Concentration effect of Zinc Acetate dihydrate as precursor in preparing Zinc Selenide through hydrothermal method

ABSTRACT

Zinc Selenide has been synthesized through hydrothermal method using Zinc Acetate Dihydrate (Zn(O2CCH3)2(H2O)2) and Se powder as the precursor. In a typical synthesis, Zn2+ and Se2- ion have been prepared separately and charged into a teflon-lined stainless steel autoclave. The ZnSe are characterized by X-ray diffraction (XRD), Field Emission Microscopy (FESEM), ultraviolet–visible spectroscopy (UV-Vis) and photoluminescence (PL). From the Pure ZnSe with main XRD peak at 2θ = 27.29°, 45.30°, 53.62°, 65.88°, 72.68° has been synthesized with the optical band gap energy (Eg) of 2.50 eV with emission peak at 486 nm.

Keyword: Hydrothermal; ZnSe compound; XRD; Optical band gap