Fungi and their derivatives: versatile tool in Nanotechnology

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Abstract

Fungal nanotechnology has great promise and potential for developing new products with distinct diverse applications in different fields ranging from drug development to the food industry and agricultural biotechnology. The ecological friendly state of their metabolite, their safety, secretion of both intracellular and extracellular, clean and non-toxic agent has made fungi unique in nanotechnology. The diversity of several macro-molecules coupled with ease of scaling up and downstream processing with the existence of fungal mycelia which sustain an increased surface area provide leading benefit as a veritable tool for nanoparticles synthesis. Fungal nanotechnology is applied in agriculture, medical and industrial sectors for goods and services improvement and delivery to mankind. In medical sciences which remain the major area of research, fungal nanotechnology has found their application in diagnosis and treatment of diverse bacterial, fungal, protozoal and viral diseases with an efficacious vaccine development. Agriculturally, it has been applied as disease management in plant and for the production of effective insecticides, fungicides which are environmental friendly, non-toxic in other to enhance agricultural production generally. The current study therefore explored fungal nanobiotechnology; mechanism of synthesis, characterization and potential applications in various fields of human endeavours for goods and services delivery.

Biography of presenting author

ADEBAYO, Elijah Adegoke is an Association Professor (Reader), an Industrial Microbiology and Biotechnology/Nanotechnology and lecturer in the Department of Pure and Applied Biology, Ladoke Akintola University of Technology, Ogbomoso, Nigeria. Some of the awards won are Tugbileye Prize and the Mr and Mrs Tunji Ige Adedoyin Prize for the Best Graduating Student in Biology; CSIR-TWAS (2009) Postgraduate Fellowship Award; LAUTECH Senate grant (2013); TETFund International conference grant (2013); and CONACYT-TWAS (2013)

Postdoctoral Fellowship in Mexico and TETFund Institution-based Research grant (2018). Dr. Adebayo have published over 80 research articles in reputable national and international journals and books. I have thirty-one registered accessions of microbes with NCBI (USA).

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