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Short Communication

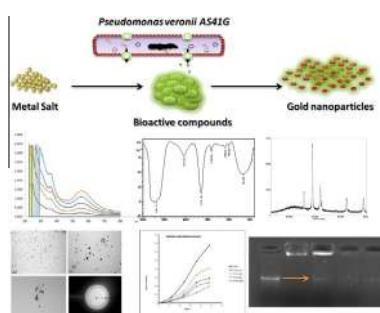
Biosynthesis of gold nanoparticles by *Pseudomonas veronii* AS41G inhabiting *Annona squamosa* L.

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HIGHLIGHTS

- Rapid synthesis of gold nanoparticles using *Pseudomonas veronii* AS41G.
- First report on the synthesis of gold nanoparticles from *Pseudomonas veronii* AS41G.
- Antibacterial activity of gold nanoparticles.
- Mode of action of gold nanoparticles on DNA.

GRAPHICAL ABSTRACT



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ABSTRACT

Biogenic principles to nanotechnology have generated tremendous attention in recent past owing eco friendly benign process for synthesis of nanoparticles. Present investigation reports extracellular synthesis of gold nanoparticles using cell free supernatant of *Pseudomonas veronii* AS 41G, a novel endophyte isolated from *Annona squamosa* L. Gold nanoparticles formation was confirmed with UV-Visible spectrophotometer. FTIR analysis predicted various functional groups responsible for reduction of metal salts and stabilization of gold nanoparticles. Nanoparticles were crystalline in nature as shown in XRD pattern. TEM analysis revealed morphological characteristics of nanoparticles with different size. Thus the present study attributes for facile process for synthesis of gold nanoparticles as an alternative for conventional methods. The study also highlights the new role of novel bacterium *Pseudomonas veronii* AS41G which will be very valuable as a record for the researchers working on it.

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Introduction

Interdisciplinary research and improved scientific knowledge have contributed to significant progress in the field of biology especially with the emergence of nanotechnology which has created huge impact on all spheres of human life. Especially with the integration of nanoparticles which are reported to have

innumerable applications [1]. Use of gold has been traced down since ancient records but with the invention of gold nanoparticles resulted in expansion of its applications. Gold nanoparticles are reported to bear innumerable applications in therapeutic, catalysis, biosensing, drug delivery, cancer treatment, etc. [2]. One of the important aspect of nanotechnology deals with nanoparticles synthesis. Various conventional methods are used for the synthesis of nanoparticles but these methods are bound with limitations. Hence biological route have gained popularity in recent years [3]. Biological entities such as prokaryotes to eukaryotes including plants are actively exploited for synthesis of nanoparticles. However use of plant species may pose a risk and imbalance to

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