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REVIEWER'S REPORT

Manuscript No.: IJAR-57967

Title: Eco-Friendly Synthesis of Zinc Oxide Nanoparticles Using Curcuma caesia Tuber Extract and Their Antioxidant and Anticancer Activities

Recommendation:

- Accept as it is
- ✓ Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr S. K. Nath

Detailed Reviewer's Report

Strength of the study:

- The study addresses a relevant topic in green nanotechnology and cancer research
- Eco friendly synthesis approach enhances environmental sustainability
- Multiple characterization techniques were used to validate nanoparticle formation
- Antioxidant, cytotoxic, and apoptosis activities were evaluated comprehensively
- Results are supported by experimental observations
- The manuscript provides useful preliminary data for future nanomedicine applications
- Findings contribute to the growing field of plant mediated nanoparticle synthesis

Weakness of the study:

- Ethical approval for cell line studies is not clearly mentioned
- In vivo validation is lacking
- Mechanistic evaluation of anticancer activity remains limited
- Some methodological details require further clarification
- Language and grammar need improvement in several sections
- Discussion contains repetitive statements
- Statistical presentation and interpretation of results could be strengthened for better scientific rigor

Reviewers Comments:

This manuscript presents an interesting study on the green synthesis of zinc oxide nanoparticles using Curcuma caesia tuber extract and their antioxidant and anticancer potential. The topic is timely and relevant, particularly in the context of sustainable nanotechnology and biomedical applications. The authors have used different characterization techniques and evaluated biological activities through antioxidant, cytotoxicity, and apoptosis assays, which adds value to the work. The results indicate promising anticancer activity against MCF-7 cells and support the potential application of biosynthesized nanoparticles in nanomedicine. However, the manuscript would benefit from careful language editing, as several grammatical and formatting issues are present throughout the text. Ethical considerations related to the experimental work should be clearly stated where applicable. The study is limited by the absence of in vivo experiments and detailed molecular investigations to explain the observed mechanisms. Despite these limitations, the findings are encouraging and provide a useful basis for further research. Overall, the manuscript is scientifically relevant and suitable for publication after minor revisions.

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Previously Published anywhere/Plagiarism check:

The manuscript appears to present original experimental work and there is no obvious indication of prior publication. No direct evidence of plagiarism was identified during review. However, a formal similarity and plagiarism assessment should be carried out by the journal to confirm originality and ensure compliance with publication ethics and scientific reporting standards.