

Reviewer comments:

The manuscript entitled “Characterization of lectin from *Bauhinia holophylla* using bioinformatics tools”, has been reviewed and found Lectins are non-immunogenic proteins that play a pharmacological role and are involved in stress response. The objective of this study was to estimate the physicochemical attributes, structure, and functional attributes of a protein called *Bauhinia holophylla* lectin (BhL). Although the manuscript is well written and explains the in-silico analyses in detail. However, changes still need to be done to improve the quality of manuscript. Manuscript needs to be improved rigorously and based on my analysis I recommend major revision.

Major Revision:

- 1- To establish the reliability of this study, it is necessary to conduct additional functional analysis, namely activity analyses. To obtain assistance for this objective you may refer to a relevant work, (DOI): <https://doi.org/10.1016/j.adcanc.2023.100099>.

Minor Revisions:

- 1- What was used as a negative control for the reaction and why? Line # 162.
- 2- Italicize the specie Caesalpinioideae subfamily. Line # 364.
- 3- What is the confidence level, or score associated with the predicted post-translational modifications? Line # 390.
- 4- Whether they are consistent with previous findings or represent novel observations? Line # 397.
- 5- Experimental validation is crucial to confirm the presence and functional importance of these features. Line # 403.
- 6- What kind of potential limitations of the computational predictions have you faced in transmembrane domains and structural characterization? Line # 727.
- 7- The BLASTp results reveal a considerable discrepancy at the N- and C-terminal ends. You have stated that errors in previously deposited sequences are inevitable. How can you provide evidence to support the claim that your protein extraction and sequence identification methods are free from errors and hence trustworthy? Line # 500.
- 8- In terms of structural stability, discuss the implications of a protein structure with fewer α -helices and more β -sheets. Do prospective benefits or drawbacks exist with regard to the folding, stability, or vulnerability of proteins to denaturation? Please elaborate in one to two sentences under the introduction section.
- 9- BhL shows a low level of α -helix arrangements. Considering the biological effects of having a protein structure that is primarily composed of β -sheets. Does this structural configuration correspond to the protein's function or interactions within the cell?

- 10- Evaluate the potential influence of the prevalence of β -sheets on the function or activity of your protein. Do certain regions inside the β -sheets play a crucial role in attaching to other molecules or performing enzymatic reactions?
- 11- It would be beneficial for the authors to discuss any limitations of their study, such as potential biases in prediction or annotation, as well as any confounding factors that may have influenced the interpretation of the results. Addressing these limitations would enhance the transparency and credibility of the study.
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