Physical and Chemical Quality of Locally Available Bottled Water in Batticaloa District, Sri Lanka

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The quality of drinking water during recent years has been deteriorated considerably due to several factors, particularly, the presence of toxic elements, which even in trace amounts could cause serious health problems. This study was aimed to determine the physical and chemical quality of bottled water, available in the local retail outlets in Batticaloa district, Sri Lanka. Twenty different brands of bottled water were purchased from retail outlets in Batticaloa district. Three bottles of each bottled water brand were purchased at different retail shops. To keep the brand names anonymous, bottled water samples were given alphabetical code from A to T and this convention used throughout the text. Some parameters such as colour, pH, Electric conductivity, Turbidity, Nitrate, Fluoride, Chloride, Phosphate, Total hardness, Iron. Na and K determination were carried out in the Laboratory. Electric conductivity (EC) value was ranged from 7.79 - 236 µS/cm. and were lower than recommended level (750 µS/cm). The pH of 15 brands of bottled water were within the limit, recommended by the World Health Organization (WHO) (6.5-8.5), rest of five brands were varied. (4.97-6.40). The total hardness was from 0.4 - 5.2 mg/L for three brands, out of 20 different brands of bottled water, tested. The permissible level of total hardness by WHO is 250 mg/L. The chloride values varied from 1.06-1.9 mg/L for five brands, whereas the acceptable level of chloride by WHO is 250 mg/L, which shows the concentrations of minerals were lower than the recommended level by WHO. However, colour, turbidity, nitrate, fluoride, phosphate, iron, total dissolved solids, sodium and the potassium level were within the limits of Sri Lankan Standard (SLS) and WHO. Hence, it can be concluded that the water samples less satisfactory for drinking purpose. Because of the less amount of mineral constituents and pH variation from the WHO and SLS permissible limits. And there is no assurance that since water comes out of a bottle does not mean it is free from contamination. There are varieties of bottled water and their quality also varies. Thus it is necessary to pick up the right brand, stricter rules should be made and implemented to regularly monitor the bottled water qualities.

Keywords: Bottled drinking water, Physiochemical parameters, World Health Organization