

EVALUATION OF THE CONTAMINATION OF DRINKING
WATER WITH BACTERIA AND FAECAL PARASITES IN
KIMUMU AREA OF ELDORET MUNICIPALITY

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BY:

OLUNGA, MAUREEN STELLA
B.Sc. (Hons), (Nairobi University),
P.G.D.E. (Egerton University)

10045435

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Moi University,
Department of Zoology
ELDORET

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ABSTRACT

An evaluation of the contamination of drinking water with bacteria and faecal parasites and the methods used to improve its quality was carried out in Kimumu area of Eldoret municipality. A total of 120 water samples were collected from 40 homesteads and analysed using standard bacteriological and parasitological methods. Fourty water samples were each collected from wells, taps and harvested rain containers respectively .

The mean viable bacteria count (VBC) of bacteria in well, tap and rain water at 22⁰C were 6.35×10^3 , 1.40×10^3 and 1.79×10^3 respectively. There were statistically significant differences in VBC at this temperature ($P < 0.05$), suggesting different amounts of decomposing matter. There were no bacteria enumerated in tap and rain water at 37⁰C but the well had a high count of 2.40×10^3 CFU/ml. A high bacteria count of 1.80×10^3 CFU/100ml in well water at 44⁰C is above the WHO acceptable value of 3CFU/100ml and therefore suggested faecal contamination. For tap and rain water, the level of contamination were 1.40 CFU/100ml and 1.14 CFU/100 ml respectively, these values were negligible according to WHO standards.

Further analysis showed that no *Escherichia coli* were present in tap and rain water but well water had a mean of 7.8×10^1 *Escherichia coli*/100ml an obvious indication of faecal contamination. Results from parasitological analysis indicated that well water had quite a number of faecal parasites. *Entamoeba histolytica* was the most common faecal parasite, contaminating 11.7% of the wells, followed by *Ascaris lumbricoides* contaminating 10.0% of the wells, *Giardia lamblia* and *Necator americanus/ Ancylostoma duodenale* contaminating 6.7% of the wells and *Fasiola hepatica* and *Taenia saginata/Taenia solium* contaminating 3.3% of the wells. Of the 40 homesteads sampled 70% treated their drinking water by either boiling or chlorination but only 22.5% treated their water used for washing utensils.

The study demonstrated that well water was contaminated with faecal bacteria and parasites. To control infestations with faecal intestinal parasites, provision of treated piped water to all homesteads is recommended even though it will be an expensive venture.