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Evaluating the Drinking Water Quality in Water Dispensers at Faculty of Applied Science, UiTM Shah Alam

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Structured Abstract

Background: Access to safe drinking water is essential for public health; however, millions of people worldwide face significant challenges in obtaining clean water. This study evaluates the quality of drinking water from water dispensers at the Faculty of Applied Science, UiTM Shah Alam, focusing on various physicochemical and biological parameters, including pH, colour, turbidity, free chlorine, total hardness, *Escherichia coli* (*E.coli*), lead, and total dissolved solids (TDS). The research aims to determine compliance with the standards set by the World Health Organization (WHO), and the National Standards for Drinking Water Quality (NDWQS).

Methods: Drinking water samples were collected from water dispensers at Block A, Block B and Block C of the Faculty of Applied Science. Standard methods and instruments such as calibration, spectrometry, titration, drying, weighing, and membrane filtration were employed. The analysis of physicochemical and biological parameters was analysed to compare the findings with the standards.

Results: The results revealed that measurements of turbidity, total hardness, lead, and color consistently fell within acceptable limits. Turbidity levels were recorded under 1 NTU, while total hardness ranged from 54.05 to 68.06 mg/L, classifying the water as soft. The presence of heavy metals was identified below the range of 0.01 mg/L, and color measurements remained under 1 TCU, indicating compliance with WHO and NDWQS standards. These findings demonstrate that the drinking water from these dispensers is safe for consumption. However, concerns arose regarding measurements of free chlorine, TDS, *E. coli*, and pH due to the presence of pollutants and contaminants in the samples. The TDS values ranged from 6.07 to 36,231.33 mg/L; *E. coli* was detected in some samples; pH values were lower than 6.5, indicating acidity; and free chlorine levels were below 0.2 mg/L, suggesting potential bacterial growth.

Conclusion: In conclusion, these findings highlight the importance of regular monitoring and maintenance of water dispensers to prevent bacterial contamination and the presence of harmful substances that may pose significant health risks to surrounding communities. By identifying potential sources of contamination and assessing water quality parameters, this research underscores the need for effective management of drinking water resources in educational settings to promote health and well-being.

Keywords: Drinking water quality, Water dispensers, Physicochemical, Biological, NDWQS

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