Review of: "Synthesis and Antibacterial Screening of Cefradine Schiff Bases and Their Metal Salts"

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Potential competing interests: No potential competing interests to declare.

Review

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Review of: Synthesis and Antibacterial Screening of Cefradine Schiff Bases and Their Metal Salts

The reviewer(s) rated it **3**/**5**

Marzieh Dadkhah Aseman[1]

Reviewer(s) details

Declarations

Comments:

The Authors describe the synthesis and characterization of a series of Schiff bases. The synthesized compounds were tested for biological activities against Staphylococcus aureus and Escherichia coli. However, there are a lot of things that

can be improved. Below are my observations. If the Authors improve these points, then the manuscript can be accepted after major revision.

- The abstract provides a concise overview of the research; however, it could include more specific details about the methods and key findings.
- The introduction is well-written and provides a good background on Schiff bases and their significance.
- The experimental section is detailed and includes the synthesis procedures and characterization techniques. However, it could benefit from clearer organization, such as separating the synthesis of Schiff bases and their metal salts.
- The paper clearly states the objective of synthesizing cefradine Schiff bases and their metal salts for antibacterial screening.
- The hypotheses regarding the potential enhancement of antibacterial activity in cefradine derivatives are implied but could be explicitly stated.
- The synthesis procedures are well-documented, but more information on the rationale behind the choice of aldehydes/ketones and bases/salts would strengthen the methodology.
- The use of specific reaction conditions, such as temperature and reaction times, could be highlighted for better reproducibility.
- The paper uses IR and NMR spectroscopy for characterization, which is appropriate. However, additional characterization methods or data (e.g., elemental analysis) could provide more comprehensive support for the synthesized compounds' structures.
- The antibacterial screening results are briefly mentioned, but the paper lacks a detailed discussion of the outcomes.
- The low activities of the synthesized compounds are attributed to the unavailability of the free amino group of cefradine. A more in-depth analysis or supporting evidence for this claim would enhance the discussion.
- The conclusion summarizes the findings but could be strengthened by reiterating the significance of the results and suggesting potential avenues for future research.
- The references are not included in the provided text. Ensuring accurate and complete referencing is crucial for academic integrity.
- Including graphical representations, such as reaction schemes or spectra, can aid in visualizing the synthesis pathways and enhance reader understanding.
- The corresponding author's contact information is provided, but including the affiliation and email addresses of all authors would be beneficial.

Addressing these critical revision points will contribute to the overall clarity, rigor, and completeness of the research paper, and it can be accepted after major revision.