

Review Form 3

Journal Name:	International Journal of Biochemistry Research & Review
Manuscript Number:	Ms_IJBCRR_126039
Title of the Manuscript:	Natural Deep Eutectic Solvents (NADES) Research Framework: Bibliometric Analysis
Type of the Article	Review Article

PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This work on the Natural Deep Eutectic Solvents (NADES) Research Framework is important for the scientific community as it provides a comprehensive bibliometric analysis, highlighting the growth, trends, and key research areas in NADES studies. It sheds light on the increasing relevance of NADES as sustainable and eco-friendly solvents, which are crucial for green chemistry and biochemistry & biotechnological applications. I appreciate the manuscript's systematic approach to mapping out research collaborations and identifying influential works and researchers, which offers valuable insights for future studies. However, it could have included more in-depth analysis of emerging challenges and opportunities in NADES applications. Overall, the manuscript serves as a useful resource for guiding researchers interested in advancing the field of NADES.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title " <i>Natural Deep Eutectic Solvents (NADES) Research Framework: Bibliometric Analysis</i> " is mostly suitable, as it clearly indicates the focus of the article on both NADES and bibliometric analysis. It could also be refined as; " <i>Natural Deep Eutectic Solvents (NADES): A Comprehensive Bibliometric Study.</i> " But again, I must say, there is nothing wrong in how the title was formulated.	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract is generally comprehensive, but there are a few areas where it could be refined for clarity and impact. Here are my suggestions: Recommended Additions: <i>Clearer methodological details:</i> To help readers better grasp the analysis process, the methodology section might be extended to provide a brief mention of the tools or particular bibliometric approaches used (such as citation analysis, co-authorship networks, and keyword analysis). <i>Key results highlights:</i> Rather than only stating the trend and research gaps, the results section should go into a little more information about particular findings, including the most important research topics or well-known authors.	
Are subsections and structure of the manuscript appropriate?	A bibliometric analysis should have a transparent and rigorous procedural structure to ensure reproducibility. Methodology could have been structured differently. A good methodology to adhere to is as follows: Methodology <ul style="list-style-type: none"> ▪ <i>Data collection</i> Specify the bibliometric databases used, such as Web of Science, Scopus, or Google Scholar. Explain why these databases were used. Outline the keywords or search terms used to extract relevant literature. Include the search queries and any Boolean operators, e.g., AND, OR, applied. Mention the time period of publications considered. For instance, studies from 2005-2024. If you did not consider time period, the reasons of not to...must be stated in the methodology section. Define the criteria used to include or exclude documents. For example, specific research area, language, document types. ▪ <i>Data Processing</i> Describe any steps taken to clean the data, such as removing duplicates, refining author names, or standardising journal titles. 	

Review Form 3

	<p>Indicate the software used for the analysis if any, e.g., VOSviewer or R packages for bibliometrics.</p> <ul style="list-style-type: none"> ▪ <i>Citation analysis, co-authorship analysis, co-citation, keyword analysis</i> ▪ <i>Interpretation of results</i> <p>Trends identification: explain how major trends in the field were identified based on the analysis, such as publication growth, key topics, or influential authors.</p> <p>Strengths and limitations: Acknowledge any limitations in your methodology, such as database biases or the exclusion of non-English publications.</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>This manuscript is scientifically robust and technically sound for several reasons. First, it employs bibliometric analysis, which is a well-established quantitative method to assess research trends, ensuring objectivity in identifying developments in the field of Natural Deep Eutectic Solvents (NADES). Second, the analysis draws from a large dataset of 1,045 Scopus-indexed documents, providing a comprehensive overview of the research landscape. Third, the paper emphasizes the environmental benefits of NADES, aligning with current green chemistry principles. Furthermore, it highlights gaps for future research, contributing meaningfully to ongoing scientific discussions. Lastly, the paper's reliance on reputable databases like Scopus strengthens its credibility.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>The references listed in the document are generally appropriate for the research topic, especially considering the focus on Natural Deep Eutectic Solvents (NADES). Most of the sources cited are recent, with several key studies from 2020 to 2023 aligning with current advancements in NADES-related research.</p> <p>However, a few suggestions for improving the reference section include:</p> <ul style="list-style-type: none"> ▪ <i>Broader coverage:</i> include more diverse applications of NADES beyond food and pharmaceuticals. NADES have potential in fields like environmental science, material science, and renewable energy. <i>Suggestions:</i> (Lai <i>et al.</i> 2023); (Jauregi, Esnal-Yeregi and Labidi 2024) <p>Lai, Z. Y., Yiin, C. L., Lock, S. S. M., Chin, B. L. F., Zauzi, N. S. A. and Sar-Ee, S. 2023. A review on natural based deep eutectic solvents (NADESs): fundamentals and potential applications in removing heavy metals from soil. <i>Environmental Science and Pollution Research</i>, 30 (55): 116878-116905.</p> <p>Jauregi, P., Esnal-Yeregi, L. and Labidi, J. 2024. Natural deep eutectic solvents (NADES) for the extraction of bioactives: emerging opportunities in biorefinery applications. <i>PeerJ Analytical Chemistry</i>, 6: e32.</p> <ul style="list-style-type: none"> ▪ <i>Recent high-impact papers:</i> Since NADES research is rapidly evolving, adding more 2023-2024 publications could ensure the review remains cutting-edge. <i>Suggestions:</i> <p>Jauregi, P., Esnal-Yeregi, L. and Labidi, J. 2024. Natural deep eutectic solvents (NADES) for the extraction of bioactives: emerging opportunities in biorefinery applications. <i>PeerJ Analytical Chemistry</i>, 6: e32.</p> <ul style="list-style-type: none"> ▪ <i>Comparative studies:</i> It would be beneficial to cite studies that directly compare NADES with other green solvents, such as ionic liquids or deep eutectic solvents (DES), for enhanced context. 	

