

BACTERIOLOGICAL QUALITY OF BOTTLED WATER BRANDS MARKETED AT KITALE TOWN, TRANS-NZOIA COUNTY

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Abstract

Disease outbreaks due to contaminated bottled water are rare; however, any contamination may pose a fatal hazard because of the widespread distribution of bottled water in Kitale town. A cross-sectional study was conducted to assess the bacteriological quality of bottled water brands currently consumed in Kitale town. A total of 60 samples of bottled water from 20 different brands were randomly selected and analyzed using multiple tube fermentation method to detect the presence of E.coli coliform. The bacteriological results indicated that 10% of the samples were contaminated with E. coli bacteria with the majority of the samples 90% having 0 MPN indices. The total MPN had a mean of 1.6 and a standard deviation of 6.549. The level of contamination of the six samples was statistically significant ($t=2.586$, $p=0.0245$, $\alpha =0.05$) but the mean MPN for all the samples did not exceeding the acceptable limits when compared to the normal expected MPN per 100 ml for drinking water ($Z=1.892$, $p=0.9706$, $\alpha = .05$). The presence of coliform bacteria in drinking water suggests the possible presence of pathogenic enteric microorganisms thus unsafe for drinking. The data presented here indicates that not all the bottled water sold in Kitale town is of good bacteriological quality and highlights the potential danger this can pose to the general public.

Key words: Kitale town, bottled water, Ecoli, quality, contamination