

REVIEWER'S REPORT

Manuscript No.: IJAR-50491

Date: 04-03-2025

Title: Production, characterization and anticancerous activity of L-asparaginase from *Bacillus* sp

Recommendation:

Accept as it is.....**YES**.....

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

.

Reviewer's Comment / Report

General Assessment: The manuscript presents a comprehensive study on the production, characterization, and anticancer activity of L-asparaginase from *Bacillus* species. The research is well-structured and provides valuable insights into the optimization of enzyme production and its potential therapeutic applications. The study effectively highlights the significance of microbial sources for L-asparaginase and the need for alternative production methods to overcome current limitations associated with existing sources.

Strengths:

- Relevance and Importance:** The study addresses a significant area of research in biotechnology and medicine, particularly in enzyme-based cancer therapy. The focus on *Bacillus* sp. as an alternative source for L-asparaginase production adds to the existing body of knowledge.
- Experimental Rigor:** The methodology is well-defined, with clear descriptions of isolation, screening, optimization, purification, and characterization steps. The inclusion of various biochemical and analytical techniques strengthens the study's reliability.

REVIEWER'S REPORT

3. **Optimization Approach:** The study effectively explores the impact of pH, temperature, incubation period, and additives on enzyme production, providing valuable insights into process optimization.
4. **Anticancer Potential:** The evaluation of anticancer activity using the MTT assay with the 3T3 cell line demonstrates the potential therapeutic application of the enzyme, adding significant value to the research.
5. **Characterization Data:** The molecular weight determination using SDS-PAGE and enzyme activity assays provide detailed biochemical insights into the enzyme properties, enhancing the robustness of the findings.

Areas of Clarity:

- The introduction provides an adequate background on the significance of L-asparaginase in cancer therapy and the food industry. The discussion on microbial sources and their advantages over traditional sources is well-articulated.
- The experimental section presents step-by-step details, ensuring reproducibility and transparency in methodology.
- The discussion effectively interprets the results, linking them to existing literature and emphasizing the enzyme's potential for therapeutic applications.

Conclusion: The manuscript contributes significantly to the field of enzyme biotechnology by demonstrating the potential of *Bacillus* sp. in L-asparaginase production. The findings support its promising role in cancer therapy, with potential applications in the pharmaceutical and food industries. The research is well-executed, methodologically sound, and presents clear and meaningful conclusions based on experimental data.