**Abstract**

Chitosan/ZnO [nanocomposites](https://www.sciencedirect.com/topics/physics-and-astronomy/nanocomposites%22%20%5Co%20%22Learn%20more%20about%20Nanocomposites%20from%20ScienceDirect%27s%20AI-generated%20Topic%20Pages) was synthesized by in-situ [chemical precipitation](https://www.sciencedirect.com/topics/physics-and-astronomy/precipitation-chemistry) method. The effect of [polysaccharide](https://www.sciencedirect.com/topics/materials-science/polysaccharides) Chitosan concentration (0.1 g, 0.5 g, 1 g and 3 g) was investigated by [X-ray diffraction](https://www.sciencedirect.com/topics/materials-science/x-ray-diffraction) (XRD), [Field Emission Scanning Electron Microscopy](https://www.sciencedirect.com/topics/materials-science/field-emission-scanning-electron-microscopy) (FESEM) with Energy dispersive [spectroscopy](https://www.sciencedirect.com/topics/physics-and-astronomy/spectroscopy) (EDX), [High Resolution Transmission Electron Microscopy](https://www.sciencedirect.com/topics/materials-science/high-resolution-transmission-electron-microscopy) (HRTEM), UV–visible (UV), Fourier Transform Infrared (FTIR) and [Photoluminescence](https://www.sciencedirect.com/topics/materials-science/photoluminescence) Spectroscopy (PL). XRD pattern confirms the hexagonal [wurtzite](https://www.sciencedirect.com/topics/physics-and-astronomy/wurtzite%22%20%5Co%20%22Learn%20more%20about%20Wurtzite%20from%20ScienceDirect%27s%20AI-generated%20Topic%20Pages) structure of the Chitosan/ZnO nanocomposites. The structural morphology and the elemental composition of the samples were analysed by FESEM and EDX respectively. From TEM analysis, it is observed that the particles in [spindle](https://www.sciencedirect.com/topics/materials-science/spindle) shape morphology with average particle size ranges 10–20 nm. UV–Vis analysis reveals that the Chitosan concentrations affect the [absorption band](https://www.sciencedirect.com/topics/physics-and-astronomy/absorption-spectra) edge and shift towards lower wavelength. The [oxygen vacancy](https://www.sciencedirect.com/topics/materials-science/oxygen-vacancy) induced photoluminescence of [ZnO](https://www.sciencedirect.com/topics/materials-science/zno%22%20%5Co%20%22Learn%20more%20about%20ZnO%20from%20ScienceDirect%27s%20AI-generated%20Topic%20Pages) [nanoparticles](https://www.sciencedirect.com/topics/materials-science/nanoparticles%22%20%5Co%20%22Learn%20more%20about%20Nanoparticles%20from%20ScienceDirect%27s%20AI-generated%20Topic%20Pages) was observed and its intensity decreases by tuning the Chitosan concentration.