

# Review of: "Toxicological evaluation of aqueous extracts of *Clematis hirsuta* and *Rhamnus prinoides*"

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Potential competing interests: No potential competing interests to declare.

## Background section

### Weaknesses:

The background section of the article provides a general overview of the use of traditional herbal medicine in developing countries and highlights the importance of toxicological research to ensure the safety of these medicines. However, there are several weaknesses in the presentation of information and the organization of the background section.

1. Lack of coherence and structure: The background section lacks a clear structure and flow of information. It jumps from discussing the general use of traditional herbal medicine to specific examples of toxicological studies and then introduces the two plants of interest, *Clematis hirsuta* and *Rhamnus prinoides*. The information should be organized in a more logical and sequential manner to provide a smooth transition between different topics.
2. Lack of context for toxicological research: While the background mentions toxicological studies on specific plant families and instances of adverse effects, it does not provide a broader context for toxicological research on herbal medicines. The section could benefit from a more comprehensive overview of the challenges and controversies surrounding the safety assessment of traditional herbal medicines, including the need for standardized testing protocols and the role of regulatory agencies.

### Suggestions of improvements:

1. Structure and organization: Rearrange the background section to provide a more logical flow of information. Start with a brief introduction to the use of traditional herbal medicine, followed by a discussion on the challenges of ensuring their safety. Then introduce specific examples of toxicological studies on herbal medicines before transitioning to the plants of interest and their characteristics.
2. Contextualize toxicological research: Expand the discussion on the challenges and controversies surrounding the safety evaluation of traditional herbal medicines. Include information on the need for standardized testing protocols, the role of regulatory agencies, and any relevant international guidelines or frameworks.

## Methods section

The method section of the research article provides a detailed description of the ethical considerations, materials used, medicinal plant collection and identification, preparation of plant extracts, experimental animals, acute and subacute

toxicity testing, and statistical analysis. Overall, the method section provides the necessary information to replicate the study; however, there are a few weaknesses and suggestions for improvement:

1. Lack of extraction method details: The method briefly mentions hot water extraction but does not provide information on the duration or temperature of extraction. Including these details would allow readers to understand the extraction process and potentially replicate it.
2. Insufficient information on acute and subacute toxicity protocols: The method mentions the Up and Down Procedure and the dose levels used in acute and subacute toxicity testing. However, there is no explanation of the selection of these specific dose levels or the rationale behind using the Up and Down Procedure. Providing more information on the justification for these methods and dose levels would enhance the scientific rigor of the study.

Improvements:

1. Describe extraction method in more detail: Expand the description of the hot water extraction method by including information on the duration and temperature of extraction. This will provide a clearer understanding of the extraction process and enable replication of the methodology.
2. Justify the choice of toxicity testing methods and dose levels: Explain the rationale behind selecting the Up and Down Procedure. Provide references or scientific reasoning to support the choice of these methods and dose levels.

## Discussion section

The discussion section of the research article provides an overview of the study findings, compares them to previous research, and draws conclusions about the safety of the tested extracts. While the discussion covers the main points, there are a few weaknesses that could be improved:

1. Lack of integration: The discussion does not extensively integrate the study results. It mainly provides a summary of the findings without further interpretation or discussion of their implications. The section would benefit from a more in-depth analysis of the results and their significance in relation to the research objectives.
2. Limited comparison with existing literature: The discussion briefly mentions toxicological data from other medicinal plants within the genus *Clematis* and *Rhamnus* *prinoidea*, but there is no comprehensive comparison with these studies. To strengthen the discussion, it would be helpful to provide a more detailed analysis of the existing literature and how the current study's findings relate to previous research on toxicity and safety.
3. Inadequate future research suggestions: The discussion briefly mentions the need for future research to examine the extracts' effects on major organs, phytochemical composition, and pharmacological properties. However, these suggestions lack specific details or justification. Providing a more comprehensive and well-reasoned discussion of future research directions would enhance the discussion section.

Improvements:

1. Intensively interpret the results: Provide a thorough interpretation of the study results, discussing any patterns, trends, or unexpected findings. Consider the implications of the results and relate them back to the research objectives and

hypothesis.

2. Comprehensive comparison with existing literature: Conduct a more detailed comparison of the toxicological data from other medicinal plants within the genus *Clematis* and *Rhamnus prinoides*. Discuss similarities, differences, and any contradictions or agreements between the current study and previous research. This will provide a broader context for the findings and strengthen the discussion.
3. Provide well-justified suggestions for future research: Expand on the suggestions for future research by providing more specific details and justifications. Explain why examining the extracts' effects on major organs, investigating their phytochemical composition, and exploring their pharmacological properties are important next steps. Discuss the potential implications of such research in advancing the understanding of the safety and efficacy of these extracts.