Review Form 3

<p>Minor REVISION comments Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language quality of the article is generally clear, but there are several areas that could be improved to enhance clarity and readability for scholarly communications. Here are a few suggestions for improvement:</p> <p><i>Sentence Structure:</i> Some sentences are too long or complex, which might make them difficult to follow. Breaking them into shorter, clearer sentences would improve readability. <i>Example, line 10-11:</i> "The extraction of natural materials has a main role in the production of high-value materials." could be rewritten as "The extraction of natural materials plays a crucial role in producing high-value materials."</p> <p><i>Grammar and Punctuation:</i> There are minor grammatical issues, such as missing articles or awkward phrasing. <i>Example, abstract (study design):</i> "This research was conducted using a bibliometric analysis" could be rewritten as "This research was conducted using bibliometric analysis." The use of definite and indefinite articles (e.g., "a" and "the") is inconsistent and should be reviewed for accuracy.</p> <p><i>Consistency:</i> Terms like "Natural Deep Eutectic Solvents (NADES)" should be consistently abbreviated after the first mention, as is standard in scholarly writing.</p> <p><i>Flow and Transitions:</i> The flow between sections could be smoother by using transition words to connect ideas logically.</p>	
<p>Optional/General comments</p>	<ul style="list-style-type: none">▪ In line 14-17, list or name a few examples of those volatile or traditional solvents.▪ Paragraph 2, line 21-26, should have added a little bit more information. Example, the preparation of NADESs, distinction between DESs and NADESs, and properties, particular hydrophobic nature of these compounds.▪ In line 27, "A review highlighted the potential of NADES in extracting bioactive from agro-food residues, emphasizing their unique properties such as low toxicity and biodegradability." Which review? This claim should be cited.▪ In line 37, Please provide more information on alginate. <i>Example</i>, list those "unique properties" since there are a reason to investigate alginate in various industrial applications and particularly in your study. More particularly properties that are significant to your study, e.g., hydrophilicity, film-forming, biodegradability...▪ In line 57-58, the statement, "Research related to alginate extraction using conventional methods has been carried out, but the use of NADES (Natural Deep Eutectic Solvents) as a more environmentally friendly and effective alternative is starting to gain attention [14]." Cite more than one study as per your claim. <p>Please refer to the methodology of the bibliometric analysis. I believe it needs significant revision. Check the previous remarks about the question of "subsections and structure of the manuscript."</p> <p>In table 1, correct the speaking of analytical chemistry</p> <p>In the first paragraph, the purpose and scope are well articulated.</p> <p>In the result section, cannot use only one database for the data collection (e.g., scopus). Should consider other databases like Web of Science, maybe PubMed, and so on. But justify the reason to selection. Basically, should have summarize the databases searched, keywords used, and any filters applied (e.g., publication years, subject areas).</p> <p><i>Publication trends</i> are well summarized, particularly the annual growth or decline and key milestones.</p> <p>Top journals, like <i>molecular liquids</i> were noted.</p>	

Review Form 3

	<p>Address the impact analysis: can include metrics like the H-index of journals, average citation per article, or journal impact factors to demonstrate their influence in the field.</p> <p>Identify and rank the most prolific authors by the number of publications or citations. <i>Example</i>, top authors as well as collaboration analysis. Summarize their main contributions if applicable. Can present graphs for this.</p> <p>Consider geographical distribution, e.g., contributing countries and institutional affiliation.</p> <p>Keywords and thematic analysis are well addressed but can still be improved.</p> <p>Citations and most influential works, e.g., highly cited articles were well discussed. But <i>Citation network analysis</i> needs to improve. Should have adopted the right software, e.g., VOSviewer and others for this part.</p> <p>Research gas and emerging trends were identified and are well articulated.</p>	
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PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

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