

Review of: "Synthesis of Nickel Nanoparticles Using Ionic Liquid-Based Extract from *Amaranthus viridis* and Their Antibacterial Activity"

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Potential competing interests: No potential competing interests to declare.

Abstract: No constructive details were provided in this section. The authors gave only the methodologies followed.

Introduction: This section was not well described. As per the objectives of this study, it needs complete revision with suitable research done earlier using Ni NPs and gaps in the application side.

Experimental Section:

2.3. Characterization: This section was not clearly described.

2.4. Anti-bacterial activity:

1. Line no. 5: Authors wrote "various amounts of manufactured nanoparticles" but did not provide what quantity, i.e., whether that is a percentage or µg or mg per mL. There is no clarity in this methodology. Also, how many times the testing was done, i.e., duplicate or triplicate? Overall, this section needs revision.
2. No information about statistical application?

Results and discussions:

3.1. UV-Vis analysis: The authors repeated the methodology in this section instead of describing their results. They provided only the UV-Vis spectrum of synthesized Ni particles but did not provide a peak for confirmation of Ni in the solution. They also did not report the stability of Ni nanoparticles.

3.3. FTIR Analysis:

1. Authors notified that in Line -1, "Figure 2 displays FTIR spectra of Ni NPs both before and after washing" - Only one FTIR spectrum was shown; is it before or after washing? This was not clearly described. This should be clarified by the authors.

Sections 3.3. to 3.6 need more detailed results based on the XRD, TGA, FESEM, and Zeta potential analyses.

Section 3.7: Results of anti-bacterial activity were not clearly revealed. In Line -2, the author wrote "10, 20, and 30% zone of inhibition...." This line has no meaning; hence, this will be rewritten as 'Figure 7 displays the anti-bacterial activity (zone

of inhibition) of synthesized Ni NPs at 10, 20, and 30% against *Aeromonas*".

In Results and Discussions sections:

1. Results need complete revision and to provide enough data as per the experiments/analyses conducted. The figures have no proper legends.
2. Authors have not properly discussed their results with previous studies carried out in this area.
4. Conclusion section: Needs to include "In what way this study will be useful in the application side?"

References: Authors quoted 20 references but did not properly use them in the discussion part.

Minor mistakes:

1. Introduction, page 1, line 1, use should be changed to 'used'
2. Introduction, page 2, line 4, delete 'help'
3. Results and Discussions: page 3, in the section, add 's' in Results
4. Results and Discussions: page 5, sub-section 3.3, delete 's' in X-rays
5. Results and Discussions: page 6, sub-section 3.6, Line 3, change to 'no agglomeration seen and it was significant'.

Even though the work done by the authors is appreciable, the manuscript was found to lack a proper introduction, methodological approaches, and description of their results and discussions; hence, I recommend rejecting this manuscript for publication.

Suggestions to Authors:

1. Only for antibacterial activity, the authors should include other biological activities such as antifungal, anticancer, etc., to strengthen the weightage of their publication.
2. Each and every section of results should be properly discussed with related previous work done.