GREEN SYNTHESIS AND ANTIMICROBIAL POTENTIAL OF SILVER NANOPARTICLES

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ABSTRACT

Developments in nanotechnology are leading to acceptance of this technology in dayto- day life as it continues to provide solutions and alternatives to technological, environmental, and health challenges. Central to all nanotechnology based applications are nanostructures, among which nanoparticles (NPs) are the ones most widely used.With a huge demand for various NPs, it is imperative that environmentally benign synthesis methods are developed. The majority of the existing procedures used for nanoparticle synthesis rely upon physical and chemical methods that sometimes utilize toxic and hazardous chemicals. The integration of the principles of green chemistry to nanotechnology toward the synthesis of "green" nanoparticles is a current requirement. One of the bioactive roles being investigated for NPs is their potential as antimicrobials. This review focuses on biomolecules, microbes, and phytoproducts in mediated green approaches for the synthesis of green silver nanoparticles (GSNPs) with due emphasis on their interaction with bacteria, highlighting their potential to be used as antimicrobial agents.

KEYWORDS: *Nanoparticles, Green Chemistry, Biomolecules, Antimicrobials, Green Silver Nanoparticles*

INTRODUCTION

The discipline of nanotechnology is swiftly evolving as an interdisciplinary science across the globe, interfacing chemical,medical, natural, and physical sciences not leaving behind diverse engineering fields, with myriad of applications in the development of biosensors, alternative energy generation, environmental restoration, and biomedical devices.[1] Various nanostructures such as nanorods, nanospheres, nanoscaffolds, and a variety of nanoparticles (both metallic and non-metallic) are the candidates increasingly contributing to several creative applications. The advent of the industrial revolution in the preceding several decades has led to the