

Review of: "Nanomaterials: History, Production, Properties, Applications, and Toxicities"

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Potential competing interests: No potential competing interests to declare.

Review Article.

The article entitled “**Nanomaterials: History, Production, Properties, Applications, and Toxicities**”. The writers conducted a thorough examination of environmental sustainability. Environmental issues are greatly impacted by contaminants both in the atmosphere and on the ground. Semiconducting metal oxide nanostructures play a vital role in developing intelligent materials that effectively detect and eliminate dangerous chemical contaminants from our surroundings. In addition to being inadequate for current energy needs, conventional energy sources also have several adverse side effects. This paper outlines how catalytic and photocatalytic processes might help address these issues in a manner that is mindful of cost, energy, and the environment. This article provides an overview of the fundamental principles of nanotechnology and the terminology associated with it. The research provides a concise summary of several classifications of nanomaterials that may be used to provide cost-effective and efficient catalytic activity. The research also investigates the use of several innovative methods to enhance the selectivity and sensitivity of metal oxide semiconductors, based on expected trends. This study provides a comprehensive overview of the current state and prospects of metal oxide nanostructure research. It also presents a detailed compilation of the existing work, discussing the challenges faced and the achievements made so far. Additionally, it emphasizes the impact of nanotechnology on both the environment and society.

I carefully read the manuscript and there are some common mistakes in the article which must be corrected by the authors. After the correction of all the mistakes, the article could be considered for publication in the prestigious **Journal**.

Comments for Authors

- Write the keywords in alphabetical order.
- What is the novelty of the study?
- The author needs to revise the table and figure and paste in the full image, and especially use an image tool for making images.
- The author needs to cite the article DOIs: 10.1016/j.colsurfb.2024.113762, 10.1002/app.52624, 10.1007/s10924-021-02045-1.
- The author needs to include explanatory notes in the conclusion of the manuscript.
- It will be best if the author includes some future options in Limitations and Future Directions.

- The author needs to include a detailed table for nanomaterials that are actively used and in process for pharmaceutical bases.
- The author needs to include the preparation and finding of an easily available polymer or degradable polymer and its use in medicine for safe use.
- The author needs to acknowledge any conflict of interest at the end of the article.
- The author needs to include the toxicity table and side effects and reactions of the nanomaterials.