

Review Form 3

Journal Name:	Chemical Science International Journal
Manuscript Number:	Ms_CSIJ_124459
Title of the Manuscript:	Supercritical CO₂ Extraction and HPLC Quantification of Carnosic Acid from the leaves of Rosemary officinalis: A Green Approach to Bioactive Compound Purification
Type of the Article	research

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
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.	The exploration of supercritical CO ₂ extraction for carnosic acid from rosemary is a timely contribution to the field of sustainable practices in natural product chemistry. The method not only aligns with green chemistry principles but also showcases an efficient yield from a common herb. However, the purity of the final product at 40% is somewhat disappointing compared to the 60% standard mentioned, raising questions about the efficacy of the purification process employed. The study would benefit from a more comprehensive exploration of the variables affecting extraction and purification, as well as a discussion on the potential applications of the extracted carnosic acid. Nevertheless, this work paves the way for further research into optimizing conditions to maximize both yield and purity, thus enhancing the commercial viability of carnosic acid as a valuable antioxidant.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title is lengthy.	
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.	<ol style="list-style-type: none"> 1. The abstract states a yield of 75 grams of oleoresin from 1 kg of dried rosemary leaves without discussing whether this yield is considered high or low in the context of similar extraction methods. 2. The method of purification via hexane precipitation is mentioned, but there is no explanation of how this process affects the quality or yield of carnosic acid. More detail is needed on this purification step. 3. the description does not explain why the specific conditions of 45°C and 350 bar were chosen. Discussing their relevance to carnosic acid extraction would provide valuable context. 	
Are subsections and structure of the manuscript appropriate?	Yes.	
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.	While the study mentions a 60% purity standard, it does not explain the significance of this benchmark or how it was established, making it difficult to assess the implications of the 40% purity achieved. The mention of "additional optimization" is vague. Specific recommendations or potential strategies for achieving higher purity or yield should be included. The method of high-performance liquid chromatography (HPLC) is referenced, but there is no detail on the calibration or validation of this technique in the context of the study, which is crucial for understanding the reliability of the purity results. While the extraction method is described as "green and sustainable," there is no analysis of the environmental impact of the entire process, including solvent use and waste generation. The study could benefit from a discussion of the potential applications of carnosic acid and why it is significant to extract and purify it, which would provide a clearer rationale for the research.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Adequate references	

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Minor REVISION comments	yes	
Is the language/English quality of the article suitable for scholarly communications?		
Optional/General comments	This study presents a valuable exploration of supercritical CO ₂ extraction for carnosic acid from rosemary, demonstrating the method's potential for sustainable practices. However, the relatively low purity of the final product suggests that further optimization of the extraction and purification processes is essential for enhancing commercial viability.	

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>	

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