Review Form 3

Journal Name:	Chemical Science International Journal
Manuscript Number:	**Ms_CSIJ_126793**
Title of the Manuscript:	**NANOTECHNOLOGY IN ENHANCED OIL RECOVERY: A REVIEW OF CURRENT RESEARCH**
Type of the 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.		
Is the title of the article suitable? (If not please suggest an alternative title)		
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.		
Are subsections and structure of the manuscript appropriate?		
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.		
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. -		

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**		
Optional/General comments	**General review** **Manuscript "NANOTECHNOLOGY IN ENHANCED OIL RECOVERY: A REVIEW OF CURRENT RESEARCH"** Overall, the article seems too general for a chemical journal. I would have liked to see more specifics on the use of different nanomaterials for different purposes. The problem is considered too superficially and not in detail. For a chemical journal, more concrete details are needed: indicate the nanosystems used, describe potential mechanisms for reducing surface tension, stabilising emulsions or changing wettability. **Key observations:** For example, the section on 'The Role of Nanotechnology in EOR' mentions the effect of changing wettability and stabilising emulsions, but does not specify which nanoparticles are used. The section 'Current Research and Developments' states that 'There are hybrid applications involving nanoparticles together with surfactants and polymers, too, in which synergistic effects have been found to further enhance the performances of these EOR methods', but does not specify which surfactants and polymers, in what combinations. The section 'Environmental Considerations' also lacks specifics and is too general. It is necessary to indicate what environmental challenges arise when using nanoparticles, as well as to specify the advantages and disadvantages of their use in comparison with classical EOR methods. The section 'Types of Nanomaterials' is based only on references to the work of one author, so it should be indicated below the figure or directly stated that the classification is proposed (Nezhad and Cheraghian, 2015). This research has been going on for decades, so there is enough review literature for a more detailed analysis. The classification by composition and properties is not discussed at all, and this is an important part of the article that should have been mentioned in at least a few sentences. There is a lack of specifics on the compositions, sizes, and properties of nanomaterials for EOR, which is the main aspect of the article. In the section 'Synthesis of Nanomaterials, Characterisation Techniques', it is necessary to consider how exactly the nanoparticles proposed for use in EOR are synthesised and studied. The sections on 'Mechanisms of Nanotechnology in EOR' and 'Types of Nanomaterials used in EOR' should be combined to emphasise the use of specific nanocomposites to improve certain processes. This will increase the value of these chapters and help to better understand the prospects for the use of nanomaterials. The section 'Recent advances in Nanotechnology for EOR' mentions only two types of nanoparticles: silica nanoparticles and graphene oxide nanosheets. Is this really the only research in this area? If not, it is worth expanding this section to provide the real state of the art, or removing it altogether if the information is incomplete. The section 'Effect of Nanoparticles on Oil Recovery' looks very superficial, as do other parts of the article. The references are incorrectly formatted. It would be better to provide references to the original works in the correct format, not just the authors' names. There is also a discrepancy in the description of the authors' contributions. For example,	

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	'*Other important work by Hendraningrat also illustrated that polymeric nanospheres have enormous potential in the recovery of residual trapped oil within porous media. His findings demonstrated that NPs reduce water permeability and mobility ratio, which enables the polymer solutions to reach the unswept zone of oils and thereby recover them*....' The last paragraph refers to polymeric nanospheres, and the article where this scientist is the first author is entitled Enhancing oil recovery of low-permeability berea sandstone through optimised nanocarbon concentration. There is an obvious discrepancy. **Conclusion:** In my opinion, this article is too general and does not cover enough of the problem. The text looks academic, but without an in-depth analysis of the application of nanomaterials for EOR, and without an individual style of the author.	

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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