

TÍTULO: BIOLOGICAL RISKS ASSOCIATED TO TAP WATER OF RESIDENCES IN THE MUNICIPALITY OF SERRA TALHADA - PE AND ALTERNATIVE METHODS FOR TREATMENT

AUTORES: GOMES, M.A.F.; LIMA, A.S.P.; SIQUEIRA, V. M.

INSTITUTION: UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO/ UNIDADE ACADÊMICA DE SERRA TALHADA (AV. GREGÓRIO FERRAZ NOGUEIRA, S/N, SERRA TALHADA – PE, BRASIL).

RESUME:

Water can undergo chemical and biological variations along distribution systems, changing their quality when it reaches the consumer. This causes concern throughout, since inappropriate drinking water directly affects public health once water may act as a vehicle for pathogenic microorganisms of enteric origin. The objective of this study was to evaluate the microbiological quality of tap water in residences in five districts Serra Talhada-PE's municipality, as well as to analyze the effectiveness of alternative treatments such as filtration and chlorination. The samples were collected in pre-sterilized and aseptically flashed glass vials and were fractionated in three subsamples: without treatment (ST), treated with sodium hypochlorite (T-NaCl) and filtration with microporous porcelain filters (T-Filt). All subsamples were submit to the research and quantification of total coliforms, thermotolerant coliforms and total bacteria, using methodology described by the American Public Health Association (APHA). For this, the technique of multi-tubes for 3 tubes and quantification by the Most Probable Number (NMP) and Colony Forming Units (CFU) were used. As results, two of the five subsamples (ST) presented quantification of 43 NMP and 23 NMP/mL for total coliforms, and of 7.4 NMP/mL and 3.6 NMP / mL for thermotolerant coliforms, thus being considered inappropriate human consumption according to Portaria 518/2004 of the Ministry of Health of Brazil. Regarding the analysis of total bacteria, no sample had CFU higher than 500 CFU / mL, being therefore within the required standard. The treatment with hypochlorite showed efficiency in the reduction of total bacteria, total coliforms and thermotolerant coliforms. Regarding filtration, there was an increase in microbial density in relation to the ST samples, indicating a possible contamination in the ceramic filters. However, for this same treatment (T-Filt), the results were negative for total and thermotolerant coliforms, indicating that this method was effective in the elimination of these microorganisms. It is assumed that the two samples that presented thermotolerant coliforms were contaminated by the reservoir of the residences, or the contamination comes from the pipelines of the supply network. In addition, alternative treatment using hypochlorite has proved effective and may be indicated for households that use tap water for human consumption.

Keywords: microbial analyses, drinking water, coliforms, filtration, chlorination