

Review Form 3

Journal Name:	Advances in Research
Manuscript Number:	Ms_AIR_131459
Title of the Manuscript:	Research Progress and Prospects of Microbial Repair of Concrete Cracks
Type of the Article	Opinion Article

PART 1: Comments

	Reviewer's comment Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.	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. A minimum of 3-4 sentences may be required for this part.	This manuscript is important for the scientific community because it explores an innovative and eco-friendly way to repair concrete cracks using microorganisms. This traditional repair method is actually really costly and harmful to the environment, but microbial repair offers a sustainable alternative. This paper provides a detailed review of different microbial repair techniques, their effectiveness, and also the factors that influence them. This research can help engineers and scientists improve construction durability while reducing environmental impact, making it a valuable contribution to the field.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title of this manuscript " Research Progress and Prospects of Microbial Repair of Concrete Cracks " is clear and relevant which is OK, but it could be slightly refined for better readability and impact. A possible alternative could be: "Advances and Future Prospects in Microbial Repair of Concrete Cracks" This version makes the title more engaging and will also maintain its original meaning.	
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 of this manuscript is comprehensive and covers the key aspects of the paper which includes the problem of concrete cracks, the advantages of microbial repair, and also an overview of repair mechanisms. However, I think that these improvements could make it stronger: Suggestions for Improvement: 1. The abstract could briefly mention why microbial repair is superior to traditional methods (e.g., cost-effectiveness, self-healing ability)... 2. If the paper discusses any major conclusions or insights from previous studies, they should be briefly highlighted... 3. Some sentences are slightly complex and could be simplified for better flow... 4. The phrase " <i>conducting an in-depth analysis from aspects such as microbial species, repair mechanisms, repair methods, influencing factors, and characterization methods</i> " could be reworded concisely to improve clarity...	
Is the manuscript scientifically, correct? Please write here.	The manuscript is scientifically sound and ok because it discusses microbial repair of concrete cracks based on established research and principles. It also explains so well the mechanisms of Microbial-Induced Calcium Carbonate Precipitation (MICP) as well as provides references to support its claims. The paper also covers key factors affecting the process, different repair methods, and characterization techniques. However, a thorough verification of the referenced studies, methodologies, and any experimental data would be necessary to ensure complete accuracy. Overall, the manuscript presents valid scientific information in a clear and structured manner.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The manuscript includes a sufficient number of references, covering both foundational and recent research. However, some of the cited studies are quite old, such as Boquet et al. (1973) and Gollapudi et al. (1995). Suggested Improvements: ✓ Instead of relying on older sources like Boquet et al. (1973) for microbial calcium carbonate precipitation, consider citing recent reviews or meta-analyses on the latest microbial strains used in MICP.	

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	<ul style="list-style-type: none">Example: A 2020+ study on genetically modified bacteria for enhanced calcium carbonate precipitation could provide a more modern perspective. <p>✓ The manuscript discusses influencing factors such as urea concentration, pH, and temperature. Recent studies on optimizing these parameters for higher efficiency should be included.</p> <ul style="list-style-type: none">Example: Studies from the past five years on improving urease-producing bacterial strains or using nanotechnology for enhanced microbial survival in concrete environments. <p>✓ Most of the references focus on laboratory studies. Including case studies or field applications from recent construction projects would make the research more practical.</p> <ul style="list-style-type: none">Example: Research on microbial concrete repair used in real-world bridges, tunnels, or buildings to demonstrate practical effectiveness.	
Is the language/English quality of the article suitable for scholarly communications?	<p>The language quality of the manuscript is suitable for scholarly communication, but some areas could be improved for clarity, readability, and conciseness. The technical content is well-explained, but some sentences are complex, wordy, or awkwardly structured. Minor grammatical errors and inconsistencies in phrasing also appear throughout the text.</p> <p>Suggested Improvements:</p> <p>✓ Example (Original): <i>"Traditional crack repair methods, such as surface treatment, filling, and grouting, while somewhat effective, have limitations and some chemical agents used may be harmful to the environment."</i></p> <ul style="list-style-type: none">Improved: <i>"Traditional crack repair methods, like surface treatment, filling, and grouting, have limitations and may involve harmful chemical agents."</i> <p>✓ Some sections feel overly technical or disjointed. Smoother transitions between paragraphs would improve readability.</p> <ul style="list-style-type: none">Example: Instead of abruptly introducing microbial mechanisms, a brief sentence linking the importance of MICP to self-healing concrete would help. <p>✓ Example: <i>"This paper reviews the recent research progress on microbial-based repair of concrete cracks, conducting an in-depth analysis from aspects such as microbial species, repair mechanisms, repair methods, influencing factors, and characterization methods."</i></p> <ul style="list-style-type: none">Improved: <i>"This paper reviews recent research on microbial-based concrete crack repair, analyzing key aspects such as microbial species, repair mechanisms, methods, influencing factors, and characterization techniques."</i>	
Optional/General comments	The manuscript is well-structured and covers an important topic, but it needs major revisions.	

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?	(If yes, Kindly please write down the ethical issues here in details)	

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