

Upconversion properties of the Er-doped Y₂O₃, Bi₂O₃ and Sb₂O₃ nanoparticles fabricated by pulsed laser ablation in liquid media

Abstract

Er-doped Y₂O₃, Bi₂O₃ and Sb₂O₃ nanoparticles are synthesized using pulsed laser ablation in a liquid. Ceramic targets of Y₂O₃:Er³⁺, Bi₂O₃:Er³⁺ and Sb₂O₃:Er³⁺ for ablation process are prepared by standard solid-state reaction technique and ablation is carried out in 5-ml distilled water using nanosecond Q-switched Nd:YAG laser. The morphology and size of the fabricated nanoparticles are evaluated by transmission electron microscopy and the luminescence emission properties of the prepared samples are investigated under different excitation wavelengths.

Keyword: Upconversion; Nanoparticles; Pulsed laser ablation.