

Review of: "Cadmium Toxicity Induced Changes on Antioxidative Enzymes Level in Fresh Water Catfish *Channa Punctatus* (Bloch)"

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Potential competing interests: No potential competing interests to declare.

Positive Critique:

Relevance and Significance: The article addresses a pressing environmental issue concerning cadmium contamination in freshwater ecosystems, particularly its impact on fish species such as *Channa punctatus*. By focusing on a commercially important fish, the study provides insights that are not only scientifically significant but also relevant for environmental management and public health concerns.

Comprehensive Methodology: The study employs a thorough and well-designed methodology, combining biochemical assays and histopathological analysis to assess the effects of cadmium toxicity on fish health. This comprehensive approach enhances the credibility of the findings and allows for a nuanced understanding of the mechanisms underlying cadmium-induced toxicity.

Clear Presentation of Results: The results are presented clearly and succinctly, utilizing tables and figures to effectively summarize the data. This clear presentation enhances the readability of the article and facilitates the interpretation of findings by both experts and non-experts in the field.

Negative Critique:

Discussion Depth: While the discussion section provides some interpretation of the results, it could benefit from further elaboration and contextualization. Exploring the broader implications of the findings for environmental conservation and public health, as well as addressing potential limitations and future research directions, would enhance the overall depth and impact of the study.

Contextualization: The introduction could provide more context on the broader significance of the research within the field of environmental toxicology. Offering a brief overview of existing literature and highlighting the unique contribution of the study to advancing scientific knowledge would strengthen the rationale and relevance of the research.

Attention to consistency in terminology and style, especially within tables, figures, and headings, can further enhance readability and coherence.

Consistency in Citation Style: While most references follow a consistent citation style (author(s), year, title, journal, volume, pages), there are some inconsistencies in formatting. Ensuring uniformity in citation style enhances the

professional presentation of the references section.

Completeness: While the references cover a broad range of relevant topics, some important aspects of the research may be missing. For example, additional studies on specific mechanisms of cadmium toxicity or recent advancements in environmental remediation techniques could further enrich the literature review.

Verification of Sources: It's essential to verify the credibility and reliability of all sources cited in the study. While most references appear to be from reputable journals, it's important to ensure that the information cited accurately represents the current state of scientific knowledge and is based on sound research methodology.

Inclusion of Primary Sources: Whenever possible, including primary sources (original research articles) rather than secondary sources (reviews or summaries) can strengthen the academic integrity of the study. Primary sources provide direct access to the methodology, results, and conclusions of the research, allowing readers to evaluate the evidence firsthand.

The quality of tables and figures is not good. In a scientific study, it is crucial for effectively communicating complex data and findings to readers. However, if the quality of these visual elements is subpar, it can significantly detract from the overall presentation and impact of the research. Here's why the quality of tables and figures is important and how it can affect the study:

Clarity and Interpretability: Tables and figures are meant to present data in a clear and understandable format. If the quality is poor, with low resolution or unclear labeling, it becomes challenging for readers to interpret the information accurately. This can lead to confusion or misinterpretation of the study's findings.

Professionalism and Credibility: High-quality tables and figures contribute to the overall professionalism of the research. They convey a sense of attention to detail and rigor in the presentation of data. Conversely, low-quality visuals can create a negative impression and may raise doubts about the credibility of the study among peers and reviewers.

Engagement and Attention: Visually appealing tables and figures can enhance reader engagement and draw attention to key findings or trends in the data. Conversely, poorly executed visuals are more likely to be overlooked or disregarded by readers, diminishing their impact on understanding the research.

Accessibility and Reproducibility: High-quality tables and figures are essential for ensuring that the research is accessible to a wide audience, including individuals with visual impairments or those accessing the study electronically. Clear, well-designed visuals also facilitate the reproducibility of the research by enabling other researchers to accurately reproduce and build upon the findings.

In the study, it is recommended to include the Latin name of the fish species under investigation, enclosed in brackets and formatted according to the appropriate scientific convention. This practice ensures clarity and precision in species identification within the scientific community.

Furthermore, the research would benefit from the inclusion of detailed information regarding the biology of the fish species under investigation. This could encompass aspects such as habitat preferences, feeding behavior, reproductive biology, and any other pertinent biological characteristics. A comprehensive understanding of the species' biology provides valuable context for interpreting the study's findings and elucidating potential implications for the wider ecosystem.

Additionally, it is suggested to incorporate organ histology data following exposure to cadmium. Histological examination of organs can provide valuable insights into the effects of cadmium toxicity at the cellular and tissue levels. By assessing histopathological changes in organs such as the liver, kidney, and gills, researchers can better understand the physiological responses and potential health implications associated with cadmium exposure in the studied fish species. This histological data would complement other biochemical and physiological analyses, enriching the overall depth and comprehensiveness of the study's findings.

The abstract lacks specific mention of the study's findings, which are essential for providing a concise summary of the research outcomes. Including key results in the abstract enables readers to quickly grasp the significance of the study and its potential implications.

In the introduction section, the objectives of the study could have been articulated with greater clarity to provide a clearer roadmap for the research. Clearly defining the research objectives helps to contextualize the study and aligns reader expectations with the intended outcomes.

The table would benefit from the inclusion of low and high dose concentrations to provide a more comprehensive overview of the experimental conditions. Including this information enhances the utility of the table by providing readers with a clearer understanding of the dose-response relationship under investigation.

In the materials and methodology section, a more detailed description of the experimental procedures and methodologies could enhance clarity and reproducibility. Providing additional elaboration on key experimental protocols, equipment used, and procedural steps ensures transparency and facilitates accurate replication of the study.

The results section could be more elaborately described to provide a thorough analysis of the data obtained. Presenting the findings in greater detail, including statistical analyses and relevant descriptive statistics, enhances the comprehensiveness of the results presentation and enables readers to fully grasp the study outcomes.

In the discussion section, it is important to link the findings with the broader context of the research objectives and scientific literature. Connecting the discussion points directly to the study findings helps to contextualize the results, identify potential implications, and highlight areas for further research or theoretical development.