

REVIEWER'S REPORT

Manuscript No.: IJAR 52476

Date: 25/6/2025

Title: "Prevalence and Characteristics of Multidrug-Resistant (MDR) Nontyphoidal Salmonella isolates from Poultry in Hazaribagh, along with the associated risks for Food Safety and Public Health"

Recommendation:

Accept as it is
 Accept after minor revision – **YES**
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality	✓			
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. Vasudha Kommu

Date: 25/6/2025

Reviewer's Comment for Publication.

(To be published with the manuscript in the journal)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript titled **"Prevalence and Characteristics of Multidrug-Resistant (MDR) Nontyphoidal Salmonella isolates from Poultry in Hazaribagh, along with the associated risks for Food Safety and Public Health"** thoroughly investigates the prevalence and characteristics of multidrug-resistant nontyphoidal Salmonella (NTS) in poultry from Hazaribagh, India. It identifies a significant prevalence of Salmonella, particularly MDR strains, highlighting a critical public health concern regarding food safety. The research also explores the impact of environmental factors on Salmonella growth and provides a phylogenetic analysis, underscoring the urgent need for regulated antibiotic use in the poultry industry to mitigate the emergence of resistant strains.

The study's cross-sectional design limits conclusions on seasonality and long-term trends of Salmonella prevalence and resistance. While environmental factors were assessed in vitro, their complex interplay in real-world poultry settings needs further in-depth investigation.

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Recommendation: Accept with minor revisions

Detailed Reviewer's Report

1. **Study Design (Cross-sectional):** The study is a cross-sectional study conducted between December 2023 and September 2024. While it provides a snapshot of prevalence, it can only infer, rather than definitively prove, seasonal patterns or changes over time. Longitudinal studies would be necessary to establish such trends.
2. **Sample Collection Specificity:** Samples were collected from "commercial broiler chicken retailers", specifically chicken intestines. While this targets a relevant source, broadening the sample collection to include different types of poultry (e.g., layer hens, backyard chickens), different parts of the chicken (e.g., skin, meat), or environmental samples from farms would provide a more comprehensive understanding of Salmonella distribution.
3. **Environmental Factor Assessment (In Vitro vs. In Vivo):** The impact of pH, temperature, and NaCl concentration on Salmonella growth was assessed in laboratory media (in vitro). While informative, the complex biological and environmental interactions in a live poultry gut or farm setting are more intricate than simulated laboratory conditions. The direct applicability of these in vitro findings to real-world scenarios, especially concerning turbidity and seasonal precipitation, requires further in vivo validation.
4. **Lack of Deeper Epidemiological Links:** While the study identifies high prevalence in the West Zone and attributes it to "inadequate cleanliness", it doesn't delve deeper into specific farm management practices, antibiotic usage histories at these farms, or other epidemiological factors that could concretely explain the regional variations in prevalence and resistance.
5. **Statistical Analysis Clarity:** While results are presented with percentages and counts, the manuscript does not explicitly mention formal statistical tests (e.g., chi-square tests for prevalence differences between zones or t-tests for comparing growth under different conditions) for all findings. For instance, the statement "For every drug, there were notable variations in the diffusion zone diameters" would benefit from statistical support.
6. **Randomization:** The term "randomized" is not used in the "Material and methods" section when describing sample collection or processing. The samples were "procured from commercial broiler chicken retailers within the Hazaribagh region... spanning Hazaribagh's East to West and South to North zones". This implies systematic or convenient sampling rather than a true random sampling method.
7. **Power of Study:** The manuscript does not specify if a power analysis was conducted to determine the sample size (200 samples in total, with 111 positives for Enterobacteriaceae and 61 for Salmonella). Therefore, it's not clear if the sample size was sufficient to detect all potential differences or relationships with adequate statistical power.