

**TITLE:** EVALUATION OF THE PHYSICOCHEMICAL AND MICROBIOLOGICAL QUALITY OF WATER FROM CISTERNS IN THE MUNICIPALITY OF SERRA TALHADA- PE

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Water scarcity in the Brazilian semi-arid region is a great concern, so the installation of cisterns has been a solution to alleviate this water problem. In this context, the present work aimed the evaluation of physicochemical (temperature, dissolved oxygen, conductivity, pH, salinity and chloride) and microbiological parameters (quantification of total heterotrophic bacteria and fungi, and total and thermotolerant coliforms (*Escherichia coli*) of water from cisterns at the Virgulino Ferreira settlement in the municipality of Serra Talhada, Pernambuco, Brazil. The water collection occurred during three-month period (April, May and June 2016) in 10 (ten) cisterns. Physical-chemical analyses were performed *in situ* with the aid of multiparameter equipment (Horiba), except for chloride analysis that was carried out at Chemistry Laboratory/UAST by titration. For the microbiological analyzes the water samples were collected in previously sterilized flasks with addition of 100 µL of sodium thiosulphate (10%) for chlorine inactivation; bacteria and fungi were quantified by inoculating 100 µL of the samples of the surface the culture media Agar Nutrient (bacteria) and Agar Sabouraud plus chloramphenicol (100 mg/L) (fungi) in Petri dishes and in triplicate; the results were expressed in CFU/mL. For the detection of total and thermotolerant coliforms, two techniques were used: ReadyCult® Coliforms 100 Kit (Merck), and the multiple tubes technique. All samples were according to the physicochemical parameters established by the Brazilian Ministry of Health (PORTARIA N° 2914/2011). For the first and second collections, all samples were positive for total coliforms. In the third collection, 9 of the 10 samples were positive for total and thermotolerant coliforms. The presence of bacteria and fungi was detected in at least one of the collected samples of all the analyzed periods, being the highest bacterial density recorded of  $1.8 \times 10^4$  CFU/mL and fungal of  $9.7 \times 10^2$  CFU/mL. The results indicate that, although the physicochemical parameters were in accordance to national standards, the consumption of these waters can pose a risk to human health, since the microbiological parameters indicate the lack of potability of the water, especially regarding the requirement of absence of thermotolerant coliforms in waters for human consumption.

**Keywords:** storage water, public health, biological risks

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