

Comparative assessment of gravity-fed sources (rain water, ground water and hill water) quality in terms of fecal bacteria contamination from rural community area

ABSTRACT

In most of rural areas, it is difficult to get a clean and good quality of water supply. There are no treated water supply provided and the rural people have to depend on alternative source which are from untreated water resource, such as ground water, hill water or rain water. However, the drinkable status of these water resources is uncertain. So, in order to know whether it is safe and healthy for consumption, an assessment was conducted by analyzing the quality of the untreated drinking water on fecal bacteria. The method used to determine the concentration of total coliform and fecal coliform of the sample taken from groundwater well, hill water and rain water sources was through Membrane Filtration Method from APHA standard. The results showed that the highest concentration of total coliform in hill water was 159CFU/100mL whereas fecal coliform was 66CFU/100mL. For ground water well, the highest concentration of contamination for total coliform and fecal coliform were 205CFU/100mL and 120CFU/100mL respectively. The highest concentration for total coliform and fecal coliform in rain water obtained were 62CFU/100mL and 54 CFU/100mL respectively. All these results have exceeded the standard limits of WHO (2008), Food Acts (1983) which shown the present of bacteria coliform in the untreated drinking water. It can be concluded that the ground water has the highest bacteria coliform contamination among all three water resources, whereas rainwater was found to have the lowest and safest.