent properties of BBOT-doped silica nanoparticles prepared by this method were examined by field emission scanning electron microscope (FE-SEM) and fluorescence spectrometer, respectively. Fabricated nanoparticles showed bright blue photoluminescence in solid form and nanoparticles dispersed in aqueous solvent also showed strong emission. Photoluminescent emission of BBOT-doped silica nanoparticles was located in the emission range of BBOT. From this, existence of BBOT in silica nanoparticle was verified. To test toxicity of nanoparticles, HeLa cells were incubated with amino-functionalized nanoparticles and cell viability was measured. Presence of nanoparticles at intracellular region was visualized by confocal microscopy. The potential application of BBOT-doped silica nanoparticles for bioimaging will be discussed.