

Responses to Reviewers and Editor

The authors of this article would like to thank the reviewers and Editor for their thoughtful comments of the current study. They raise important issues and their inputs are very helpful for improving this manuscript. We agree with almost all their comments and we have revised our manuscript accordingly.

Reviewer #1:

Article Name: A new composite of Fe₃O₄ nanoparticles/H₂O₂–activated serpentine for rapid and effective adsorption of hazardous cationic dyes: Kinetics and equilibrium studies. Recommendation: Accept with minor revision

Reviewer comments:

1. The authors submitted the draft version of the manuscript without proper proofreading. Font mismatch, submitting same table twice (Table 1), strikethrough lines and asking informal questions (lines 277-280) are some of the examples of lack of professionalism.

Response: The revised manuscript was checked carefully, and all the mistakes refereed by the reviewer were considered and fixed. The submitted/uploaded file was the mistaken one. Now we assured that the revised uploaded version are the correct one, after replying to the comments arisen by the reviewers.

2. The authors did not explain why the uptake capacity of the adsorbents were different for MB and MG?

Response: The most important outcome that can be derived from all the above presented and discussed results is that the removal efficiency of the composite is almost equal for both dyes. Considering the molecular weight of MB (319.9 mol/g) and MG (364.9 mol/g), we can suggest that specific sites are responsible for the adsorption. Comparing the molecular structures, it can be also suggested that the size differences does not affect the interactions involved in adsorption, since adsorption is driven by the interactions of the terminal amine groups located on the edges of the dyes molecules, thus equally accessible for both dyes regardless their molecular sizes. This conclusion can be supported from the equal results obtained for the re-usability tests/cycles for both dyes.

3. Did the authors do any regeneration study for the adsorbent after the adsorption?

Response: Reusability tests were performed, and the results are introduced/discussed at the revised manuscript (paragraph 3.9). In general, the adsorption performance after four adsorption-desorption cycles of the composite was 73% and 78% for MB and MG, respectively, showing the potential of the material to be regenerated/reused.

4. For adsorption isotherm, can the author provide any reference that an adsorption process can follow both Langmuir and Freundlich isotherm model? This is very unusual.

Response: In this work, the equilibrium was not reached. So, both of isotherm models are fitted well to the experimental data. We did not use high initial dye concentrations in order not to have other side effect, such as aggregation of the dye molecules on adsorbent surface. For the above reason, we avoided to discuss and interpret further the isotherm results. Similar result are obtained in the following work <https://www.sciencedirect.com/science/article/pii/S0167732219352730>

5. What does the fitting of the adsorption process to the pseudo-second order kinetic model imply? What is the significance of that study or findings?

Response: The fitting process to the pseudo-second order kinetic model was performed in order to bring light on how fast the adsorption process was taken place. The discussion/analysis on this regard was incorporated at the revised manuscript.