Review of: "Antimicrobial Sensitivity of Plant Extracts of Acacia arabica, Prosopis juliflora, Abutilon indicum, and Bryonia laciniosa on Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli"

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Potential competing interests: No potential competing interests to declare.

Dear Editor,

I have completed the review of the manuscript titled "*Antimicrobial Sensitivity of Plant Extracts of Acacia arabica, Prosopis juliflora, Abutilon indicum, and Bryonia laciniosa on Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli*" by *Aishwarya Andhare, Suchita Bharambe, Amol Pawar, Dhiraj Sutar*, submitted for consideration in Qeios. The study presents valuable insights in the field of Microbiology, and I commend the authors for their efforts. However, I recommend major revisions before acceptance. The detailed section wise comments are as follows:

Abstract:

• Precisely define the criteria used to categorize antibiogram patterns (Susceptible, Intermediate, Slightly Resistant) against the tested plant extracts.

• Briefly discuss the significance of identifying active components from plant extracts and its contribution to the study's objectives and potential applications.

Introduction:

• Provide a comprehensive introduction to the importance of medicinal plants, their historical use, and their potential in modern health challenges.

• Improve clarity by organizing the content into distinct subsections.

• Explain why specific plants were chosen and their relevance to current drug discovery efforts.

• Incorporate recent research findings to underscore the manuscript's up-to-date relevance and contribution.

• Establish a connection between phytochemical compositions and potential medicinal properties.

• Highlight the link between antimicrobial properties and the pressing issue of antibiotic resistance.

• Maintain consistent formatting and ensure grammatical accuracy.

• Conclude the introduction by explicitly stating the research gap or the specific objectives of the manuscript.

Materials and Methods:

• Clearly specify which parts of the collected plants were used for extraction and provide detailed information about the solvents used along with the rationale behind their selection.

• Justify the choice of the plate diffusion assay method over the Kirby-Bauer disk diffusion method for testing antimicrobial effects.

• Elaborate on how Nutrient Agar plates were differentiated for different microbial species and extracts (A, B, C, D, E).

• Provide explicit details about the volume and concentration of the extracts used in the wells and explain how the zones of inhibition (ZOI) were measured, including consideration of well diameter subtraction.

Results:

• Present the morphological characteristics of isolated bacterial samples and explain their relevance in the context of the study, particularly in relation to observed antimicrobial sensitivity.

• Include a clear note or footnote in Table 3.4 explaining the abbreviations Aqs and Eth, clarifying their reference to solvent types (aqueous and ethanolic).

Discussion:

• Perform a concise comparison between your study's findings and prior research (e.g., Chandankar [36], Saeed Tajbakhsh et al. [37]), highlighting both similarities and deviations in antimicrobial activity across different extracts.

• Explain the differing susceptibility of Gram-negative (*E. coli, P. aeruginosa*) and Gram-positive (*S. aureus*) bacteria to plant extracts. Clarify how structural differences in cell walls, such as the presence of outer membranes and lipopolysaccharides in Gram-negative bacteria, contribute to this variation.

• Summarize the practical implications of your study's outcomes, focusing on the potential of*A. arabica, P. juliflora, A. indicum*, and *B. laciniosa* extracts in managing specific bacterial infections.

• Highlight the promise of these extracts against S. aureus, P. aeruginosa, and E. coli-related diseases.

• Stress the significance of future phytochemical analyses to pinpoint the active compounds responsible for the observed antimicrobial effects.

Conclusion:

• Strengthen the conclusion by incorporating quantitative measures that describe the extent of observed antimicrobial activities, such as the range of inhibition zones or the relative potency of different plant extracts against the tested

bacterial strains.

• Extend the conclusion by discussing the potential clinical relevance of your findings. Explain how the antimicrobial activities of these plant extracts could translate into tangible medical applications.

• Emphasize the need for further research and experimentation to harness these extracts for the development of therapeutic drugs.

Addressing these concerns would elevate the manuscript's quality significantly. I recommend allowing the authors to undertake major revisions to address these issues. I am willing to re-evaluate the manuscript after revisions.

Thank you for your consideration.