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

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Potential competing interests: No potential competing interests to declare.

The manuscript titled "Nanomaterials: History, Production, Properties, Applications, and Toxicities" provides a comprehensive review of various nanomaterial categories that offer practical and cost-effective catalytic activity. However, several revisions are suggested to improve the clarity and accuracy of the content:

1. The title is too lengthy and should be revised to better reflect the scope of the review article.
2. The claim that 50% or more of nanoparticles fall within the 1-100 nm range lacks a specific reference. Please provide a source for this information.
3. The classification of nanomaterials should be updated to reflect their diverse forms, including inorganic (e.g., carbons, metals, semiconductors) and organic (e.g., polymers, peptides, nucleic acids, amino acids) materials, as well as their hierarchical structures (e.g., core-shell, surface-coated, homogeneously distributed nanostructures). Please refer to the review article (https://doi.org/10.1002/smll.202307078) for more detailed information.
4. The statement that nanomaterials based on metals are considered quantum dots is a misinterpretation and should be corrected.
5. Clear definitions of nanoparticles and nanomaterials should be provided to distinguish between the two substances.
6. More discussion on applications should be included, focusing on material structures and compositions to guide materials selection and synthesis for specific applications.
7. Insight into future developments in the field of nanomaterials should be added to enhance the article's relevance and completeness.