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Assessment Of Drinking Water Quality of Vending Machine at Pusat Komersial, Seksyen 7, Shah Alam

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Structured Abstract

Background: The study focuses on evaluating the quality of drinking water from water vending machines located at Pusat Komersial Seksyen 7 in Shah Alam, Malaysia. Vending machines have become increasingly popular in Urban areas, providing convenient access to drinking water. However, concerns about the microbiological safety and overall quality of water dispensed from these machines necessitate regular assessments to prevent potential health risk associated with waterborne disease.

Methods: Five water samples were collected from different vending machines. The analysis included measuring the pH using a calibrated pH meter and conducting microbiological tests. The microbiological analysis utilized various agar types: Plate count Agar (PCA) for total bacterial counts, Luria-Bertani (LB) agar for detecting *Escherichia coli*, and Xylose Lysine Deoxycholate (XLD) agar for identifying *Salmonella* spp. This comprehensive approach allows for a through evaluation of the water quality.

Results: Total bacterial counts in Plate Count Agar (PCA) were within the acceptable range of 30-300 colonies. Variability in bacterial counts was observed between samples collected from the nozzles and internal areas of the vending machines. The pH levels of water samples were within acceptable limits, confirming their suitability for consumption. ANOVA analysis showed no significant difference in bacterial counts from the internal areas, with a significance value of 0.636 ($p > 0.05$). However, *E. coli* detection revealed a significant difference in counts between the nozzle and internal areas, indicating potential contamination at the nozzles. Importantly, *Salmonella* spp. was not detected in any of the samples.

Conclusion: In conclusion, the study found that the drinking water quality from vending machines at Pusat Komersial Seksyen 7, Shah Alam was generally acceptable. However, there were varying bacterial counts between nozzles and internal areas particularly for *E. coli*, indicating potential contamination risk at the nozzles. Importantly, no *Salmonella* spp. was detected in any samples. To ensure safe drinking water, the study recommends continuous monitoring and proper maintenance of the vending machines, including regular cleaning and filter replacement. These findings highlight the need for regular water quality assessments to protect public health.

Keywords: Water Vending Machine, *E. coli*, Pusat Komersial Seksyen 7, Shah Alam, Drinking Water Quality, Microbiological Analysis

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