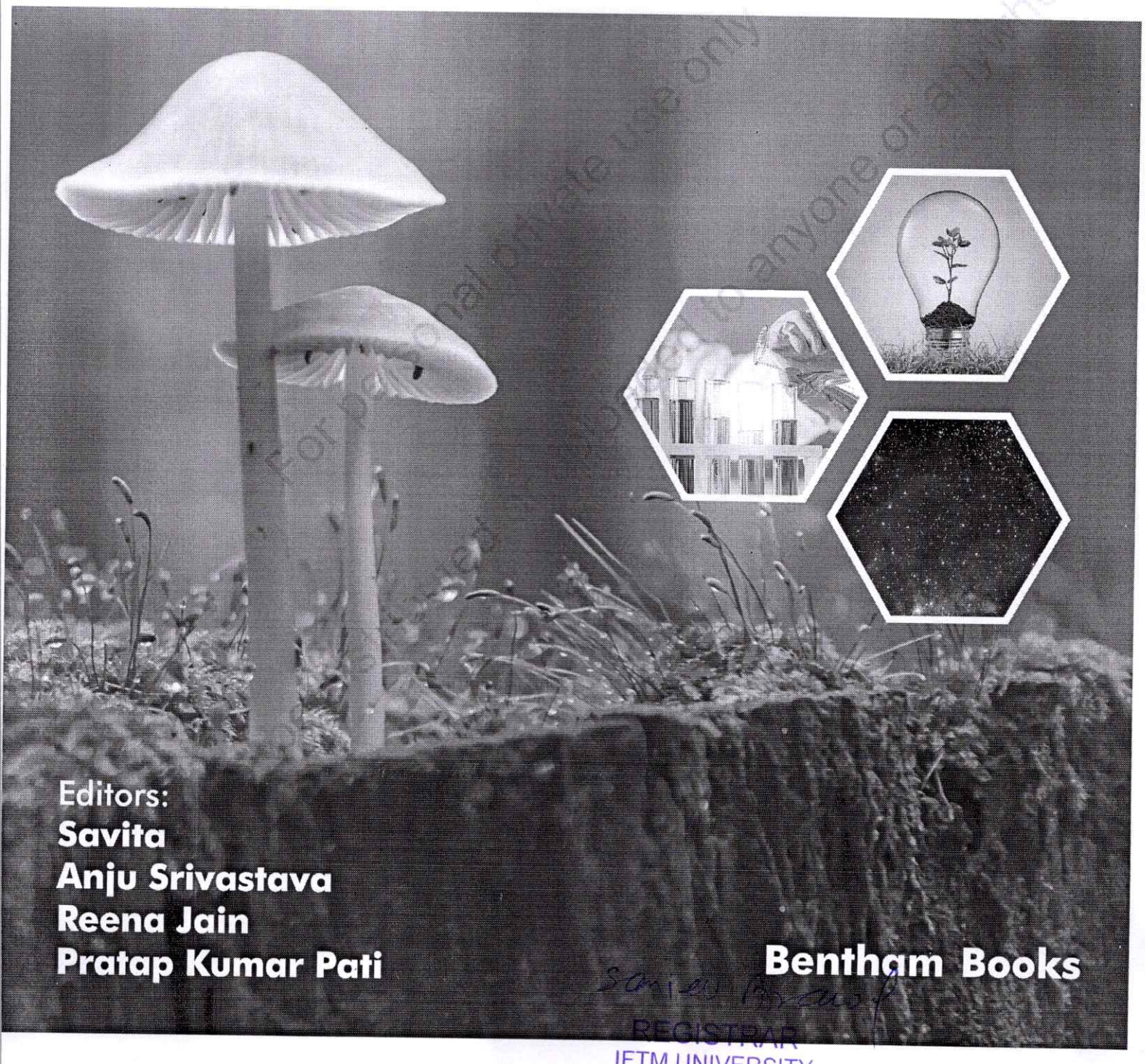
MYCONANOTECHNOLOGY:
GREEN CHEMISTRY FOR SUSTAINABLE DEVELOPMENT



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(Volume 3)

Myconanotechnology: Green Chemistry for Sustainable Development

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CHAPTER 10

Cosmetic and Medical Applications of Fungal Nanotechnology

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Abstract: Nanotechnology is the science of manipulating atoms and molecules in the nanoscale - 80,000 times smaller than the width of a human hair. Nanotechnology is a revolutionary technology that is being used in many fields all over the world as it finds applications in automobiles, electronics, material science, *etc*. Fungal nanotechnology has great prospects for developing new products with industrial, agricultural, medicinal, and consumer applications in a wide range of areas. Nanotechnology has applications in the field of cosmetics, which are known as nanocosmetics. Various types of nanomaterials are employed in cosmetic and medical applications *i.e.* inorganic nanoparticles, Silica (SiO_2), Carbon Black, Nano-Organic materials, Nano-Hydroxyapatite, Gold, and Silver Nanoparticles, Nanoliposomes, *etc*. NPs have been explored and identified as carriers for drug delivery. New drug delivery systems based on nanotechnology have been applied in the treatment of human diseases, such as cancer, diabetes, microbial infections, and gene therapy. The benefits of these treatments are that the drug is targeted to diseased cells, and its safety profile is enhanced by the reduced toxic side effects to normal cells. In general, NPs can be conjugated with different types of drugs to deliver bioactive compounds to the target site by various methods, such as the use of nanotubes, liposomes, quantum dots, nanopores, and dendrimers. It is employed in fuel cell applications that involve polymers in the proton exchange membrane, binder for the electrodes, and matrix for bipolar plates.

Keywords: Fungal Nanotechnology, Nanotechnology, Nanocosmetics, Nanoparticles, Nanosensors, Nanocosmaceuticals.

INTRODUCTION

Nanotechnology is the study of controlling particles and atoms inside the nanoscale - multiple times less than the width of an individual's hair. The world

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