

Abstract

In this study, Barium oxide nanoparticles have been successfully synthesized by co-precipitation method. The prepared nanoparticles were annealed at different temperatures (400 °C, 500 °C, 600 °C). The characterization was done by using X-ray diffraction, UV-Vis spectroscopy and photocatalysis. XRD analysis confirmed the cubic crystal structure of barium oxide nanoparticles with size in range of 25-40 nanometer. The annealing temperature increased the crystallinity of the sample. UV-Vis spectroscopy depicted the absorption in ultraviolet near visible region. The absorption increased with increasing temperature and band gap decreased with increasing temperature. Photocatalysis of barium oxide nanoparticles showed the degradation of methylene blue dye with maximum degradation with barium oxide sample annealed at 400 °C. Further increase in temperature decrease the degradation ability of barium oxide nanoparticles.