

REVIEWER'S REPORT

Manuscript No.: JNHM- 170

Title: Green synthesis of silver nanoparticles using Hibiscus sabdariffa flower extract and their synergistic antimicrobial, antioxidant, and cytotoxic activities.

Recommendation:

Accept after minor revision

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

Reviewer Name: Bilqees Hamza

Detailed Reviewer's Report

The manuscript reports the green synthesis, characterization, and biological evaluation of silver nanoparticles (AgNPs) synthesized using *Hibiscus sabdariffa* extract. The authors present characterization using UV-Vis, TEM, SEM, FTIR, and XRD, along with biological assays testing antimicrobial activity (against *E. coli* and *S. aureus*), DPPH antioxidant activity, and cell cytotoxicity.

While the study addresses an important area of nanomedicine and green chemistry, the manuscript contains significant inconsistencies across its sections, methodological ambiguities, and textual/formatting errors that must be corrected before publication.

2. Improvements Needed

A. Plant Material Discrepancies (Leaf vs. Flower/Petal)

There are multiple conflicting statements throughout the manuscript regarding which part of *H. sabdariffa* was used:

- **Title:** Refers to "flower extract".
- **Abstract & Section 2.8/Discussion/Conclusion:** Refers to "leaf extract".
- **Section 2.1:** Describes collecting "Fresh leaves".
- **Section 2.2 & Figure 1:** Describes using "Fresh petals" and "flowers".
- **Action Required:** Clarify explicitly throughout the entire text whether leaves, flowers, or petals were collected and extracted for the synthesis.

B. Methodological & Characterization Discrepancies

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1. **Cell Line Inconsistency:** Section 2.7 states that cytotoxicity was assessed on the **L929 fibroblast cell line**. However, Section 3.1.7 and Figure 6 explicitly label the results as being on **A549 human lung carcinoma cells**. Clarify which cell line was tested.
2. **Missing Experimental Sections:**
 - Section 3.1.4 is missing a proper heading/text block; it begins abruptly mid-sentence on line 209 ("FIN analysis to une runcionar groups response...").
 - The text mentions ZnO-NPs in XRD results (Section 2.4.4), but the core study focuses on AgNPs. Remove irrelevant mentions of ZnO-NPs unless a dual synthesis was conducted.

C. Formatting and Graphical Errors

1. **Broken/Incomplete Sentences:**
 - Line 176 contains stray text (goo) next to the UV-Vis graph.
 - Line 209 starts with fragmented text (FIN analysis to une runcionar groups response...).
2. **Grammar & Scientific Writing:**
 - Line 42 contains corrupted text (Such sPN dezisehtnysoibexhibit...).
 - Line 56 contains a missing space in a pathogen name (Klebsiellapneumoniae).
 - Section 3.1.5 mentions testing against *MRSA* in text, but Table 2 presents data for *S. aureus* and *E. coli*.

D. Citation and Bibliographic Inconsistencies

- References 10, 21, and 31 cite the exact same publication (*Tasnim et al., 2024, Open Agriculture*).
- References 5, 14, and 39 are redundant duplicate citations.
- References 2 and 49 are duplicated.
- **Action Required:** Clean up the bibliography, merge duplicate entries, and ensure consistent citation numbering throughout the manuscript.

3. Section-by-Section Review

Abstract & Introduction

- Ensure the terminology regarding plant parts (leaf vs. flower) is standardized.

Materials & Methods

- **Section 2.1 & 2.2:** Specify exact extraction details to align leaf vs. petal usage.
- **Section 2.7:** Correct the cell line name (L929 vs. A549).
- **Section 2.8:** Fix typography in $\$IC_{50}$ / $\$IC50$ formatting.

Results & Discussion

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- **Section 3.1.3 & Figure 3:** The text mentions SEM scale bars of 3 μm , 5 μm , 10 μm , and 50 μm , but the micrographs in Figure 3 are blurry and the scale bars are barely readable. Provide high-resolution SEM images.
- **Section 3.1.5 & Table 2:** Align mentioned bacterial strains (*S. aureus* vs. *MRSA*).

Final Recommendation

Decision: Revision

The manuscript demonstrates strong potential, presenting clear antimicrobial, antioxidant, and cytotoxic activities of green-synthesized AgNPs. However, resolving the plant material ambiguity, cell line discrepancy, damaged text blocks, and bibliographic redundancies is necessary before the paper can meet standard publication criteria.