Review of: "Hepatoprotective Effect of the Ursolic Acid-Oleanolic Acid Mixture Administered Intragastrically in Mice with Liver Damage Induced by Anti-TB Drugs"

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Potential competing interests: No potential competing interests to declare.

I express my gratitude for the opportunity to collaborate with your esteemed journal in evaluating this intriguing research. The manuscript investigates the "Hepatoprotective Effect of the Ursolic Acid-Oleanolic Acid Mixture Administered Intragastrically in Mice with Liver Damage Induced by Anti-TB Drugs." This study has the potential to significantly impact tuberculosis treatment, patient outcomes, and pharmacological research by shedding light on the hepatoprotective effects of natural compounds in mitigating treatment-related adverse effects.

Several potential impacts emanate from this study:

Clinical Application in Tuberculosis Treatment:

1. If the Ursolic Acid-Oleanolic Acid mixture demonstrates a substantial hepatoprotective effect against liver damage induced by anti-TB drugs, it could pave the way for adjunctive therapies, improving treatment tolerability and patient outcomes.
2. Reduction of Treatment-Related Adverse Effects: Identifying an effective hepatoprotective agent may mitigate treatment-related adverse effects, enhance treatment adherence, and optimize treatment outcomes by addressing common liver damage issues induced by anti-TB drugs.
3. Enhancement of Patient Safety and Quality of Life: By protecting against drug-induced liver damage, the Ursolic Acid-Oleanolic Acid mixture has the potential to improve patient safety, reduce treatment-related morbidity, and enhance overall quality of life during tuberculosis treatment.
4. Contribution to Pharmacological Knowledge: Studying the hepatoprotective effects of the Ursolic Acid-Oleanolic Acid mixture contributes to understanding the pharmacological properties of these natural compounds, potentially extending their therapeutic applications to other liver diseases or conditions associated with hepatotoxicity.

However, the paper exhibits several weaknesses:

1. Limited Experimental Design:

The study lacks detailed experimental design information, raising concerns about result reliability, validity, and potential bias.

1. Absence of Mechanistic Insights:

Mechanistic insights into how the Ursolic Acid-Oleanolic Acid mixture exerts hepatoprotective effects are lacking, hindering understanding of pharmacological implications.

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1. Incomplete Histological Assessment: The histological assessment appears limited, and a more comprehensive analysis is needed to understand the full extent of liver damage by using special stains and immunohistochemistry.
2. Short Duration of Treatment: The study's 60-day treatment duration may not be sufficient to evaluate the long-term hepatoprotective effects of the UA/OA mixture.
3. Animal Model Limitations: The use of male Balb/C mice may limit generalizability, and caution is warranted when extrapolating results to human patients.

Addressing these weaknesses through robust experimental design, mechanistic investigations, comparisons with standard treatments, comprehensive histological assessment, extended treatment duration, and consideration of sex-specific differences will strengthen the validity and clinical relevance of the study findings.

My final decision is acceptance after a major revision.