Qeios

Peer Review

Review of: "Evaluation of Antidiabetic Potential of Gymnema Sylvestre and Metformin Combination in Streptozotocin-Induced Diabetic Rats"

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1. Independent researcher

Title: *Evaluation of Antidiabetic Potential of Gymnema Sylvestre and Metformin Combination in Streptozotocin-Induced Diabetic Rats*

Dear Editor and Authors,

Thank you for the opportunity to review this interesting study investigating the combined effects of *Gymnema sylvestre* and metformin in a diabetic rat model. The research addresses an important gap in exploring complementary therapies for type 2 diabetes mellitus (T2DM). While the manuscript presents valuable data, revisions are needed to strengthen clarity, mechanistic depth, and translational relevance. Below are my specific comments:

Major Comments

Clarity and Presentation

Figures/Tables: Several figures (e.g., Fig 3–5) lack axis labels, units, or legends. Please ensure all visual data are self-explanatory (e.g., "Cholesterol (mg/dL)" vs. "Cholesterol").

Abbreviations: Define all abbreviations at first use (e.g., DC = Diabetic Control; GS = *Gymnema sylvestre*).

Dosage Justification

The chosen doses (200 mg/kg metformin, 600 mg/kg *G. sylvestre*) need explicit justification. Cite:

Prior **dose-response studies** in similar rat models.

Human-equivalent dosing calculations (if applicable) to highlight translational relevance.

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Mechanistic Insights

The discussion should elaborate:

Why the **combination did not outperform metformin alone** (e.g., overlapping vs. complementary mechanisms?).

How *G. sylvestre*'s effects (e.g., gut glucose absorption) might interact with metformin's hepatic action.

Compare findings to **other herbal-drug combo studies** (e.g., berberine + metformin) to contextualize results.

Study Limitations

Add a dedicated paragraph discussing:

Duration: Would longer treatment (beyond 4 weeks) alter outcomes?

Model limitations: Can STZ/HFD rats fully replicate human T2DM?

Missing data: Insulin levels or pancreatic histology could strengthen mechanistic claims.

Minor Comments

Language: Minor grammatical errors (e.g., "Gymnemasylvestre" → "*Gymnema sylvestre*"; "Hb1Ac" → "HbA1c"). Recommend professional proofreading.

This study has **significant merit** but requires revisions to meet publication standards. I recommend **Major Revisions** prior to reconsideration.

Declarations

Potential competing interests: No potential competing interests to declare.