

TITLE: BACTERIOLOGICAL EVALUATION OF THE WATERS OF ARTESIAN WELLS LOCATED IN THE RURAL AREA OF THE MUNICIPALITY OF TAQUARITINGA DO NORTE – PE, BRAZIL

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ABSTRACT:

The use of artesian wells to obtain drinking water has become increasingly frequent in places where there is no adequate supply. However, when unmonitored, this resource may offer risks to public health in view of the possibility of contamination by several factors, such as: deposition of solid waste from fuel and washing stations, agricultural and livestock activities carried out in close proximity to sources, especially in the lack of basic sanitation in the poorest regions. Therefore, the present work aimed to analyze the bacteriological quality of water from artesian wells located in the countryside of Taquaritinga do Norte - PE. The study presented a design of the experimental type (laboratory), comprising the period from May to December 2018 and from the sampling plan, based on *Standard Methods for the examination of water and wastewater*, 10 samples were collected aseptically from shallow wells (5 to 35 m) and funds (over 50 m), then the analyzes were performed to determine the most probable number (NMP) of total/fecal coliforms, heterotrophic bacteria counts (UFC/mL) and research of *Pseudomonas aeruginosa*, in the laboratory of Microbiology of Food of the University Center Tabosa de Almeida (ASCES-UNITA), according to the methodology recommended by the APHA 2017. The results found evidenced that 80% of the wells were in disagreement with the Rule of consolidation nº 5 - Annex XX, which establishes water potability standards. 80% were contaminated with total coliforms, 70% had thermotolerant (fecal) coliforms, 40% showed contamination with more than 500 colony forming units by heterotrophic bacteria and 10% contamination by the species *Pseudomonas aeruginosa*. In addition, most artesian well owners stated that they did not use any method of treatment or disinfection prior to water consumption. The presence of the coliform group indicates fecal contamination and, although not harmful to health, evidence that the water was contaminated by pathogenic bacteria, whereas the mesophilic heterotrophic bacteria provide information about the total number of viable bacteria in the sample, determining the degree of exposure of water with organic matter from the soil, while *Pseudomonas aeruginosa* is an opportunistic pathogen, bioindicator of aquatic pollution by organic material. Thus, to carry out sanitary control in this region is fundamental to guarantee its potability, as well as it functions as a prophylactic measure for the reduction of waterborne diseases.

Keywords: groundwater; bacteriological analysis; coliforms; pseudomonas aeruginosa; waterborne diseases.

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