

**UNIVERSITI TEKNOLOGI MARA**

**FORMALDEHYDE CONCENTRATION IN  
POLYETHYLENE TEREPHTHALATE (PET) BOTTLED  
DRINKING WATER AND ITS HEALTH RISKS.**

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**Project paper submitted in partial fulfillment of the requirements  
for the degree of  
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### Declaration by student

Project entitled "Formaldehyde Concentration in Polyethylene Terephthalate (PET) Bottled Drinking Water and Its Health Risks" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature and acknowledgment of collaborative research and discussion. This project was done under the guidance of Tuan Haji Hashim bin Ahmad as Project Supervisor and Encik Mohd Izwan bin Masngut 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

### Formaldehyde Concentration in Polyethylene Terephthalate (PET) Bottled Drinking Water and Its Health Risks

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The objectives of the study are to determine the concentration of formaldehyde in different brands of PET bottled drinking waters, the concentration of formaldehyde in the PET bottled drinking waters that is stored in different temperatures and storage duration, and to associate the concentration of formaldehyde in PET bottled drinking water to the potential health risks. The method that was used for this study is laboratory analysis, by using DR 5000 Ultraviolet Visible Spectrophotometer. The results show that for the concentration of formaldehyde in Laboost, the mean concentration (SD) is 20.2 µg/L (25.24), Yes, the mean concentration (SD) is 13.0 µg/L (25.42) and Summer, the mean concentration (SD) is 11.0 µg/L (26.80). Since the p value is greater than 0.001, the means are not significantly different. For the concentration of formaldehyde of PET bottled water stored in 0-4 °C, the mean concentration (SD) is 9.0 µg/L (under measuring range) (11.36), 28 °C, the mean concentration (SD) is 4.8 µg/L (11.37) and 60 °C, the mean concentration (SD) is 47.8 µg/L (5.37). Since the p value is less than 0.001, the means are significantly different. The one week mean concentration (SD) is 14.0 µg/L (24.88) and the two weeks mean concentration (SD) is 15.2 µg/L (27.26). The mean difference is -1.7. Since the p value is greater than 0.001, the means are not significantly different. The mean value of Hazard Index (HI) is 0.002281, which is less than 1. It is concluded that the concentration of formaldehyde in PET bottled water does not pose health risks.

*Keywords: Polyethylene Terephthalate (PET), formaldehyde, bottled water*