

Review Form 3

Journal Name:	Asian Journal of Chemical Sciences
Manuscript Number:	Ms_AJOCS_130572
Title of the Manuscript:	Modeling and Optimization of Photocatalytic Degradation of Methylene Blue via TiO2-CuO/HAp Catalyst: The Use of Response Surface Methodology and Artificial Neural Network
Type of the Article	Original Research Article

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PART 1: Comments

	<p>Reviewer's comment:</p> <p>The continuous release of these untreated effluents from industries such as the textile, paper, leather, plastics, as well as pharmaceutical industries into environmental water bodies, is becoming a growing concern to environmentalists and the ecosystem at large [4].</p> <p>Added after the reference [4] the following references:</p> <p>[1] Mekatel EH., Amokrane S., Aid A., Nibou D., Trari M., Adsorption of methyl orange on nanoparticles of a synthetic zeolite NaA/CuO, <i>Com. Rend. Chim.</i> 18 (3), 336-344 (2015).</p> <p>[2] Belaissa Y., Nibou D., Assadi AA., Bellal B, Trari M, A new hetero-junction p-CuO/n-ZnO for the removal of amoxicillin by photocatalysis under solar irradiation, <i>Journal of the Taiwan Institute of Chemical Engineers</i>, 68: 254-265 (2016)</p> <p>[3] EH Mekatel, S. Amokrane, M Trari, D Nibou, N Dahdouh, S Ladjali, Combined Adsorption/Photocatalysis Process for the Decolorization of Acid Orange 61, <i>Arabian Journal for Science and Engineering</i>, 44 (6) 5311-5322 (2019).</p> <p>[4] Laib R., Amokrane S., Nibou D. Trari M., Recovery of recycled paper in the removal of textile dye basic yellow 28 ; characterization and adsorption studies, <i>Nordic Pulp paper Res. J.</i>, 34(2) 218-227 (2019)</p> <p>[5] Dahdouh N., Amokrane S., Murillo R., Mekatel E., Nibou D., Removal of Methylene Blue and Basic Yellow 28 Dyes from Aqueous Solutions Using Sulphonated Waste Poly Methyl Methacrylate, <i>Journal of Polymers and the Environment</i> 28 (1), 271-283 (2020)</p> <p>[6] Mekatel EH., Nibou D., Trari M., Amokrane S, Dahdouh N, Removal of Maxilon Red dye by adsorption and photocatalysis: Optimum conditions, equilibrium and kinetic studies,, <i>Iran. J. Chem. Chem. Eng</i>, 40 (1) 93-110 (2021)</p> <p>[7] Laib Radouane, Amokrane Samira, Nibou Djamel, Trari Mohamed, Removal of the cationic textile dye by Recycled newspaper pulp and its cellulose microfibers extracted: characterization, release, and adsorption studies, <i>Iran. J. Chem. Chem. Eng.</i>, 40 (1) 133-141 (2021)</p> <p>Methylene blue is a typical cationic dye with a complex aromatic structure that has been in use for many years by several industries, though not regarded as acutely toxic but can have various harmful effects on human beings and as well as aquatic animals, especially on inhalation, it can give rise to short time difficulty in breathing while ingestion through the mouth can cause a burning sensation, nausea or vomiting [2].</p> <p>Added after the reference [2] the following reference:</p> <p>[8] Hammoudi Hadda Aya, Nibou Djamel, Amokrane Samira, Marta Otero, Moonis Ali Khan, Optimizing methylene blue adsorption conditions on hydrothermally synthesized NaX zeolite through a full two-level factorial design, <i>RSC Advances.</i>, 14(33) 23816-23827 (2024). https://doi.org/10.1039/d4ra04483e</p> <p>In the last few decades, heterogeneous photocatalysis with different semiconductor (SC) oxides (e.g., TiO₂, ZnO, Fe₂O₃, SrO₂, WO₃, CeO₂, ZrO₂, etc.) has been an object of interest in the field of industrial wastewater treatment [12].</p> <p>Added after the reference [12] the following reference:</p> <p>[9] Baouli NY., Nibou D., Amokrane S., NaY zeolite and TiO₂ impregnated NaY zeolite for the adsorption and photocatalytic degradation of Methylene blue under Sunlight, <i>Iranian Journal of Chemistry and Chemical Engineering (JCCE)</i> 41 (6) 1907-1920 (2022)</p> <p>In past studies, the artificial neural network (ANN) has been used in various designs in the science and engineering fields and has given promising results as regards the prediction of output variables due to the use of approximation function to map complex nonlinear data [9].</p> <p>Added after the reference [9] the following references:</p> <p>[10] Ouassel S., Chegrouche S., Nibou D., Aknoun A., Melikchi R., Khemaissia S. De Gisi, S., Adsorption of Uranium (VI) onto Natural Algerian Phosphate: Study of Influencing Factors, and Mechanism, <i>Arabian Journal for Science and Engineering</i> 46 (7) 6645-6661 (2021)</p> <p>[11] Achour S., Amokrane S., Chegrouche S., Nibou D., Baaloudj O., Artificial neural network modeling of the hexavalent uranium sorption onto chemically activated bentonite, <i>Research on Chemical</i></p>	<p>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)</p>
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	<p><i>Intermediates</i> 47 (11) 4837-4854 (2021)</p> <p>- Added in the introduction a paragraph about the Hydroxylapatite and use also the following reference: [12] Ouassel S., Chegrouche S., Nibou D., Melikchi R., Aknoun A., Mellah A., Application of response surface methodology for U(VI) adsorption using hydroxyapatite prepared from eggshells waste materiel: study of influencing factors, and mechanism, <i>Water Science and Technology</i> 83 (5) 1198-1216 (2021)</p> <p>- Eliminate the Fig.1 from the text</p> <p>- Added in the Fig.3 the indexation of the different XRD patterns.</p> <p>- Fig. 5 demonstrates the elemental composition as revealed by the EDS to be Cu, P, O, and Ti exist in TiO₂-CuO/HAp composite, and the Ca/P ratio as determined from the quantitative analysis of the atomic concentration was 1.67 [20]. Showing the Fig.5, the P element doesn't appear in the figure, check the results!!</p> <p>- Fig. 6: (a) FTIR of pure HAp(b) FTIR of TiO₂-CuO/HAp sample before photo degradation experiment (c)FTIR of TiO₂-CuO/HAp sample after photo degradation experiment . Where are the other bands of the sample? You must add the important FTIR bands.</p> <p>- In kinetic study, you have used PFO and PSO models for the photocatalytic degradation of methylene blue onto TiO₂-CuO/HAp. In general and in photo degradation, Langmuir-Hinshelwood kinetic model is used. Why didn't you use it? You can use the reference [9] for information.</p>	
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.	This manuscript deals with the Modeling and Optimization of Photocatalytic Degradation of Methylene Blue via TiO ₂ -CuO/HApCatalyst: The Use of Response Surface Methodology and Artificial Neural Network. This subject is very important in the field of the treatment of effluents from industries. The use of optimization methods is very interesting to propose a solution of the environment problems.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes	
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.	Yes	
Is the manuscript scientifically, correct? Please write here.	Yes it is.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Yes but some others references must added.	
Is the language/English quality of the article suitable for scholarly communications?	Yes	
<u>Optional/General</u> comments		

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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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