UNIVERSITI TEKNOLOGI MARA

ASSESSING THE QUALITY OF COMMERCIALIZED BOTTLED DRINKING WATER

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Project submitted in fulfillment of the requirements for the degree of
Bachelor in Environmental Health and Safety (Hons.)

Faculty of Health Sciences

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DECLARATION BY STUDENT

Project entitled "Assessing the Quality of Commercialized Bottled Drinking Water" is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Dr Nadiatul Syima Mohd Shahid. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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In the name of Allah, The Most Gracious, The Most Merciful

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ABSTRACT

The commercialized of bottled drinking water was due to the rapid increase in the urbanisation as well as the global population growth. People were tend to consume bottled drinking water because the drinking water can be purchased easily at most of the shops and retailers. This study was conducted to evaluate the quality of commercialized bottled drinking water between mineral and reverse osmosis bottled drinking water. Two different samples (n=2) for each brands were purchased randomly for both mineral and reverse osmosis bottled drinking water and analysed for physical (pH, Turbidity, TDS), chemical (Sulfate, Fluoride, Nitrate, as well as microbial counts ((*Escherichia coli, Pseudomonas aeruginosa,* Heterothrophic Plate Count). Based on the analysis results, 100% of the samples were below the permissible limit referring to the Malaysian Food Regulations 1985, IBWA, FDA and EPA for pH, TDS, turbidity, Sulfate, Fluoride, Nitrate and HPC. However, 40% of the samples were detected with *E.Coli,* which 7 were from mineral bottled drinking water while another 5 were from reverse osmosis bottled drinking water. Also, 43% of the samples were detected with *P. Aeruginosa* after 72 hours of incubation, which 7 samples from mineral bottled drinking water while another 6 were from reverse osmosis bottled drinking water. Health Risk Assessment (Hazard Quotient (HQ) and Chronic Daily Intake (CDI) of Nitrate) have been conducted for both mineral and reverse osmosis bottled drinking water. The HQ and CDI for the samples were less than 1 and indicates that there were no adverse effects expected to occur due to the consumption of Nitrate in bottled drinking water. Recommendation was suggested for the government to enforce the regulation related to bottled drinking water industry as well as to raise the awareness regarding the importance of a high quality of drinking water to the people.

Keywords*: Bottled drinking water, mineral, reverse osmosis, physicochemical quality, bacteriological quality, health risk assessment, public health*