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# A STUDY OF BIOLOGICAL AND ANTIFUNGAL ACTIVITIES OF THE SYNTHESIZED NANOPARTICLES

**M. HARIPRIYA**

Research Scholar, Ph. D. in Chemistry
Mansarovar Global University, Bilkisganj, Sehore, M.P., India.

## ABSTRACT

Nanoparticles have garnered significant attention in recent years due to their unique properties, such as high surface area, chemical reactivity, and ability to interact with biological systems. Among the various types of nanoparticles, those with antifungal properties are particularly important in combating fungal infections, which have become increasingly resistant to conventional treatments. The biological and antifungal activities of synthesized nanoparticles are a major area of research, as these particles can be used as an effective alternative to traditional antifungal agents. The synthesis of nanoparticles can be achieved through various methods, including physical, chemical, and biological techniques, with the latter being more environmentally friendly. Biological synthesis, involving plant extracts, bacteria, or fungi, has gained popularity due to its cost-effectiveness and the potential for producing biocompatible nanoparticles. These nanoparticles exhibit significant antifungal activities by interacting with the fungal cell membrane, disrupting its integrity, and inhibiting cell division. The nanoparticles can also enhance the permeability of the fungal cell membrane, leading to the release of intracellular contents and ultimately cell death. Moreover, nanoparticles possess several advantages over conventional antifungal agents, such as broad-spectrum activity, low toxicity to human cells, and minimal risk of resistance development. The biological and antifungal potential of synthesized nanoparticles holds great promise for the development of new, more efficient antifungal therapies, especially in the face of increasing fungal resistance.