



Microwave Assisted Synthesis of Nickel Nanoparticle Using Hydrazine Hydrate and Its Antimicrobial Activity.

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Abstract: This study focuses on the synthesis and characterization of nickel nanoparticles. Here, chemical reduction technique is used to synthesize nickel nanoparticles using hydrazine hydrate as the reducing agent, nickel chloride hexahydrate as the precursor and polyvinyl pyrrolidone as the capping agent in water medium. The synthesis is carried out within 5 minutes under microwave irradiation at warm condition. In this process the oxidation state of nickel changes from Ni⁺² to Ni⁰ and there is a colour change from royal blue to black. UV spectrum of this nanoparticle showed a broad peak at 286 nm. Morphological studies were performed using scanning electron microscopy (SEM) and the elemental composition was determined using energy dispersive X-ray analysis (EDAX). The antimicrobial activity for the synthesized nickel nanoparticles was also examined.

Keywords: nickel nanoparticles, chemical reduction, UV, SEM, EDAX and antimicrobial studies.

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