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Peer Review Reports

Synthesis of chitosan/AC/Fe3O4nanocomposite and its structural, magnetic, and heavy metal adsorption characteristics

The article went through 3 rounds of review, reviewer A agreed previously to publish his report, revealing his identity and reviewer B agreed previously to publish his opinion anonymously.

The authors agreed to disclose the reviewers' reports and their responses to the reviewers' comments.

Disclaimer: The peer review report content is the entire copy of the reviewers' and authors' comments. Typing and punctuation errors are not edited.

ROUND 1

Reviewer A: Juan Carlos González
Recommendation: Accept Submission

Abstract:
Unify Chitosan or chitosan?
Please, I suggest removing the word respectively from the Summary
Materials :
Reagents usually report their concentration and density (if applicable), for example: HCl 37%W/W density 1.19 g/cm3, Merk
Results and discussion
Note: except for the peak at 2Θ (approx 18, (1,1,1) all the magnetite bands are perfectly observed (including the (2,2,2) which could possibly be included in the graph (2Θ=37) if the authors agree
Were IRs performed loaded with chromium?
Note: except for the peak at 2Θ (ca 18. (1,1,1) all the magnetite bands are perfectly observed (including the (2,2,2) which could possibly be included in the graph (2Θ=37) if the authors agree
Were IRs performed with chromium loading?
Can the authors give any hypothesis for the Cr(III)-sorbate interaction? Electrostatics, Van der Waals interactions, etc. At what pH does sorption occur?
Note: except for the peak at 2Θ (ca. 18. (1,1,1) all the magnetite bands are perfectly observed (including the (2,2,2) which could possibly be included in the graph (2Θ=37) if the authors agree
Were IRs carried out loaded with chromium?
Can the authors give any hypothesis for the Cr(III)-sorbate interaction? Electrostatics, Van der Waals interactions, etc. At what pH is the sorption carried out?
Which sorbent is "better"?
The authors should be careful when evaluating this. There is no direct answer to this question until this question is answered: under what conditions? In any case this reviewer suggests relating the result obtained in this work with those in the literature that have been carried out under the same conditions.
On the other hand, figure 5 shows a contact time of only 240 min, meaning that 27.88% efficiency was achieved at "only" 240 min. This should be highlighted when comparing with other results, the working time (sorbent-solute contact) is a factor that authors do not usually take into account when comparing the best sorbent.
Finally, this reviewer suggests (for a future paper) that this excellent work be completed with kinetic, thermodynamic, desorption studies and a longer solute-solvent contact time. Process optimization (factorial designs)

Reviewer B: Anonymous
Recommendation: Resubmit for Review

1. The first paragraph of the introduction states that "Chitosan has an amine group with a very high affinity for proteins, which makes these particles active sites for the adsorption of heavy metal ions (Gholami et al., 2019; Lasheen et al., 2016)." This statement is partially correct, as chitosan does contain amine groups that act as active sites for the adsorption of heavy metal ions. However, the mention of affinity for proteins is irrelevant or at least confusing and not directly related to metal adsorption.
2. The statement **"The particle size distribution of the nanocomposite was 51.44 ± 0.38 nm"** is incorrect. From the particle size distribution graph (Figure 2b), it can be concluded that the correct value should be **51.44 ± 20 nm**, as the standard deviation shown in the graph indicates much greater variability in particle size. This error significantly underestimates the dispersion in particle size, which could lead to incorrect conclusions regarding the nanocomposite's properties, such as its adsorption capacity or stability.
3. The graph in Figure 5 is incomplete; data should be collected until a plateau is reached. This would ensure that the maximum adsorption is determined by the plateau value, rather than the value obtained at the highest measured time.

ANSWERS TO ROUND 1

Author's Files

ROUND 2

Reviewer A: Juan Carlos González
Recommendation: Accept Submission

All comments and suggestions have been submitted. These have been satisfactorily answered by the authors. The paper is acceptable for publication.
Reviewer Files

Reviewer B: Anonymous
Recommendation: Revisions Required

Dear authors:
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3. The graph in Figure 5 is incomplete; data should be collected until a plateau is reached. This would ensure that the maximum adsorption is determined by the plateau value, rather than the value obtained at the highest measured time.

ANSWERS TO ROUND 2

Author's Files

ROUND 3

Reviewer B: Anonymous
Recommendation: Accept Submission

Dear authors, please correct the standard deviation value to 27 nm in the conclusions and summary.

ACCEPT SUBMISSION

March. 07, 2025