

Review of: "Synthesis, Characterization and Ameliorative Effect of Iron Oxide Nanoparticles on Saline-Stressed Zea Mays"

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Potential competing interests: No potential competing interests to declare.

Dear Editor,

Qeios Journal,

Thank you for inviting me as a reviewer for the manuscript entitled "Synthesis, Characterization, and Ameliorative Effect of Iron Oxide Nanoparticles on Saline-Stressed Zea mays." According to my point of view, the manuscript needs revision as per my comments below and the PDF of the original MS.

Thank you.

Regards,

Dr. Neha Joshi

In this manuscript study, FeO NPs were synthesized via a green synthesis approach, and their effect on salt-stressed maize plants was studied for the ameliorative effect of salinity. The FeO NPs were synthesized via the *Diodella sarmentosa* plant extract, and characterization was done by UV spectroscopy, FTIR, XRD, SEM-EDX, and TEM analysis. Foliar application of the synthesized FeO NPs suspension on salt-stressed plants was analysed for the physiological and biomolecular changes in the plants. In my opinion, the manuscript lacks clarity with respect to its novelty. The data presentation is not clear in the manuscript. According to my point of view, the author needs to revise the MS according to the comments mentioned below.

- The authors should check the English language in the manuscript.
- The title is not suitable according to the MS. Please add "green synthesis" to the title.
- The abstract is not written clearly initially; the author needs to write the background of the research, then the materials and methods used in the MS, and finally, explain the results and conclusions.

Introduction:

The introduction should be based on the problem, the solution with research work, literature related to work like the green synthesis of FeO NPs and its effect on plant growth and development, and what is new in your work with respect to previous research. Define the research gap in the work according to existing literature, then the novelty of your work.

Every abbreviation used in the MS should be initially mentioned in full from the abbreviated form used in the whole MS, like SOD, CAT, and FeO NPs, etc.

Materials

Please mention the chemicals used with the procuring company in brackets.

Methods:

The methodology section is not clear. Please add references in each section.

The methodology of plant treatment is not clear. The author only used a single concentration of FeO NPs, but the kind of methods the author followed was not mentioned in the section.

Results:

Needs to be written in a scientific way; the data is not presented well. For example, the FTIR data just mentioned the peak of the chemical moiety present in the FeONPs but not which plant extract biochemical is responsible for the synthesis of FeO NPs. Also, add the importance of the plant extract and its role in the synthesis of NPs to the discussion.

Also add the FTIR data of the crude plant extract and compare the chemical moieties present in the plant extract and after the synthesis of NPs.

According to the graphs of XRD and FTIR, I saw that washing of NPs was not done properly; that's why the XRD graph does not show the sharp peaks of FeO-NPs.

All result sections should be rewritten with discussion and correlation with previous studies.

Provide the graphs with good-quality images. For graphs, authors should use origin software.

For the statistical analysis, please mention what kind of post-hoc test you used.

Table: Write footnotes to explain the tables as well as the statistical analyses used for each table.

Graph: In the graphs, please add descriptions of Pot-A, B, C, D, and E for better representation.

References: Follow the guidelines of the journal.