

Abstract

Kitui town, a small but fast growing town in arid south-eastern Kenya faces unreliable water supply and residents are highly dependent on shallow wells as the main source of water for domestic use. A study was carried out to assess the physical-chemical and bacteriological quality of water from shallow wells within the town's main residential areas. 96 water samples were collected from 8 main residential estates within the town between May and July 2011 and analysed for physical-chemical characteristics and bacterial quantity and species. Water analysis revealed presence of 9 pathogenic genera including *Salmonella*, *Escherichia coli*, *Vibrio*, *Listeria*, *Staphylococcus*, *Streptococcus*, *Enterobacter*, *Klebsiella* and *Pseudomonas*. Multiple-tube fermentation technique was used to enumerate coliform bacteria in water. Total aerobic bacterial load ranged from 3.70×10^2 to 2.352×10^3 CFU/ml. *E. Coli* was isolated from Majengo and Mjini estates only and the bacterial load estimated as 1.10×10^2 CFU/ml and 0.20×10^2 CFU/ml respectively while *Salmonella* sp. was isolated from water samples from Kunda Kindu, JICA and Mjini estates. Conductivity and pH levels were above World Health Organization acceptable levels for drinking water in all samples. All samples tested did not meet the WHO bacteriological standards for drinking water. The presence of *Salmonella*, *Vibrio*, *Listeria* and *E. Coli* should particularly raise serious public health concerns over the quality of the town's shallow wells water. Intervention measures including creating awareness and educating residents on shallow well construction, citing and care, boiling of water and improving sanitation should be urgently instituted. There is also need to construct sewerage works for the rapidly expanding Kitui town to reduce incidences of contamination from septic tanks.