A STUDY OF WATER QUALITY BETWEEN TAP WATER AND BOILED WATER CONSUMED BY THE STUDENTS OF UiTM NEGERI SEMBILAN KAMPUS KUALA PILAH

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This Final Year Project Report entitled **"A Study of Water Quality Between Tap Water and Boiled Water Consumed by The Students of Uitm Negeri Sembilan Kampus Kuala Pilah"** was submitted by Amira Karina binti Aminuddin, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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TABLE OF CONTENTS

ABSTRACT

A STUDY OF WATER QUALITY BETWEEN TAP WATER AND BOILED WATER CONSUMED BY THE STUDENTS OF UiTM NEGERI SEMBILAN KAMPUS KUALA PILAH

This research studied the quality of drinking water consumed by the student and workers living in Kolej Kediaman UiTM Negeri Sembilan Kampus Kuala Pilah and Non-Resident (NR). Most of the students and workers ingest water from tap where it is boiled beforehand and bottled water. Drinking water samples were collected from several water taps. Tap water are boiled using different water heaters belong to students and workers. Each of the drinking water samples were collected in clean bottles rinsed with samples to eliminate variables such as contamination of bacteria. After taken into laboratory, samples were stored in $4^{o}C$. Microbial test was conducted immediately upon unsealing. Study showed that boiled water contain more bacteria compared to raw tap water. Next, physicochemical test and heavy metals determination were carried out. Temperature, pH, conductivity, total dissolved solid (TDS) and resistancy were evaluated. Tap water from Kolej Kediaman has a total bacteria number of 4.70 x 10^3 CFU/ml, while boiled water from Kolej Kediaman has a total bacteria number of 7.90 x 10^4 CFU/ml which is 16 times higher than raw tap water. NR contains 1.70 x 10^3 CFU/ml and 2.77 x 10^4 CFU/ml of total bacterial colonies in tap water and boiled water respectively. Result showed boiled water has higher microbacterial contamination compared to raw tap water. Temperature, pH, and resistancy of water sampled from Kolej Kediaman has lower values compared to water sample of NR. However, physicochemical values of boiled water are slightly higher than raw tap water. Lastly, Cu, Fe and Mg concentration were determined by Flame Atomic Absorption Spectrometer (FAAS). Water sample from Kolej Kediaman has higher Mg concentration but lower in Cu and Fe concentrations than water sample of NR. In spite of this, heavy metals in drinking water became concentrated after boiling. The results obtain were compared and assessed referring to Guideline for Drinking-water Quality (GDWQ) and Kawalan Mutu Air Minum (KMAM). In short, tap water and boiled water sampled do not exceed standard limits and safe to consume.