

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.

Reviewer considerations

In the introduction

1. Improve the abstract by putting the main results obtained for each characterization and analysis realized and avoid the use of abbreviations. The objective of the study might be inserted in fewer words.
2. In line nº 4 of the second paragraph, "[...] Three advantages of microwaves are the [...]", rewrite the context to make more sense, e.g., "many methodologies are developed in nanoparticles synthesis [...]"
3. You need to establish a connection in the third paragraph that begins with "Amaranthus Viridus is a member of the Amaranthacea family[...]", because you finished the text before explaining advantages about the methodologies of nanoparticle synthesis.
4. The paragraph "In this study, plant extract was utilized in a green synthesis method to create Ni-nanoparticles. Three distinct bacteria were subjected to antibacterial activity using synthesized nanomaterial" should be rewritten to exclude the methodological aspects of bacteria use in this part.

In the experimental section

Section 2.3

1. Replace "UV spectra" with "UV-Vis" spectra.
2. To maintain a pattern, insert the company of the equipment next to the models as was done for the UV-Vis technique.
3. Correct the term about the use of the Scherrer equation; it measures the crystallite size instead of the crystals size.

In the Results and discussions sections

Section 3.1

1. Remove all of the text and write the adequate discussion for the UV-Vis spectrum of nanoparticles.
2. Redefine the spectrum scale to highlight the maximum wavelength absorbed.

Section 3.2

1. In the discussion of the FT-IR spectrum, avoid the relationship of the band at 650 cm^{-1} to aromatic bonds C-H because, in these compounds, this region shows the bending C-H out of the plane as a strong band mostly between $100\text{-}700\text{ cm}^{-1}$.
2. In the line with information “These peaks show that the production of Ni NPs and the decrease of the nickel ion,” how can you affirm this based on molecular data?
3. In the line with information “The O-H band's wide width suggested that the Ni NPs were crystalline,” I suggest excluding this because FTIR data is not a technique to inform the crystalline grade of a material. XRD is the correct technique.

Section 3.5

1. Improve the resolution of the micrograph (Fig. 5).