IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 10, March 2025
Impact Factor: 7.67

Green Synthesis and Characterization of Nano-Iron using *Termitomyces* spp.

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Abstract: *Recently, nano-science is one of the most important fields. Production of nanoparticles by using microbes is a new area of interest. Therefore, this study aimed to synthesize nano-iron using Termitomyces spp. by cell-free water extract method followed by confirmation and character- ization of nano-iron by UV-visible spectrophotometry and electron microscopy. Reduction of iron ions to iron atoms was visualized through the change in the color of the mixture from pink to dark brown color with a peak at 226 nm corresponding to the Surface Plasmonic Resonance (SPR) of nano-iron by UV-Vis Spectroscopy. Transmission Electron Microscopy (TEM) showed spherical shaped nano-iron with a size range of 2.5 to 20 nm. The formation of a typical crystalline structure of iron atoms was confirmed by Selected Area Electron Diffraction (SAED). In conclusion, Termitomyces spp. is an excellent bio-factory replacing the conventional chemical and physical techniques.*

Keywords: Biosynthesis; *Termitomyces spp.*; Nano-iron; Nanotechnology

DOI: 10.48175/IJARSCT-24713