UNIVERSITI TEKNOLOGI MARA

ASSESSMENT OF WELL WATER QUALITY IN RURAL AREA IN MELOR, KELANTAN

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

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ABSTRACT

Well water quality is important as many populations such as Kelantan residents still depend on water from the well in carrying out their daily activities. Hence, the objective of this study is to assess the well water quality from some water quality parameters reading and association between some parameters in Kampung Jambu Merah, Melor, Kelantan. Water samples were taken from 20 wells in the village to observe some physical, chemical and biological parameters level. The water sampling was carried out using a multiparameter instrument, a turbidimeter instrument and Colilert Test Kit. The majority of the water quality parameters that were taken its readings violated the Malaysia drinking water quality standard including the presence of total coliform and *E. coli*. Three wells have undergone chlorination treatment to observe the effectiveness of chlorine in killing total coliform and *E. coli*. One of the three wells showed relatively positive results in determining chlorine effectiveness. This study showed that the quality on some physical, chemical and biological parameters of well water in this village is low. Therefore, well water should undergo water treatment such as filtration, water softeners, distillation and disinfection for the safety of its users.

Keywords: *Well water, Water quality, E. coli, Chlorination.*

CHAPTER 1

INTRODUCTION

1.1 Background of study

A well is a hole that has been drilled into the ground to get access to the aquifer for human needs. Aquifers are geologic formations of soil, sand and rocks that retain water and transfer it slowly. Water is extracted from the ground using a pipe, a pump and a screen filter to prevent particles from clogging the pipe. Wells vary in shapes and sizes based on the type of material drilled into them and the amount of water pushed out. There are three types of wells which are bored or shallow wells, consolidated or rock wells and unconsolidated or sand wells (Groundwater Foundation, 2022).

Kelantan is the state in Malaysia that uses well water the most compared to other states. The high use of well water may be because of water supplied by Air Kelantan Sdn. Bhd. (AKSB) always have problems like water supply disruption and poor quality. The community sometimes had to ration their usage of water and find water supplies that were far from their houses (FOMCA & Maniam, 2020).

There are many parameters that need to be tested to meet the acceptable value of it in drinking water quality standards. Examples of parameters that need to be observed are Turbidity, pH, Temperature, Total Coliform, Total Dissolved Solids, *Escherichia coli* (*E. coli*), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Zinc and Plumbum (MOH, 2016).