Review of: "Investigation and Synthesis of Benzothiazole-Derived Schiff Base Ligand Against Mycobacterium tuberculosis"

Palraj Ranganathan[1]

1 Center for Condensed Matter and Science, National Taiwan University, Taiwan, Province of China

Potential competing interests: No potential competing interests to declare.

Reviewer Comments

General Comments:

The manuscript presents a study on a Schiff base ligand with potential anti-tuberculosis properties. However, it lacks sufficient detail and depth, making it less informative. The rationale for ligand selection and its relevance to current therapies are not clearly articulated, and the experimental methods and results need further clarity. While the research may have merit, I recommend major revisions to enhance the manuscript's informative value before it can be considered for publication.

Specific Comments:

Abstract:

The abstract is informative but could be more concise. Consider summarizing the key findings without excessive detail, particularly regarding methods that are better suited for the methods section.

The mention of molecular docking scores could be clearer; explicitly state the significance of these scores in the context of anti-TB activity.

Introduction:

The introduction provides a good overview of the tuberculosis issue and the relevance of Schiff bases. However, it could benefit from a more explicit connection between the motivation for this study and the specific contributions it aims to make in the field.

It would be helpful to include a brief overview of previous studies related to Schiff bases in**anti-TB research to contextualize the significance of your findings.**

Materials and Methods:

Provide more details on the reaction conditions, including specific temperatures, times, and concentrations used. This would help in reproducibility.

Clarify the purification process after synthesis. A brief description of the recrystallization process and any techniques used to confirm purity would be beneficial.

In the in silico studies section, specify the software and parameters used for molecular docking in more detail.

Results and Discussion:

The characterization section is generally well-presented. However, consider integrating the discussion of each characterization technique (FT-IR, NMR, UV-Vis, ESI-MS) more cohesively. Discuss how these results correlate with expected outcomes based on the literature.

When discussing the molecular docking results, provide more context regarding the implications of the docking scores. What do these scores indicate about the binding affinity compared to existing treatments?

Include potential mechanisms of action for the MTA Schiff base ligand against tuberculosis. This could enhance the discussion regarding its biological significance.

Figures and Schemes:

Ensure that all figures and schemes are clearly labeled and referenced in the text. Provide captions that summarize key findings shown in the figures.

Consider using higher-quality images for figures to ensure clarity, especially for the spectroscopic data.

Conclusion:

The conclusion effectively summarizes the findings but could emphasize future directions for research, including potential modifications to the ligand structure or additional biological testing.

Consider suggesting specific pathways for further investigation or any collaboration opportunities for testing the synthesized ligand in biological systems.

Language and Style:

The manuscript would benefit from thorough proofreading to correct grammatical errors and improve clarity. Some sentences are lengthy and could be simplified for better readability.

Consider using more formal scientific language throughout the manuscript to enhance professionalism.