

## The Antibacterial Efficacy of Gold Nanoparticles Derived from *Gomphrena celosioides* and *Prunus amygdalus* (Almond) Leaves on Selected Bacterial Pathogens

**Authors :** M. E. Abalaka, S. Y. Daniyan, S. O. Adeyemo, D. Damisa

**Abstract :** Gold nanoparticles (AuNPs) have gained increasing interest in recent times. This is greatly due to their special features, which include unusual optical and electronic properties, high stability and biological compatibility, controllable morphology and size dispersion, and easy surface functionalization. In typical synthesis, AuNPs were produced by reduction of gold salt AuCl<sub>4</sub> in an appropriate solvent. A stabilizing agent was added to prevent the particles from aggregating. The antibacterial activity of different sizes of gold nanoparticles was investigated against *Staphylococcus aureus*, *Salmonella typhi* and *Pseudomonas pneumonia* using the disk diffusion method in a Müller-Hinton Agar. The Au-NPs were effective against all bacteria tested. That the Au-NPs were successfully synthesized in suspension and were used to study the antibacterial activity of the two medicinal plants against some bacterial pathogens suggests that Au-NPs can be employed as an effective bacteria inhibitor and may be an effective tool in medical field. The study clearly showed that the Au-NPs exhibiting inhibition towards the tested pathogenic bacteria in vitro could have the same effects in vivo and thus may be useful in the medical field if well researched into.

**Keywords :** gold nanoparticles, *Gomphrena celesioides*, *Prunus amygdalus*, pathogens

**Conference Title :** ICAB 2014 : International Conference on Advances in Biotechnology

**Conference Location :** Venice, Italy

**Conference Dates :** April 14-15, 2014