

**Review Form 3**

Journal Name:	<a href="#">Advances in Research</a>
Manuscript Number:	Ms_AIR_128233
Title of the Manuscript:	Application of SEM and XRD in the microstructure analysis of fiber-reinforced concrete corroded by salt solution
Type of the Article	Opinion Article

**PART 1: 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>
<p><b>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.</b></p>	<p><b>The study addresses a critical issue in civil engineering: the durability of concrete in chloride-rich environments. This is particularly relevant in regions with coastal, saline, or industrial conditions.</b></p> <p><b>It demonstrates the application of Scanning Electron Microscopy (SEM) and X-ray Diffraction (XRD) in analyzing the microstructure of fiber-reinforced concrete subjected to salt solution corrosion.</b></p> <p><b>It explores both macroscopic and microscopic changes, offering significant insights into corrosion mechanisms and the benefits of fiber reinforcement.</b></p> <p><b>It provides actionable insights into the role of fibers in mitigating salt-induced damage, offering potential pathways for enhancing the durability of concrete structures.</b></p>	
<p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>	<p><b>Yes. The title accurately reflects the use of SEM (Scanning Electron Microscopy) and XRD (X-ray Diffraction) as primary techniques for microstructural analysis.</b></p> <p><b>It specifies the material (fiber-reinforced concrete) and the condition studied (corrosion by salt solution).</b></p>	

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<p>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.</p>	<p>It clearly states the purpose of the study—investigating the damage caused by salt solution erosion on concrete's microstructure.</p> <p>It briefly describes the dry-wet alternation method and the use of SEM and XRD for microstructure analysis.</p> <p>It highlights key results, such as the identification of ettringite and gypsum as corrosion products and the two-stage corrosion mechanism. It notes the role of fibers in improving resistance to salt corrosion.</p> <p>However, the description of the experimental setup (e.g., dry-wet alternation method and curing conditions) is too detailed for an abstract. These details should be condensed or omitted.</p> <p>The abstract does not provide numerical data or specific improvements (e.g., reduction in mass loss or increase in dynamic modulus). Including such quantitative results would enhance its impact.</p>	
<p>Is the manuscript scientifically, correct? Please write here.</p>	<p>The manuscript appears scientifically correct in its fundamental approach, methodology, and analysis.</p> <p>The use of SEM and XRD to study microstructural changes and identify corrosion products like ettringite and gypsum is well-established in materials science.</p> <p>The manuscript details the dry-wet alternation method, which is an appropriate simulation of real-world salt corrosion.</p> <p>The paper demonstrates the role of fibers in mitigating crack propagation and improving durability, which is scientifically sound</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 manuscript includes references on the principles and applications of SEM and XRD, which are fundamental to the study.</p> <p>Most references appear to focus on established theories and principles but lack citations of recent advancements in fiber-reinforced concrete research and corrosion resistance strategies.</p> <p>References related to the durability of concrete in coastal or saline environments may be included.</p>	
<p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The article is logically organized into sections such as Introduction, Methodology, Results, and Conclusion, adhering to standard scientific writing formats.</p> <p>However, the manuscript switches between past and present tense inappropriately. For instance, results should primarily be in the past tense, while general truths can be in the present tense.</p>	
<p><u>Optional/General</u> comments</p>	<p>This article provides a comprehensive investigation into the effects of salt solution erosion on the microstructure of fiber-reinforced concrete, combining macroscopic observations with detailed microscopic analyses.</p> <p>It effectively utilizes advanced techniques such as SEM and XRD to explain the corrosion mechanism, making the study both methodologically sound and practically relevant.</p>	

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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(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)</i>
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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