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Synthesis and characterization of hydrothermally grown ZnO nanomaterials for biomedical applications AUSTIN SHEARIN, ANAGH BHAUMIK, ADAM WANEKAYA, ROBERT DELONG, KARTIK GHOSH, Missouri State University, MISSOURI STATE UNIVERSITY TEAM — Nanomaterials have been of recent importance in the biomedical field due to their use in drug delivery applications, magnetic resonance imaging, and cell separation. Intrinsically nanomaterials of ZnO are having low cytotoxicity and genotoxicity which is suitable for several biomedical applications. The aim of this work has been to synthesize high quality ZnO nanostructures using hydrothermal process with varied growth parameters. X-ray diffraction studies on the high quality synthesized materials confirmed the hexagonal crystal structure as well as the nano-crystallite size of ZnO. Raman spectroscopy has been done on the nanostructured ZnO to understand the different phonon modes present in the molecule. Scanning electron microscopy was used to observe shape and size of the synthesized nanomaterials. Future work to be done is to study interaction kinetics between ZnO nanostructures with biomolecules such as ATP, RNA and protein.

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