

REVIEWER'S REPORT

Manuscript No.: IJAR-52138

Date: 06/05/2025

Title: *Comparative Efficacy of the Methanol Leaf Extract of Artemisia annua and Artemisinin Combination Therapy (ACT) in the Treatment of Plasmodium berghei Infection in Mice*

Recommendation:

- ✓ Accept as it is
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

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

Reviewer Name: Dr. S. K. Nath

Date: 07/05/2025

Reviewer's Comment for Publication:

The study demonstrates that the methanol leaf extract of *Artemisia annua* exhibits significant antimalarial activity in *Plasmodium berghei*-infected mice, particularly at higher doses (1000 mg/kg), performing comparably to the standard ACT drug in reducing parasitemia and improving hematological parameters. This suggests potential for herbal remedies in malaria treatment, especially in resource-limited settings. However, further research involving larger sample sizes, longer treatment durations, toxicity assessments, and mechanistic studies are necessary before considering clinical applications.

Reviewer's Comment / Report

Strengths:

- Clear Objective and Relevance:** The study aims to compare the efficacy of traditional herbal medicine (*Artemisia annua* extract) with standard modern treatment (ACT), addressing the increasing interest in herbal remedies and resistance issues.
- Methodological Rigor:** The experimental design involves randomized groups, standard inoculation procedures, and well-defined treatment doses. The use of controlled groups (infected, treated, uninfected, untreated) enhances data robustness.
- Detailed Experimental Procedures:** Extraction methods, dosing, and infection protocols are transparently described, allowing reproducibility.
- Multiple Parameters Assessed:** The study evaluates parasitemia, packed cell volume (PCV), hemoglobin levels, total leucocyte count (TLC), differential leucocyte counts, and other hematological parameters, providing a comprehensive assessment of treatment effects.
- Comparative Approach:** Direct comparison between herbal extract and established drug (ACT) adds practical relevance, especially for regions reliant on herbal medicine.

Weaknesses:

- Limited Sample Size:** Each group contains only five mice, which may limit the statistical power and generalizability of findings.
- Dose Selection Justification:** While multiple doses of *Artemisia annua* are tested, the rationale behind choosing specific doses (250, 500, 1000 mg/kg) is not detailed, potentially affecting interpretation of dose-response relationships.
- Short Treatment Duration:** The treatment lasted only 4 days, whereas malaria treatment in humans often requires longer courses; this may affect the applicability of findings.

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

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4. **Lack of Molecular Data:** The study depends heavily on hematological and parasitological parameters without exploring underlying mechanisms at molecular or biochemical levels.
5. **Potential Bias and Blinding:** The paper does not state whether the researchers were blinded during assessments, which could introduce observer bias.
6. **No Side Effects or Toxicity Data:** The safety profile of the Artemisia annua extract at higher doses isn't addressed, which is critical for potential therapeutic use.