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REVIEWER'S REPORT

Manuscript No.: IJAR-53994 **Date: 25-09-2025**

Title: Harnessing the effects of Cadmium Stress and Amelioration by Nitric Oxide and Hydrogen Sulfide on Mineral Nutrient Balance and its Uptake along with Nitrogen Metabolism in Solanum lycopersicum 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: Tahir Ahmed

Reviewer's Comment for Publication:

This manuscript provides a thorough investigation into how nitric oxide (NO) and hydrogen sulfide (H_2S) mitigate cadmium (Cd) toxicity in tomato plants, with an emphasis on mineral nutrient balance and nitrogen metabolism. The study is timely and relevant to agricultural sustainability and food safety, offering valuable insights into the roles of NO and H_2S as protective agents against heavy-metal stress.

Strengths

- **Original Contribution:** Explores the combined effects of NO and H_2S on Cd stress, an area with limited prior research.
- **Comprehensive Methodology:** Employs a well-designed experimental setup with detailed analysis of nutrient uptake, enzyme activity, and ion homeostasis.
- **Practical Significance:** Findings provide a scientific basis for using signaling molecules to improve crop tolerance to heavy-metal contamination.

Suggestions for Minor Revision

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1. Language and Formatting: Some sections contain typographical errors (e.g., spacing issues, "hermetic" should be "hormetic") and lengthy sentences. Careful copy-editing will improve readability.
2. Data Presentation: Including clearly labeled tables/figures for all key results (especially Figures 1 & 2 mentioned in the text) would strengthen the manuscript.
3. Methodological Clarity: Briefly clarify the number of biological and technical replicates for each enzyme assay and nutrient analysis to reinforce statistical robustness.
4. Discussion Enhancement: Expand on the potential mechanisms of NO–H_2S synergism, perhaps relating to antioxidant pathways, to deepen the interpretation of results.

Overall, the paper is scientifically sound and makes a significant contribution to plant stress physiology and heavy-metal mitigation strategies. With minor editorial and formatting improvements, it will be ready for publication.