Review of: "Assessment of Quality, Bacterial Population and Diversity of Irrigation Water in Selected Areas of Minna, Niger State, Nigeria"

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Potential competing interests: No potential competing interests to declare.

The manuscript entitled "Assessment of Quality, Bacterial Population and Diversity of Irrigation Water in Selected Areas of Minna, Niger State, Nigeria" has focused on an important environmental issue. However, the manuscript is not suitable for publication because it lacks clarity in methodology, and results are not supported with proper or scientific discussion, and up to date references were not cited in this study. Results are also not supported with relevant or proper methodology because water quality must be presented with multivariate statistical analysis. Authors also have not presented the results with relevant diagrams or graphs, so I strongly reject it for publication in its current form.

The present manuscript is critically evaluated for its scientific merits, novelties, and clarity, including English grammar. The manuscript needs the following major improvements.

1. I suggest authors to read the manuscript carefully to eliminate possible mistakes in both grammatical aspects and typos during major revision. Clearly discuss in a paragraph: What are the Research Gaps/Contributions?
2. In the abstract section, add prominent results of this study.
3. The introduction is not exhaustive. The authors should briefly explain water quality assessment and how it reflects the health of a water body and its impact on the environment.
4. Introduction part lacks recent background information and needs to be cited with the most relevant and recent citations.
5. Authors cited almost 20-year-old references. Ex. "In developing countries, 90% of all wastewater goes untreated into local rivers and streams (UNEP, 2002). This data has changed, so I suggest to update it with recent references. Again, authors present that "The use of wastewater for irrigation at different levels of crop production is a common practice throughout the world (McGrath and Lane, 1989). This is an almost 35-year-old reference, and this practice may no longer be used for crop production.
6. Provide one nice and technically sound paragraph at the end of the introduction section about what is covered in the manuscript. How is the current study different from other published work?
7. I suggest authors to add one section on water quality assessment with special reference to physico-chemical parameters.
8. Authors must add the map of the study area.
9. I am unable to understand the methodology used by authors for bacterial culture, and the methodology is also not cited

with relevant references.

10. In the methodology, authors mentioned that they performed the analysis of physico-chemical parameters by using standard methods but did not mention the reference of those methods, so I strongly reject the results of this manuscript.
11. As per the current form, this manuscript authors have not performed the repeated quadrant streaking to obtain pure and single bacterial strains, and without performing quadrant streaking on agar plates, we cannot obtain pure and single bacterial strains.
12. The authors have presented the values of lead, copper, and iron from different locations but not mentioned the methodology for the analysis of these metals.
13. In the results section, the author presented that "Chloride and sulphate content of irrigation water from Soje-A were the highest (Table 4), suggesting that the water was contaminated with industrial and domestic inputs. Higher values of lead and copper in the irrigation water from Mechanic Village (Table 4) may be a result of oil contamination from petroleum products." What was the source of chloride and petroleum in irrigation water? Justify it with relevant references in the revised manuscript.
14. I am also surprised that in the results section, authors present that they have only found 4 bacterial strains (as per the number of bacterial strains mentioned in tables). And it is not possible that from water samples we got only this many bacterial strains on nutrient agar media.
15. Moreover, these results presented by authors without relevant methodology cannot tell about the water quality, so I strongly reject this manuscript in its current form.