

Review Form 3

Journal Name:	Advances in Research
Manuscript Number:	Ms_AIR_125657
Title of the Manuscript:	Microstructural study of recycled aggregates concrete based on scanning electron microscope technique
Type of the Article	Opinion Article

Review Form 3

PART 1: Review Comments

<u>Compulsory</u> 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.	This manuscript is important due to micro structure analysis of recycled aggregate concrete which is very important to understand the interfacial bond between the aggregate and cement matrix and to understand the C-S-H layers formation with in concrete.	Agree with reviewers' comments.
Is the title of the article suitable? (If not please suggest an alternative title)	Title of the article need to be revised as no need to mention the technique of microstructure analysis in the title.	Thank you for your comment, which has been amended to: Study on microstructure of recycled aggregate concrete by scanning electron microscopy: a review
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.	State of the art/introduction of the recycled aggregate concrete is missing in the Abstract. It need to be incorporated in the revised manuscript. Abbreviations need to be incorporate in the abstract like RAC for recycled aggregate concrete if the word is repeating.	Thank you for your comments, the manuscript has been revised and marked in the text. Recycled Aggregate Concrete (RAC) is a new type of concrete made by utilizing waste concrete as aggregate after treatment. With the enhancement of environmental awareness and resource conservation, but the microstructural part of recycled aggregate concrete is not as important as the macro performance enhancement aspect by scholars. And Scanning Electron Microscope (SEM) is a powerful tool for microanalysis, which can provide high-resolution images of samples as well as information on surface morphology and microstructure.
Are subsections and structure of the manuscript appropriate?	Subsections are appropriate. But every section should start with heading writing first capital letter word and must be bold heading.	Thank you for your comment, it has been modified.
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.	Literature study about the mechanical and durability properties of recycled aggregate concrete must be included in the introduction section. Microstructure analysis section must include the SEM figures and effect of percentage of recycled aggregate in concrete and methodology used for the preparing recycled aggregate on microstructure of concrete.	Thank you for your comment, which has been amended to: Domestic and foreign scholars have conducted relevant studies on the mechanical properties of recycled coarse aggregate concrete: Zaid O et al found that when recycled aggregate replaces 100% sand, the splitting tensile and flexural strengths are reduced by 14.2% and 14.9%, respectively, and the compressive strength is reduced by 25% compared with that of natural concrete through mechanical property tests. Kazmi et al investigated mechanical property tests the mechanical properties of coarse fracture behavior and mechanical properties of synthetic fiber reinforced recycled concrete. It was found that the compressive strength of concrete decreased by 23% with the increase of RCA substitution rate, and when the substitution rate of recycled coarse aggregate reached 100%, the concrete splitting tensile strength and flexural strength decreased by 16% and 23%, respectively. Reddy discussed the durability of untreated RCA and the corresponding concrete and also explored the improvement in the durability performance of recycled aggregates when treated with appropriate techniques. It was found that the chloride diffusion and capillary absorption parameters of the concrete increased progressively with the increase in RCA substitution and the resistance to carbonation decreased drastically. It was also concluded that immersion of concrete in acetic acid solution followed by accelerated carbonation is a better modification. Bu C et al. studied the durability of recycled concrete and came to similar conclusions. The recycled aggregate is a waste building material, so the source of recycled

Review Form 3

		aggregate is very different, and the preparation methods are also different (such as crushing method, screening, etc.) will lead to different particle shape and particle size distribution of recycled aggregate. If the pollutants attached to the surface of aggregate (such as oil, old cement paste, etc.) are not effectively removed, it will affect the bonding properties of cement paste, and the reaction characteristics of cement and recycled aggregate may be different, which will affect the generation and distribution of hydration products. For example, the use of wetter recycled aggregates may affect the hydration process of cement and the formation of C-S-H (hydrated calcium silicate) products, which seriously and directly affect the performance of recycled concrete.
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. =	More recent references must be added. I suggest one reference. Title: Predictive performance assessment of recycled coarse aggregate concrete using artificial intelligence: A review DOI: https://doi.org/10.1016/j.clema.2024.100263	Thank you for your comment, it has been modified.
Minor REVISION comments Is the language/English quality of the article suitable for scholarly communications?	Use the subscript in the formulas like Ca(OH) ₂ . And also used abbreviation for repeated words.	Thank you for your comment, it has been modified.
Optional/General comments	At least 4-5 keywords must be there in keyword section. Conclusion must be point wise and rephrased. Durability section and mechanical property section includes more parameters like split tensile strength, flexural strength, sorptivity, rapid chloride penetration test.	Thank you for your comment, it has been modified. The durability and mechanical properties sections have been supplemented. Conclusion modified. The keywords have been modified to: Recycled aggregate concrete; Scanning electron microscope; Microstructure; Durability; Mechanical property

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)	Agree with reviewers' comments and have made revisions