

Green Synthesis of Gold Nanoparticles from Leaf Extracts of *Ginkgo biloba* L. and its Antibiotic Potential Against *Escherichia coli* and *Bacillus subtilis* †

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† Presented at International Conference on Bioengineering for Health and Environment (ICBHE 2020)

Received: 5.07.2020; Revised: 10.07.2020; Accepted: 12.07.2020; Published: 15.07.2020

Abstract: Based on the global environmental pollution problems, the main focus of every nano-research is to produce the nanomaterial in a green and eco-friendly way without any interference of chemical synthesis. By the way, the present study was intended to use an aqueous extract of the living fossil plant viz., *Ginkgo biloba* L., to synthesize the gold nanoparticles and evaluate their antibiotic activity against bacterial pathogens. The gold nanoparticles (AuNps) were successfully synthesized by mixing the *Ginkgo biloba* aqueous extract and the auric chloride solution for approximately 24 hours. The UV-Vis spectra of Gold nanoparticles (AuNps) showed the maximum absorption peak at 520nm. The SEM analysis also showed the gold nanoparticles synthesized from *Ginkgo biloba* were spherical with particle size ranging from 40 to 60nm. During our study, the gold nanoparticles exhibited significant antimicrobial activity against bacterial pathogens, i.e., *E. coli* and *Bacillus subtilis*. The later bacterium was found to be more susceptible to the nanoparticles as well as the extracts of *G. biloba* in comparison to the former bacterium.

Keywords: Gold nanoparticles; Antibiotic potential; *Ginkgo biloba* L.; UV-Vis Spectra; *Bacillus subtilis*.

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Funding

This research received no external funding.

Acknowledgments

This research has no acknowledgment.

Conflicts of Interest

The authors declare no conflict of interest.