

REVIEWER'S REPORT

Manuscript No.: IJAR-52348

Date: 19-06-2025

Title: Biosynthesis of silver nanoparticles from *Leea indica* plant extract and evaluate its Antimicrobial and Anticancer activity against prostate cancer cell line

Recommendation:

Accept as it is.....**YES**.....
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality		√		
Clarity			√	
Significance		√		

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Title:

The title is clear and informative. It precisely reflects the scope of the study, including the green synthesis method (biosynthesis), the source material (*Leea indica*), and the applications (antimicrobial and anticancer activity). It appropriately signals the interdisciplinary nature of the research, combining nanotechnology, microbiology, and oncology.

Abstract:

The abstract effectively summarizes the research process and findings. It concisely describes the biosynthesis method, characterization techniques (UV-vis, FTIR, SEM, XRD), and the evaluation of biological activities. The antimicrobial assay is well specified through MBC and MIC testing against *Staphylococcus aureus*. The mention of prostate cancer (PC-3) cell line testing adds clinical relevance. The technical details, such as particle size and morphology (tetra-angular, 150–300 nm), are appropriately included. Overall, the abstract offers a well-rounded overview of objectives, methodology, and outcomes.

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Keywords:

The keywords are mostly appropriate (*Leea indica*, *antibacterial*, *Ag-NPs*, *anticancer*). However, there is a slight redundancy in listing “antibacterial” twice. Despite this, the terms selected align well with the core themes of the study.

Introduction:

The introduction provides a solid context for the study. It starts by defining nanoparticles and their relevance across various scientific fields. The emphasis on metal nanoparticles, particularly silver, is well justified given their known antimicrobial properties and emerging roles in cancer therapy. The brief historical reference to silver's use in microbial control adds depth. Citations [1], [2], [3] are mentioned to support the general statements, indicating awareness of the literature base.

The progression from general nanoparticle utility to the specific interest in Ag-NPs and green synthesis is logical. The introduction sets up the rationale for using *Leea indica* as a reducing and stabilizing agent, although this portion is only implied in the provided excerpt and may be elaborated further in the full paper.

Scientific Content and Rigor:

The study applies a comprehensive suite of characterization methods (UV-vis, FTIR, SEM, XRD), ensuring the physicochemical validation of the synthesized nanoparticles. The biological evaluations include both antibacterial (quantified via MBC and MIC) and anticancer assays, which enhances the translational potential of the findings. The testing against *Staphylococcus aureus* is relevant due to its clinical significance, and the use of the PC-3 prostate cancer cell line targets a specific and impactful oncological application.

Clarity and Style:

The manuscript excerpt is clear and generally well-structured. The technical terms are used correctly, and the writing maintains an academic tone. Minor editorial refinements (such as punctuation and typographic consistency) may be needed in the complete text, but the language remains accessible to a scientific audience.

Contribution and Relevance:

This research contributes meaningfully to the growing field of green nanotechnology. The use of *Leea indica* for silver nanoparticle synthesis introduces a novel and eco-friendly approach. The dual application focus—antibacterial and anticancer—enhances the utility of the synthesized nanomaterial. This is a valuable addition to literature exploring plant-based synthesis routes for multifunctional nanoparticles.

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Overall Evaluation:

The manuscript presents a scientifically sound, well-structured, and contextually relevant study. The interdisciplinary approach and the thorough validation of synthesized Ag-NPs make it suitable for readers in the fields of nanobiotechnology, medicinal chemistry, and applied microbiology. The inclusion of both biological and material characterization strengthens the reliability and applicability of the findings.