

Determination of Water quality and Chlorine demand in Traditional wells of Marais district (Daloa, Côte d'Ivoire)

**KOUAMÉ Kouamé Victor^{1*}, OHOU-YAO Marie-Jeanne¹,
KONAN Kouakou Séraphin¹, DONGUI Bini Kouamé¹**

¹Laboratory of Environmental Sciences and Technologies, Jean Lorougnon Guede University, Department of Mathematics, Chemistry, Computer Science, Daloa, Côte d'Ivoire, BP 150 Daloa.

Email:kvictor2@yahoo.fr; kouame_victor@ujlg.edu.ci, phone: (225) 0707672119.

Abstract : Water intended for human consumption must not contain dangerous chemicals or microorganisms harmful to health. In Daloa, 95.7% of households in precarious neighborhoods use traditional wells because they are not connected to the drinking water network. The present study aimed to assess the chlorine demand in well water in the Marais district of Daloa. 25 water samples were taken from 25 wells and physicochemical and microbiological analyzes were carried out before determining the chlorine demand. The results showed that the temperature, pH and conductivity mean values were $27.97 \pm 0.33^\circ\text{C}$, 5.45 ± 0.79 and $868.99 \pm 269.78 \mu\text{S/cm}$ respectively. The means concentrations of calcium, magnesium and chlorides were $42.88 \pm 27.17 \text{ mg/L}$, $29.81 \pm 16.26 \text{ mg/L}$ and $33.4 \pm 14.64 \text{ mg/L}$ respectively. The average number of Total Coliforms and Fecal Coliforms was greater than the WHO guideline value of 10 CFU/100 mL for Total Coliforms and 0 CFU/100 mL Fecal Coliforms. Fecal Streptococci, Sulfite Reducing Anaerobes and Salmonellae were almost absent in wells water. The dose at the break-point ranged from 2 to 3 mg/L with residual chlorine ranging from 0.3 to 1.7 mg/L. The chlorine demand of these waters was between 0.3 and 1.8 mg/L. These large variations were due to the presence of mineral compounds.

Key words : Chlorination, microbial contamination, residual chlorine, Well water.

DOI= <http://dx.doi.org/10.20902/IJCTR.2021.140203>

KOUAMÉ Kouamé Victor *et al* / International Journal of ChemTech Research, 2021,14(2): 283-289.
