

Review Form 3

Journal Name:	International Research Journal of Pure and Applied Chemistry
Manuscript Number:	Ms_IRJPAC_121921
Title of the Manuscript:	Multivariate statistical analysis of the hydrochemical characteristics of a sedimentary aquifer: the case of Pala (Burkina Faso)
Type of the Article	Research

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory 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>
<p>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.</p>	<p>This manuscript is significant for the scientific community as it provides a detailed analysis of groundwater quality in a critical region, offering valuable insights into the interplay between natural processes and human activities on water resources. The use of multivariate statistical methods enhances the understanding of hydrogeochemical dynamics, which is essential for developing effective water management strategies. I appreciate the manuscript's rigorous methodology and its practical implications for ensuring safe drinking water. However, the study could benefit from a deeper exploration of long-term trends and potential future challenges in water quality management.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title "Multivariate statistical analysis of the hydrochemical characteristics of a sedimentary aquifer: the case of Pala (Burkina Faso)" is suitable as it accurately reflects the content of the study, highlighting the focus on hydrochemical characteristics, the use of multivariate statistical analysis, and the specific geographic location.</p> <p>However, if you wanted to make the title more descriptive or focused on the implications of the study, an alternative could be:</p> <p>"Hydrogeochemical Characterization and Multivariate Analysis of Groundwater in Pala, Burkina Faso: Implications for Sustainable Water Management"</p> <p>This alternative title emphasizes the study's broader implications for sustainable water management, which may attract a wider audience interested in environmental and resource management.</p>	
<p>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.</p>	<p>The abstract of the article is generally comprehensive, covering the key aspects of the study, including the research context, methodology, findings, and recommendations.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>To evaluate whether the subsections and structure of the manuscript are appropriate, several key elements need to be considered. A well-structured manuscript typically includes the following sections:</p> <ol style="list-style-type: none"> 1. Introduction: <ul style="list-style-type: none"> ○ Clearly states the research problem, objectives, and significance. ○ Provides background information and a literature review. 2. Materials and Methods: <ul style="list-style-type: none"> ○ Describes the study area, sampling methods, and analytical techniques. ○ Includes details on statistical methods used for data analysis. 3. Results: <ul style="list-style-type: none"> ○ Presents the findings in a clear and logical manner, often with tables, figures, and charts. ○ Includes the outcomes of the statistical analyses, such as PCA and FA. 4. Discussion: <ul style="list-style-type: none"> ○ Interprets the results in the context of the research objectives and existing literature. ○ Discusses the implications of the findings for water management and public health. ○ Acknowledges limitations of the study and suggests areas for future research. 	

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	<p>5. Conclusion:</p> <ul style="list-style-type: none"> ○ Summarizes the main findings and their significance. ○ Provides recommendations for water resource management. <p>6. References:</p> <ul style="list-style-type: none"> ○ Includes all cited works, formatted according to the journal's guidelines. ○ 	
<p>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.</p>	<p>The manuscript appears to be scientifically robust and technically sound due to its comprehensive approach to analyzing groundwater quality in the Pala region. The use of well-established statistical methods such as Principal Component Analysis (PCA), Factor Analysis (FA), and Hierarchical Clustering Analysis (HCA) adds rigor to the interpretation of hydrogeochemical data. Additionally, the study's adherence to standard procedures for water sampling and analysis ensures that the results are reliable and reproducible. The inclusion of multiple physico-chemical parameters and the consideration of both natural and anthropogenic factors further strengthen the scientific validity of the findings, making the manuscript a valuable contribution to the field of environmental and water resource management.</p> <p>4o</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p> <p>=</p>	<p>Plz add these references in revised manuscript:</p> <ul style="list-style-type: none"> - Khorasani, M., Ehteshami, M., Ghadimi, H., & Salari, M. (2016). Simulation and analysis of temporal changes of groundwater depth using time series modeling. <i>Modeling Earth Systems and Environment</i>, 2, 1-10. - Moayedi, H., Salari, M., Dehrashid, A. A., & Le, B. N. (2023). Groundwater quality evaluation using hybrid model of the multi-layer perceptron combined with neural-evolutionary regression techniques: case study of Shiraz plain. <i>Stochastic Environmental Research and Risk Assessment</i>, 37(8), 2961-2976. - Moayedi, H., Canatalay, P. J., Ahmadi Dehrashid, A., Cifci, M. A., Salari, M., & Le, B. N. (2023). Multilayer perceptron and their comparison with two nature-inspired hybrid techniques of biogeography-based optimization (BBO) and backtracking search algorithm (BSA) for assessment of landslide susceptibility. <i>Land</i>, 12(1), 242. - Khorasani, M., Ehteshami, M., Ghadimi, H., & Salari, M. (2016). Simulation and analysis of temporal changes of groundwater depth using time series modeling. <i>Modeling Earth Systems and Environment</i>, 2, 1-10. - Salari, M., Rakhshandehroo, G., & Ehetshami, M. (2017). Investigating the spatial variability of some important groundwater quality factors based on the geostatistical simulation (case study: Shiraz plain). <i>Desalin Water Treat</i>, 65(FEB), 163-174. 	

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Minor REVISION comments		
Is the language/English quality of the article suitable for scholarly communications?	That's right	
<u>Optional/General</u> comments		

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?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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