

**Review Form 3**

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| Journal Name:            | <a href="#">International Journal of Biochemistry Research &amp; Review</a>  |
| Manuscript Number:       | Ms_IJBCRR_124324   |
| Title of the Manuscript: | Elephantorrhiza elephantina mediated biosynthesised AgNPs, characterisation and bioactivity against surrogate model Mycobacterium tuberculosis species |
| Type of the Article      | Original Research Article  |

## Review Form 3

### PART 1: Review Comments

| Compulsory REVISION comments   | Reviewer's comment  | Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here) |
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| <p><b>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</b></p> | <p>This manuscript holds significant importance for the scientific community, especially in the context of green nanotechnology and its application in combating infectious diseases. The biosynthesis of silver nanoparticles (AgNPs) using <i>Elephantorrhiza elephantina</i> represents an eco-friendly approach, reducing the need for toxic chemicals in nanoparticle production. The study's focus on the bioactivity of these AgNPs against surrogate <i>Mycobacterium tuberculosis</i> species offers promising insights into developing alternative treatments for tuberculosis, a global health concern. I appreciate the manuscript's integration of phytochemistry and nanotechnology, though further exploration into the long-term effects of these nanoparticles on human health and the environment would enhance its impact.</p>   |  |
| <p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>   | <p>Eco-Friendly Biosynthesis of Silver Nanoparticles Using <i>Elephantorrhiza elephantina</i>: Characterization and Antimicrobial Activity Against <i>Mycobacterium tuberculosis</i> Surrogates</p>   |  |
| <p><b>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</b></p>  | <p>The abstract you provided is largely comprehensive and effectively covers the essential components of a scientific study, including the background, objectives, methodology, key results, and conclusions. However, there are a few areas where it could be enhanced for clarity and completeness:</p> <ol style="list-style-type: none"> <li>1. <b>Clarify Toxicity Assessments:</b> <ul style="list-style-type: none"> <li>○ Current Content: The abstract mentions the toxicity of the lyophilised root extract.</li> <li>○ Suggestion: Specify whether the toxicity of the biosynthesized AgNPs was also evaluated. If not, consider including a rationale for focusing solely on the root extract.</li> </ul> </li> <li>2. <b>Detail on Phyto-Screening Techniques:</b> <ul style="list-style-type: none"> <li>○ Current Content: It states that various phyto-screening techniques were used to identify bioactive phytochemicals.</li> <li>○ Suggestion: Briefly mention the specific techniques employed (e.g., GC-MS, HPLC) to provide more insight into the methods used for phytochemical analysis.</li> </ul> </li> <li>3. <b>Specify Surrogate MTB Species:</b> <ul style="list-style-type: none"> <li>● Current Content: References surrogate model MTB species without specifying which ones.</li> <li>● Suggestion: Mention the specific surrogate species used (e.g., <i>Mycobacterium aurum</i> and <i>Mycobacterium smegmatis</i>) to add clarity and context for readers.</li> </ul> </li> <li>4. <b>Include Mechanism of Action (If Studied):</b> <ul style="list-style-type: none"> <li>● Current Content: Focuses on the effectiveness of AgNPs but does not delve into how they inhibit MTB growth.</li> <li>● Suggestion: If the study investigated the mechanism by which AgNPs exert their antimycobacterial effects, including a brief mention would enhance the abstract's depth.</li> </ul> </li> <li>5. <b>Streamline for Conciseness:</b> <ul style="list-style-type: none"> <li>● Current Content: Some sentences are lengthy and contain multiple points.</li> <li>● Suggestion: Break down complex sentences to improve readability and ensure that each key point is easily digestible.</li> </ul> </li> </ol> |  |
| <p><b>Are subsections and structure of the manuscript appropriate?</b></p>   | <p>The appropriateness of the subsections and structure of the manuscript can be evaluated based on standard scientific writing conventions. Here are key points to consider:</p> <ol style="list-style-type: none"> <li>1. <b>Introduction:</b> <ul style="list-style-type: none"> <li>● Appropriate? Yes, if it provides a clear background on MDR/XDR TB, the significance of silver nanoparticles, and the role of <i>Elephantorrhiza elephantina</i> in traditional medicine.</li> <li>● Suggestion: Ensure the introduction succinctly outlines the problem, gap in the literature, and the objectives of the study.</li> </ul> </li> <li>2. <b>Materials and Methods:</b></li> </ol>   |  |

