Journal of Basic and Applied Engineering Research
p-ISSN: 2350-0077; e-ISSN: 2350-0255; Volume 2, Issue 19; October-December, 2015, pp. 1713-1713

http://www.krishisanskriti.org/Publication.html

Effect of Capping agents on the Structural and Optical Properties of ZnO Nano Particles

Monalisha Goswami[1], Suparna Bhattacharjee[2], Kanak Chandra Sarma[3]

[1,2]Department of Applied Sciences, Gauhati University, Guwahati- 14
[3]Department of Instrumentation and USIC, Gauhati Universty, Guwahati-14
E-mail: [1]monalishagoswami@yahoo.com

Abstract—*We report studies on structural, compositional and optical properties of synthesized ZnO nanoparticles. The synthesis was carried out by chemical precipitation method using zinc sulphate hepta hydrate ($ZnSO_4.7H_2O$) and sodium hydroxide (NaOH) as precursors in the molar ratio 1:2, and two different capping agent viz. polyvinyl alcohol (PVA) and polyvinyl pyrrolidone (PVP) respectively. The as synthesized samples were annealed at temperature of 200^0 C for 2 hours and then characterized by X-ray Diffraction (XRD), Scanning Electron Microscopy (SEM), Energy Dispersive X-ray (EDAX), Ultra Violet- visible (UV-vis) absorption spectroscopy and Photoluminescence (PL) spectroscopy respectively to study the structural, morphological, compositional and the optical properties etc. On changing the capping agent, variation of properties of the synthesized samples were observed. XRD pattern show wurzite structure of ZnO nanoparticles.SEM reveals more or less spherical shape of the nanoparticles. EDAX spectra confirm the presence of Zinc and Oxygen elements in the synthesized materials. The absorption spectra show a blue shift of the absorption peak compared to that of bulk zinc oxide. PL spectra show good UV emission along with weak visible emission.*