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Microbiological Contamination of Raw Food in Malaysia – A Systematic Review

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Structured Abstract

Background: Raw foods such as vegetables, meat, poultry, fish, and fresh produce like ulam are commonly consumed across Malaysia and are gaining popularity due to cultural practices and media influences promoting raw foods like sushi and sashimi. These foods can easily be contaminated by bacteria that cause foodborne diseases. In Malaysia, several outbreaks of foodborne disease associated with microbiological contamination from the consumption of raw foods have been reported. However, despite multiple local studies, there is no consolidated evidence summarising the pathogens, raw food types, and detection methods in Malaysia. Therefore, this study aims to systematically review the microbiological contamination of raw foods in Malaysia, focusing on bacterial pathogens, detection methods and reported geographical regions.

Methods: A systematic review was conducted using the ScienceDirect, Scopus, and Web of Science databases. Boolean operators were used to link English words regarding raw food items and bacterial contamination in Malaysia from 2015 to 2025. Studies were included if they reported primary data on bacterial contamination of raw foods, were conducted in Malaysia, and were published as open-access English-language articles. Risk of bias was evaluated using JBI critical appraisal checklists. Relevant data were extracted and organised into a matrix.

Results: Ten articles met the eligibility criteria and were included in the final analysis. The included articles demonstrated high methodological quality, with JBI scores ranging from 8 to 9. The majority of the articles in this research were conducted in several Malaysian states, including Terengganu, Selangor, Perak, and Penang. Vegetables, chicken, and beef were the most commonly examined raw food items. The main bacterial pathogens identified were non-typhoidal *Salmonella*, *Campylobacter jejuni*, and *Vibrio* species.

Conclusion: This systematic review highlights bacterial contamination in raw food in Malaysia. However, the findings also reveal limited geographical coverage in existing studies. This underscores the need for more comprehensive nationwide research to support effective food safety policies, public awareness, and regulatory surveillance in Malaysia.

Keywords: Raw food, bacterial contamination, Malaysia

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