

Screening for anticancer-compounds producing endophytes inhabiting Egyptian medicinal plants, and metabolic engineering of their biosynthetic machineries

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Abstract

Nosocomial infections are a threat to hospitalized patients and the advent of antimicrobial resistance has aggravated this scenario. In this presentation, you will learn how proteins secreted by *Bionectra ochroleuca* and *Aspergillus tubingensis* fungi were employed to synthesize silver nanoparticles (AgNP) that presented excellent antimicrobial properties. Using an eco-friendly approach, we obtained nanoparticles that proved effective against *S. aureus*, *E. coli* and several clinically relevant *Candida* strains. The nanoparticles' characterization was carried out using several methods, such as dynamic light scattering (DLS), transmission electron microscopy (TEM), and gel electrophoresis. Further experiments revealed that cotton and polyester fabrics impregnated with AgNP also exhibit antimicrobial properties against such pathogens, reaching up to 100% bacterial inhibition. The proteins capping the nanomaterial were identified, providing more insights into the mechanism of metal reduction. Recently, investigations on the nanoparticles' interaction with *Bacillus subtilis* biofilm showed inhibition over 70% at 8 μM . These results pave the way for the exploration of biological nanoparticles in clinical applications. We propose the material to be used as a means to prevent and /or decrease hospital-acquired infections.

Biography:

I have completed BSc from Zagazig University. And an advanced diploma from Suez Canal University. I am working on a master thesis in Enzymology and Fungal Biotechnology lab (EFBL) at Zagazig University. The objective of my work is screening for the presence of an anticancer compound in endophytic fungi isolated from some Egyptians medical plants and evaluate its productivity. My first paper is in the reference step. I hope to get the acceptance as soon as possible, the second is in progress. I am the team leader of EFBL which is a promising lab, we interested in studying cancer research. We are focusing on extracting compounds and enzymes with a powerful antiproliferative activity against cancer. Many researches have been done in this field under the supervision of Prof. Dr. Ashraf Sabry.

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