

Measuring impact of exports of palm oil biodiesel on direct and indirect land use changes in Malaysia

ABSTRACT

Introduction: Water coolers are popular in office buildings and commercial stores. This source of drinking water has the potential to cause waterborne outbreaks, especially in sensitive and immuno-compromised subjects. The main reason for this research was because the majority of students preferred to consume water from water coolers due to factors such as convenience and accessibility.

Methodology: Two water samples from water coolers from all fourteen residential colleges in Universiti Putra Malaysia were collected and analysed using USEPA 8367 filtration membrane method in order to detect the presence of *E. coli* and total coliform.

Results: Total coliform were detected in 93.0% of the samples collected. Only samples from one college had *E. coli* (0.14%). The types of filters used in water coolers did not influence the presence of bacteria because total coliform was detected in all samples using either sediment filters or stage filters. Only samples from one college using sediment filter was present with *E. coli*. Total number of respondents was 375. For frequency of consumption and the experience of getting diseases, there were no significant relationship because 74 respondents who drank less than three times a day also contracted diseases related to *E. coli* or total coliform, and there were 99 respondents who did not developed any disease even though they drank more than three times a day. There were no significant relationship between the presence of total coliform and the number of respondents experienced getting diseases.

Conclusion: Total coliform were detected in nearly all samples. Residential colleges must ensure the recommended periodic maintenance of water coolers so as to safeguard the health of students using this facility.

Keyword: Water cooler; *E. coli*; Total coliform; USEPA 8367 filtration membrane method