

**WATER QUALITY INVESTIGATION OF MALAYSIAN
BOTTLED DRINKING AND MINERAL WATER**

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ABSTRACT

WATER QUALITY INVESTIGATION OF MALAYSIAN BOTTLED DRINKING AND MINERAL WATER

In this study, three brands of Malaysian bottled drinking and mineral water were chosen as the study samples. The aim of this study is to investigate the water quality of the Malaysian bottled drinking and mineral water in terms of Water Quality Index (WQI) and the presence of heavy metals. The water samples were analyzed in the lab to investigate the pH, DO, BOD, COD, TSS and AN as well as the presence of heavy metals. The results for Water Quality Index (WQI) for the water samples were compared with the DOE-Water Quality Index Classes and the INTERIM National Water Quality Standards for Malaysia to know the class of each brand of bottled drinking and mineral waters. The results show that the water quality of each brand of bottled drinking water was in Class I while the water quality of each brand of bottled mineral water was in Class II. Meanwhile, the results for heavy metals were compared with Standard for Water and Packaged Drinking Water by Food Act 1983 (Act 281) & Regulations and Drinking Water Quality Standards by Ministry of Health Malaysia. The results show that all brands of bottled drinking and mineral water contains aluminium (Al). Two brands of drinking water and one brand of bottled mineral water contain copper (Cu), one brand of bottled drinking contain iron (Fe) and one brand of mineral water contain cadmium (Cd). All the metals found in all brand drinking and mineral waters are within maximum permitted value as in Standard for Water and Packaged Drinking Water by Food Act 1983 (Act 281) & Regulations and Drinking Water Quality Standards by Ministry of Health Malaysia. One brand of the bottled mineral water posses cadmium content which exceed the maximum permitted value.

CHAPTER 1

INTRODUCTION

1.1 Background

1.1.1 Water

Water is a substance which is used in all processes occurring in organism. As a universal solvent, water provides delivery of nutrients, microcells and oxygen to all cells of the organism. It plays a key role in the mechanism of thermoregulation and carries out a function of clearing. Water is essential for human. If a person is dehydrated only by 2%, the working capacity and concentration of attention will be reduced by 20%.

Groundwater is water located beneath the ground surface in soil pore spaces and in the fractures of lithologic formations. Groundwater makes up about 20% of the world's fresh water supply which is about 0.61% of the entire world's water. A unit of rock is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table. Groundwater is recharged from and eventually flows to the surface naturally. Natural discharge often occurs at springs and seeps and can form oases or wetlands. Groundwater is also often withdrawn for agricultural, municipal and industrial use by constructing and operating