Review of: "Uncovering Insights Into the Bio-Efficiency of Zingiber Officinale Roscoe: Understanding Components That Contribute Significantly to Ginger's Anti-inflammatory and Antioxidant Potential in Relationship With Modern Drying Methods"

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Potential competing interests: No potential competing interests to declare.

In this study, the authors focused on the Bio-Efficiency of Zingiber Officinale Roscoe: Understanding Components That Contribute Significantly to Ginger's Anti-inflammatory and Antioxidant Potential in Relationship With Modern Drying Methods. Although this study has valuable data, I think there are some grammatical and typographical errors that should be addressed.

Please change the title to be more concise and informative.

In the Abstract:

The abstract provides a concise summary of the study investigating the effects of two modern food drying procedures on the bioactive ability of ginger. However, there are some gaps and errors that should be addressed:

Background/contextual information: The abstract lacks sufficient background or contextual information regarding the importance of studying the bioactive ability of ginger and its potential antioxidant and anti-inflammatory activities. It would be valuable to briefly mention the relevance of these activities in combating certain health conditions or diseases.

Lack of clarity in the approach: The abstract mentions the use of various methods such as in vitro metabolic research, in silico protein-ligand interactions, toxicity assessments, and molecular dynamics simulations. However, it does not provide sufficient detail or explanation of these methods, making it difficult for readers to understand the study's approach. It is recommended to either briefly describe each method or refer readers to the relevant section in the main manuscript for more information.

Lack of specific percentage difference: The abstract states that freeze-dried ginger exhibits higher antioxidant activity compared to oven-dried ginger. However, it does not mention the specific percentage difference observed between the two drying procedures. Including this information would provide a clearer understanding of the results.

Incomplete implications of findings: The abstract mentions the identification of specific chemical constituents responsible for ginger's bioactivity based on their binding affinity, structural stability, and conformational potential to the protein

complex. However, it fails to elaborate on the implications or significance of these findings. It would be beneficial to briefly discuss how the identification of these constituents contributes to the development of affordable and efficient anti-inflammatory and antioxidant drugs in the future.

Lack of supporting evidence for the conclusion: The abstract concludes by suggesting that dried ginger has the potential to enhance anti-inflammatory and antioxidant activities compared to traditional drugs like Vitamin C and Aspirin. However, it does not provide specific evidence or results to support this claim. It would be helpful to briefly mention the specific results or findings that lead to this conclusion.

The introduction provides a general overview of ginger and its therapeutic properties but lacks specificity in terms of research objectives, supporting evidence, and the link between previous studies and the current research. It would benefit from providing more background information on the active compounds in ginger and their mechanisms of action, as well as addressing the limitations and gaps in existing knowledge.

In the Methodology section:

Please provide references for all methods used in this study. You can cite the following references for your methods where applicable:

Assessment of changes in physiological and biochemical traits in four pistachio rootstocks under drought, salinity and drought+ salinity stresses

Selection and validation of reference genes for normalization of qRT - PCR gene expression in wheat (Triticum durum L.) under drought and salt stresses

Assessment of changes in growth traits, oxidative stress parameters, and enzymatic and non-enzymatic antioxidant defense mechanisms in *Lepidium draba* plant …

Effects of salinity stress on proline content and expression of Δ1-pyrroline-5-carboxylate synthase and vacuolar-type H+ subunit E genes in wheat

Green synthesis of silver nanoparticles (AgNPs) by Pistacia terebinthus extract: Comprehensive evaluation of antimicrobial, antioxidant and anticancer effects

Green synthesis of silver nanoparticles (AgNPs) by filamentous algae extract: comprehensive evaluation of antimicrobial and anti-biofilm effects against nosocomial pathogens

Identification of Lepidium draba Δ 1-pyrroline-5-carboxylate synthetase (P5CS) and assessment of its expression under NaCl stress: P5CS identification in L. draba plant

Please write statistical analysis as a separate section along with the number of biological/technical replicates and different software used in your study.

The methodology does not mention whether the extraction process was standardized across different samples and drying

methods. Standardization is important to ensure consistency and comparability of results.

The methodology provides limited information on the extraction process. It does not specify the duration or conditions of the stirring process, which may impact the efficiency of extraction. Additionally, the filtration process is mentioned but lacks details such as the type of filter used.

In the results section:

You can transfer some figures to the supplementary section.

Discussion:

The discussion mentions that variations in compounds could be caused by factors such as vaporization, thermal dissociation, and preservation of volatile compounds. However, it does not provide a comprehensive analysis or supporting evidence for these factors. Further explanation and evidence for the observed variations would enhance the discussion.

The discussion states that phenolics and flavonoids have anti-inflammatory and antioxidant properties, and the results confirm previous studies. However, it does not specify which specific phenolics and flavonoids were identified in the ginger samples or their potential contribution to the observed properties. Providing specific information on the identified phenolics and flavonoids would add clarity to the discussion.

The discussion concludes by stating that further studies are needed to isolate specific compounds for in vivo analysis and that oven-drying, followed by freeze-drying methods, increases the yield of bioactive components. However, it does not discuss the potential limitations of the study or provide suggestions for future research directions. Including a brief discussion on limitations and suggestions for future studies would enhance the overall discussion section.