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Assessment of Drinking Water Quality from Water Dispensers in UiTM Shah Alam Colleges

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Structured Abstract

Background: Safe drinking water is essential for human health as it prevents dehydration and waterborne diseases. Water dispensers are widely used in university residential colleges to provide convenient access to hot and cold drinking water; however, regular monitoring is required to ensure compliance with drinking water quality standards established by the World Health Organization (WHO) and the Ministry of Health (MOH), Malaysia. Limited information is available on the quality of water supplied by dispensers in university residential colleges. This study evaluates the physical, chemical, and microbiological quality of drinking water from selected water dispensers in UiTM Shah Alam and examines students' perceptions and acceptance of the water quality**.**

Methods: Drinking water samples were collected from eight water dispensers located in residential colleges (Mawar, Melati, Seroja, Anggerik, Delima, Meranti, Teratai, and Perindu). Physical parameters (pH, turbidity, total dissolved solids, and colour), chemical parameters (free chlorine, total hardness, and lead), and microbiological quality (Escherichia coli) were analysed using standard laboratory procedures, including spectrophotometry, titration, gravimetric methods, and the pour plate technique. The measured values were compared with WHO and MOH drinking water quality standards. A questionnaire survey was conducted to assess students' perceptions and acceptance of water dispenser quality and safety.

Results: This research indicates that pH, TDS, turbidity, colour, lead and total hardness are within acceptable limits which means that the physical and chemical water quality is acceptable. A number of samples have low levels of free chlorine which is <0.1mg/L that can lower the effectiveness of disinfection. Nonetheless, E. coli can be found in 4 colleges with the highest value is 41 CTU/100mL indicating potential microbial contamination and potential health hazards. Survey feedback showed that 61.7% of students expressed concerned about safety and cleanliness of the water dispensers.

Conclusion: In conclusion, the water dispensers exhibited acceptable physical and chemical water quality; however, insufficient free chlorine levels and the presence of Escherichia coli indicate potential microbiological risks. These findings highlight the need for improved maintenance practices, routine monitoring, and systematic cleaning of water dispensers to ensure safe drinking water and protect students' health.

Keywords: Drinking Water Quality, Water Dispensers, University Colleges, Microbiology, Water Safety

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