

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's Comments to authors

titled: Synthesis of Nickel Nanoparticles using Ionic Liquid based Extract from *Amaranthus viridis* and their Antibacterial activity.

Major corrections are needed

1. Corrections are made in the text as track changes.

2- The abstract must include the aim of the study, materials and methods, results, and conclusion. The method of Ni NPs synthesis from $\text{Ni}(\text{NO}_3)_2$ and plant extract must be indicated. The characterization of the produced nanoparticles is performed by UV-Vis spectrophotometer to indicate the absorption peak, FTIR of both plant extract and Ni-NPs to specify the functional groups in plant extract participating in the reduction of Ni ions to nanoparticles. FESEM is used to indicate mainly the shape & size of the particles as well as if there is agglomeration of the particles. Zeta potential is used to determine the surface charge on the particles and their stability. The antibacterial activity is performed against different bacterial strains using the paper disc diffusion method at various nanoparticles concentrations (10, 20, 30%). Zones of inhibition are measured in mm.

3- In 2-2 -Synthesis of nanoparticles, please indicate the steps of plant extraction, firstly by plant cleaning, then oven drying, and finally grinding the plant to a fine powder. 5 g of plant powder is mixed with ?? ml of ionic liquid solution,.....

4- Antibacterial activity (2-4) filter paper disc diffusion method using 10, 20, 30% nanoparticle concentrations against gram +, -ve bacterial strains.

5- In Results and Discussion (3), where are the results & discussion concerning 3-1- UV-Vis spectrophotometric analysis? It is missed ??? (Fig. 1). Under this title, the detailed method of antibacterial activity was recorded instead of the UV-Vis spectrophotometric absorption of the Ni NPs ????.

6- In 3-2 - FTIR analysis: Comparison of FTIR of plant extract and FTIR of Ni NPs must be presented to detect the functional groups in the plant extract which participate in the reduction of Ni ions to Ni NPs. FTIR of plant extract is missed.

- 7-** Concerning 3-3-X-rays diffraction analysis (XRD), I did not understand the paragraph illustrating Fig.3 ????
- 8-** In the case of 3-4- Thermogravimetric analysis (TGA), authors indicated that 3 distinct mass losses were noted, but only 2 mass losses are mentioned ???
- 9-** In Fig. 5, A & B have to be indicated on the above photo of FESEM and of the scale zeta potential below respectively and write this in the legend of Fig. 5 (A,B).
- 10-** Fig. 6 (a, b) recorded the average size of Ni NPs (a) and zeta potential (b). Please add this in the legend of Fig. 6.
- 11-** Concerning 3-7- Antibacterial activity, the nanoparticle concentrations used are 10, 20, 30 % and not the zone of inhibition as written in the second line of the paragraph.
- 12-** Fig. 7 Antibacterial activity ILMAE (????)clarify
- The antibacterial activity of Ni NPs (11, 13, 16 mm) is considered weak to moderate in my opinion according to the inhibition zones produced.
- 13-** The filter paper discs used in the antibacterial activity are ?? mm in diameter.