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.

Overall, the paper is a well-executed study that contributes meaningfully to the green synthesis of nickel nanoparticles and their potential use in antibacterial applications. The experimental methods are sound, and the results are promising. However, the addition of statistical analysis, mechanistic insights, and safety assessments would elevate the study to a more comprehensive and applicable level.

Areas for Improvement:

- Lack of Discussion on Ionic Liquids' Role:

While ionic liquids are mentioned, the paper could benefit from a more detailed discussion on how the specific properties of the ionic liquid (e.g., polarity, viscosity) influence the synthesis process. A comparative analysis with traditional solvents would enhance the reader's understanding of why ionic liquids were preferred.

- Optimization of Synthesis Parameters:

The parameters for microwave-assisted synthesis, such as power (40 W and 50 W) and time (20–30 minutes), are briefly mentioned. It would be beneficial to explore how varying these conditions (e.g., higher/lower power or time) could affect nanoparticle size, yield, or antibacterial activity. This would help optimize the method for specific applications.