

HIMALAYAN HONEY LOADED IRON OXIDE NANOPARTICLES AS POTENTIAL ANTIBACTERIAL AND ANTIOXIDANT AGENTS

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In this presentation, author talks on the enhanced biological properties of iron oxide nanoparticles loaded with Himalayan honey. The Himalayan honey loaded iron oxide nanoparticles (IO-NPs) were synthesized using the precursors, $\text{FeCl}_3 \cdot 2\text{H}_2\text{O}$ and $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ in presence of sodium citrate characterized by XRD and SEM analysis and tested for their antioxidant and antimicrobial activities. The SEM images of nanoparticles are highly porous needle like structure. The particles coated with honey have more pronounced needles indicating the surfactant-like behaviour of the honey used (Fig. 1). In 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical assay, the scavenging activity of Himalayan honey loaded IO-NPs was significantly increased in a dose dependent manner by three folds as compared to free IO-NPs. In addition to antioxidant activity, the antibacterial activity of loaded nanoparticles tested over two bacterial strains of *Staphylococcus aureus* and *Escherichia coli* showed a noteworthy inhibition particularly against *E. coli*. It is clear that the biological activity of iron oxide nanoparticles is enhanced considerably after loading with Himalayan honey. This result may pave a way for honey loaded IO-NPs as a best antioxidant and antimicrobial agents.

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