

REVIEWER'S REPORT

Manuscript No.: IJAR- 58417

Title: EFFECT OF MORINGA ON LARVAL DEVELOPMENT AND COCOON PARAMETERS OF MULBERRY SILKWORM, BOMBYX MORI (L.).

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: **ANAPANA GOPAL**

Reviewer's Comment for Publication.

General Comments

The manuscript evaluates the effects of different concentrations of *Moringa oleifera* supplementation (2.5%, 5%, and 7.5%) on larval development and cocoon characteristics of the FC1×FC2 race of the mulberry silkworm, *Bombyx mori*. The study investigates several economically important parameters, including larval weight, larval duration, growth index, cocoon weight, shell weight, pupa weight, shell ratio, and silk productivity. The topic is relevant to sericulture because nutritional supplementation offers a sustainable approach to improving silk yield and cocoon quality.

The manuscript presents promising findings indicating that moringa supplementation enhances larval growth and cocoon traits. However, several aspects of the experimental design, statistical analysis, presentation of results, discussion, and language require substantial improvement before the manuscript can be considered for publication. Therefore, **minor revision** is recommended.

Minor Comments

1. Novelty should be more clearly highlighted

The introduction discusses the nutritional value of moringa but does not clearly establish the research gap.

The authors should explain:

- how this study differs from previous investigations on plant-based nutritional supplements in sericulture,
- whether FC1×FC2 silkworms have previously been evaluated using moringa supplementation,
- the practical significance of identifying the optimum supplementation concentration.

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2. Experimental design requires additional detail

The Materials and Methods section lacks sufficient methodological information.

Please include:

- number of biological and experimental replicates,
- sample size analyzed for each parameter,
- randomization procedure,
- feeding quantity per larva,
- preparation method of moringa solution,
- frequency of leaf treatment,
- criteria for selecting larvae,
- environmental monitoring throughout the experiment.

These details are essential for reproducibility.

3. Statistical analysis requires improvement

Although two-way ANOVA and Dunnett's Multiple Comparison Test are mentioned, the statistical analysis is insufficiently described.

Please provide:

- exact P-values,
- F-values,
- degrees of freedom,
- assumptions of normality,
- homogeneity of variance testing,
- effect size estimates.

In addition, the manuscript states that significance was considered at **P < 0.001**, but some figures contain significance symbols (*, **, ***), without explaining their corresponding probability levels. This inconsistency should be corrected.

4. Growth index interpretation requires clarification

The manuscript reports a decrease in growth index with increasing moringa concentration while other economic traits improved.

The authors should explain:

- the biological significance of reduced growth index,
- whether this represents improved feed efficiency or reduced larval duration,
- how it relates to cocoon productivity.

This point requires further discussion.

5. Discussion should include deeper biological interpretation

The discussion mainly summarizes the observed improvements.

It should further explain:

- nutritional mechanisms of moringa,
- amino acid metabolism,
- antioxidant effects,
- digestive enzyme activity,
- protein synthesis in silk glands,
- physiological basis of increased cocoon quality.

6. Comparison with previous studies should be expanded

The manuscript cites several studies but lacks detailed comparison.

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The authors should compare their findings with:

- moringa supplementation studies,
- Azolla supplementation,
- vitamin and amino acid supplementation,
- other botanical feed additives used in sericulture.

7. Practical implications should be strengthened

The manuscript should discuss:

- economic feasibility of moringa supplementation,
- cost-benefit analysis,
- field-scale applicability,
- recommendations for commercial sericulture,
- possible limitations of large-scale implementation.

Minor Comments

Abstract

- Clearly mention the experimental design.
- Include sample size.
- Present major quantitative findings.
- State the optimum moringa concentration more explicitly.

Keywords

Consider adding:

- Nutritional supplementation
- Sericulture
- Silk productivity
- Functional feed additive
- Economic traits

Introduction

The introduction is informative but contains several grammatical and formatting inconsistencies.

The objectives should be presented more clearly, and the research hypothesis should be stated.

Materials and Methods

Additional information should be provided regarding:

- source and quality of moringa powder,
- nutritional composition,
- preparation procedure,
- mulberry leaf quality,
- feeding schedule,
- criteria for cocoon evaluation.

Results

The tables and figures clearly show increasing performance with higher moringa concentrations.

However:

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- include exact statistical significance values,
- improve figure legends,
- report sample sizes,
- explain abbreviations,
- ensure consistency between tables and figures.

Figures

The graphical presentation requires improvement.

Suggestions include:

- increase image resolution,
- enlarge axis labels,
- provide clearer legends,
- standardize graph formatting,
- explain significance symbols within figure captions.

Discussion

The discussion should address:

- physiological mechanisms,
- nutritional efficiency,
- possible limitations of the study,
- implications for sustainable sericulture,
- future research directions.

Language

The manuscript requires professional English editing.

Several issues include:

- grammatical errors,
- awkward sentence construction,
- inconsistent spacing,
- typographical errors,
- inconsistent scientific nomenclature.

Examples include missing spaces between words, inconsistent italicization of *Bombyx mori*, and formatting inconsistencies throughout the manuscript.

References

The references are generally relevant and up to date.

However, please verify:

- journal abbreviations,
- DOI formatting,
- citation consistency,
- spacing between author names,
- uniform reference style according to the journal guidelines.

Strengths

- Relevant topic in sericulture and insect nutrition.
- Practical importance for improving silk production.
- Evaluation of multiple economically important traits.
- Appropriate use of different moringa concentrations.

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- Recent literature has been cited.
- Results consistently demonstrate improved cocoon characteristics.

Weaknesses

- Novelty is not clearly emphasized.
- Experimental methodology requires additional detail.
- Statistical reporting is incomplete.
- Biological mechanisms require deeper discussion.
- Graphs and tables need improved presentation.
- English language and formatting require substantial revision.

Recommendation

Minor Revision