

REVIEWER'S REPORT

Manuscript No.: JNHM-162

Title: Molecular Diagnosis and Health Risk Assessment (HRI) of Microbial Contaminants in Well Water in Rural Babil Governorate (2025-2026) .

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision ✓

Do not accept (*Reasons below*)

Rating
Originality
Techn. Quality
Clarity
Significance

Excel.	Good	Fair	Poor
	✓		
		✓	
		✓	
	✓		

Reviewer's Name: Mr Sahil Srivastava

Detailed Reviewer's Report

Reviewer's Comments

The manuscript addresses an important public-health and environmental-health concern regarding microbial contamination, antimicrobial resistance, parasitic contamination, and health risks associated with rural well water. The integrated use of microbiological examination, PCR-based detection, antimicrobial susceptibility testing, parasitological assessment, and HRI provides a potentially valuable approach.

However, **major revisions are required** before the manuscript can be considered for publication. The authors should carefully address the following issues:

- Study design and sampling:** The sampling period and description of seasonal assessment should be clarified. The manuscript describes sampling during December 2025–February 2026, while the statistical section refers to differences between summer and winter. This inconsistency must be resolved.
- Numerical consistency:** The Abstract reports 75% parasitic contamination, whereas the Results report 9 positive samples out of 24 (37.5%). The authors should verify and harmonize all numerical values throughout the manuscript.
- HRI assessment:** The HRI calculation requires clearer explanation, including the CDI calculation, exposure assumptions, reference-dose values, and basis for classification. In addition, adult HRI values of 0.98 and 0.87 are classified as “High” despite the stated threshold of HRI >1.
- Antimicrobial resistance:** The Methods mention testing eight antibiotics, whereas the presented results include only four. The authors should clarify this discrepancy and provide sufficient isolate-level information to substantiate the use of the term **multidrug resistance (MDR)**.

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5. **PCR findings:** The denominator used for calculating the percentages of blaTEM, tetA, and sul1-positive isolates should be explicitly stated. The authors should also clearly distinguish between detection of resistance genes and phenotypic antimicrobial resistance.
6. **Statistical analysis:** The statistical methods should be reported more completely, including the groups compared, sample sizes, statistical tests, exact P-values, and justification for the selected tests. The presentation of statistical significance in the tables should also be explained.
7. **Discussion and interpretation:** Several statements regarding sewage, agricultural activities, antibiotic misuse, plasmid-mediated resistance, and horizontal gene transfer are presented as causal explanations. These interpretations should be appropriately qualified where the study did not directly investigate the proposed sources or mechanisms.
8. **Presentation and language:** The manuscript requires substantial English-language editing. Section numbering, terminology, grammar, table/figure titles, and formatting should be standardized. The Introduction and Literature Review also contain considerable repetition and could be made more concise and focused.

Overall Assessment- The study has **good relevance and potential scientific significance**, but the current manuscript contains important methodological and reporting inconsistencies. Addressing these concerns, together with careful revision of the statistical analysis, HRI methodology, numerical data, and scientific language, would substantially improve the manuscript.