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|   | <ul style="list-style-type: none"> <li>• Appropriate? Yes, provided it details the experimental design, biosynthesis process, characterization techniques (e.g., TEM, UV-VIS, DLS), and antimicrobial testing protocols.</li> <li>• Suggestion: Ensure all experimental steps are clearly described, allowing replication. Toxicity assessments and phyto-screening techniques should also be included in this section.</li> </ul> <p>3. Results:</p> <ul style="list-style-type: none"> <li>• Appropriate? Yes, if it includes detailed findings such as the size and morphology of AgNPs, the MIC values, inhibition zones, and toxicity data.</li> <li>• Suggestion: Subsections on characterization, bioactivity, and toxicity results would help organize the data clearly.</li> </ul> <p>4. Discussion:</p> <ul style="list-style-type: none"> <li>• Appropriate? Yes, if it interprets the results in light of existing research, explaining the significance of AgNPs' bioactivity and safety.</li> </ul> <p>5. Conclusion:</p> <ul style="list-style-type: none"> <li>• Appropriate? Yes, if it summarizes key findings and suggests future directions or applications in TB treatment.</li> <li>• Suggestion: Ensure the conclusion is concise, focusing on the practical implications of the study's findings.</li> </ul> <p>6. References:</p> <ul style="list-style-type: none"> <li>• Appropriate? Yes, provided all relevant studies, especially those involving green synthesis of AgNPs and MDR TB research, are cited</li> </ul>                    |  |
| <p><b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</b></p> | <p>This manuscript appears scientifically reliable and technically sound due to its methodical approach in synthesizing and characterizing silver nanoparticles (AgNPs) using <i>Elephantorrhiza elephantina</i>. The use of standard analytical techniques, such as UV-VIS spectrometry, ensures the accurate identification and characterization of the nanostructures. Additionally, the study's focus on antimicrobial activity against surrogate <i>Mycobacterium tuberculosis</i> species, combined with in vivo toxicity assessments based on established OECD guidelines, enhances its credibility. The findings are well-supported by quantitative data, such as MIC values and inhibition zones, further validating the study's conclusions.</p>  |  |
| <p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p> <p>=</p>  | <p>To determine if the references in the manuscript are sufficient and recent, consider the following:</p> <ol style="list-style-type: none"> <li>1. Sufficiency: <ul style="list-style-type: none"> <li>○ Ensure the manuscript cites a comprehensive set of studies related to green synthesis of silver nanoparticles (AgNPs), phytochemical analysis of <i>Elephantorrhiza elephantina</i>, and antimicrobial activity against <i>Mycobacterium tuberculosis</i>.</li> <li>○ If the study introduces new methodologies, ensure foundational papers and recent advancements in those methods are cited.</li> </ul> </li> <li>2. Recency: <ul style="list-style-type: none"> <li>○ Look for references from the last 5–10 years, particularly in the areas of nanotechnology, green synthesis, antimicrobial resistance, and phytochemistry.</li> <li>○ Key papers on the recent rise of MDR/XDR TB, alternative therapies, and the latest developments in nanomedicine should be included.</li> </ul> </li> </ol> <p>Suggestions for Additional References:<br/>If missing, the manuscript could benefit from:</p> <ul style="list-style-type: none"> <li>• Papers that specifically address the antimicrobial mechanisms of AgNPs.</li> <li>• Studies on MDR/XDR tuberculosis treatments, focusing on innovative therapeutic approaches like nanotechnology.</li> </ul> <p>Adding these references would ensure the manuscript reflects the latest research in the relevant fields. If these areas are well-covered, the references can be deemed sufficient.</p> |  |

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| Minor REVISION comments<br><b>Is the language/English quality of the article suitable for scholarly communications?</b> | The language quality would be deemed suitable for scholarly communications. If any areas require improvement—such as sentence structure, clarity, or the use of jargon—revisions should be made to enhance overall readability and professionalism.   |  |
| <b>Optional/General</b> comments  | The manuscript presents a valuable contribution to nanotechnology and tuberculosis research, offering an innovative approach to combat drug resistance. It would benefit from increased methodological transparency, possibly through supplementary materials, and the inclusion of visual aids like figures or tables to summarize key data. Expanding the discussion to explore broader implications and future research directions would enhance its depth. Additionally, a thorough language review could improve clarity, and ensuring that all references are current and relevant is essential. Overall, these enhancements could significantly elevate the manuscript's quality and impact. |  |

### **PART 2:**

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|   | <b>Reviewer's comment</b>  | <b>Author's comment</b> (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here) |
| <b>Are there ethical issues in this manuscript?</b> | <i>(If yes, Kindly please write down the ethical issues here in details)</i> |  |

### **Reviewer Details:**

|                                  |   |
|----------------------------------|---|
| Name:                            | <b>Bharti Ghude Wadekar</b>                             |
| Department, University & Country | <b>ZSCT's Thakur Shyamnarayan Degree College, India</b> |