conferenceseries.com

EUROPEAN ENDOCRINOLOGY AND DIABETES CONGRESS

March 14-15, 2022 | Webinar

The Role of Microbial Biomaterials on Drug-Resistant pathogens

Marwa Gamal Saad
Washington State University, USA

Statement of the Problem: The most common endocrine disease in the United States is the diabetes. Most of diabetic patients experienced wound infections. The speed of the infection and the intensive increase of drug-resistant pathogens highlighted the need for new therapeutic strategies. The purpose of this study is to investigate the inhibition effects of algae-based biomaterials on the growth of the pathogenic strain Staphylococcus aureus in suspension- and biofilm-based cultures. Methodology & Theoretical Orientation: First, a pure culture of Microcystis aeruginosa was mixed with pathogenic culture. Second, the algae-based biomaterials were extracted from pure culture of Microcystis aeruginosa and applied on Staphylococcus aureus biofilm for 24, 48, and 72 hours. The growth of the pathogen was monitored daily and measured as Colony-forming units (CFU) per ml. Then, the extracted biomaterials were characterized for their shape, size using the TEM and the Nano analyzer, respectively. Findings: The growth of Staphylococcus aureus was significantly inhibited as a result of treatments compared to control samples. The inhibition effect of the extracted biomaterials was dose depended. The extracted biomaterials have circular to oval shaped with 100 nm size. Conclusion & Significance: Algae-based biomaterials significantly reduced the growth of the tested drug-resistant pathogen. This novel green strategy provides the opportunity to assess wound infections for diabetics in vivo and open the area for friendly-environmental products. The current antibiotics-related drugs possess multiple problems such as 1) their inability to totally inhibit the growth of drug-resistant bacteria, 2) they are expensive because most are synthetic products, and 3) they can be toxic when discharged into the environment. As a result, these natural products will be of interest to the research and industrial communities because it overcomes the challenges of known antibiotics.

Biography

Marwa Gamal Saad is from Washington State University, USA. The author of Biomaterials extracted from the blue-green alga Microcystis aeruginosa inhibited the growth of pathogenic bacterium.