

UNIVERSITI TEKNOLOGI MARA

**MICROBIAL CONTAMINATION IN WATER FROM
WATER COOLERS AT UITM**

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Declaration by Student

Project entitled "Microbial Contamination in Water from Water Coolers at UITM" is a presentation of my original research work. Whenever contribution of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Mr Nasaruddin Abd. Rahman as Project Supervisor and Miss Farah Ayuni bt Shafie as Co-Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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Abstract

Microbial Contamination in Water from Water Coolers in UiTM

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Introduction: Nowadays, availability and the convenience of water cooler to provide drinking water for direct consumption is one of the reasons why it is installed in most universities' buildings or offices. As water cooler is one of convenient source of drinking water, it is important that it is free from any disease-causative agents that can cause health effect. Water coolers usually have their water intake from the same water system which supply water to toilet, shower or sink in a building. Due to that, there is probability that any leaking or system failures can lead to microorganism contamination in the water. This study was done to determine whether there is microbial contamination in water from water coolers installed in UiTM buildings.

Methodology: This study has been conducted at three different UiTM around Selangor. The study location is the hostel or also known as students' college at the UiTM. The study design of this study is cross-sectional study. Sampling data collection are done using DR 890, Turbidity meter, pH meter, probe thermometer and Questionnaire on Daily Water Consumption of UiTM Students. A statistical analysis that was used is statistical package for the social science (SPSS) version 17.0 and Microsoft Excel 2007

Results: The study found that all water from water coolers used as sampling point do not contaminated by coliform or *E. coli*. Violation found in residual chlorine and pH level at some sampling points at all the sampling locations (UiTM). *Staphylococcus* spp., *Streptococcus* spp. and *Acin. calcaoceticus* are detected from the samples taken from the water coolers around the sampling locations. 65 respondents (72.22%) complaint about experiencing some symptoms after drinking water from the water coolers installed at their hostel. Out of 90 respondents, 34.44% experienced sore throat, 12.22% experienced coughing, 27.78% experienced coughing and sore throat and 2.22% experienced other symptoms (i.e. diarrhea and nausea) after drinking the water. There is linear relationship between pH with total colony count and residual chlorine with total colony count in which p -value are $p= 0.038$ and $p=0.000$ in which $p<0.05$.

Conclusion: For the conclusion, the water from the water cooler is free from coliform of any kind. However, the water may contain other bacteria that may also pose health effect to the students. Due to that, water coolers should be properly maintained and inspected to ensure that the water is free from microbial contamination. Students should be educated to cook water from the water coolers before consuming the water to prevent any health effect

Keywords: *Staphylococcus* spp., *streptococcus* spp., *Acin. Calcoaceticus*, SPSS, water coolers