

**TITLE: ANALISYS OF THE POTABILITY OF WATER SAMPLES FROM ARTESIAN MINES AND WELLS CONSUMED BY RESIDENTS OF THE RURAL AREA OF THE CITY OF ASSAÍ-PR**

**AUTHORS: Nascimento, A.B; Sanches, M.S; Silva, L.C; Guidoni, G.H.M; Santos, N.G.N; Oliva, B.H.D; Montini, V.H; Lala, S.R; Faustino, G e Rocha, S.P.D.**

**INSTITUTION: Universidade Estadual de Londrina (UEL) Rodovia Celso Garcia Cid, PR-445, km 380 - Campus Universitário, PR, 86057-970**

**ABSTRACT:** Water is considered one of the most essential natural resources on the planet, requiring its maintenance and preservation. However, it has great potential for spreading diseases, making its microbiological analysis indispensable. In rural areas, the drinking water supply system is not always present, causing the residents of these regions to use artesian wells and mines to supply the need to obtain water. When using alternative sources, the quality of the water consumed can be compromised, which can cause diseases through its consumption. This study aims to determine the quality of water from wells and mines in the rural area of Assaí-PR. From January 2019 to April 2021, 90 samples were collected, 42 from artesian wells and 48 from mines. For the identification process the Colilert® chromogenic substrate method was used. Of the 42 samples collected from artesian wells, 32 (76.19%) showed the presence of total coliforms, where 27 (64.28%) of these samples had *Escherichia coli*, while the remaining 10 (23.81%) samples of the total showed satisfactory results. In the results obtained from the analysis of mine samples, 45 (93.75%) had total coliforms, 41 (85.41%) indicated the presence of *E. coli* and the other 3 (6.25%) presented a satisfactory analysis. According to the Brazilian Ministry of Health, in 100 mL of analyzed water for individual human consumption, total coliforms or *E. coli* should not be present. Thus, of the 90 samples analyzed, 77 (85.55%) had total coliforms, making their consumption inappropriate. Of these, 68 (75.55%) samples indicated the presence of *E. coli* and 13 (14.44%) samples showed satisfactory results. It is therefore concluded that the presence of pathogenic microorganisms in water indicates that the sources used are not satisfactory for human use and require treatment processes by chlorination or boiling before consumption.

**KEY WORDS: Water potability; Escherichia coli; Rural area; Coliforms**

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)

According to Ordinance 2914/2011 of the Ministry of Health, in 100 mL of analyzed water, total coliforms or *E. coli* should not be present. Thus, of the 90 samples analyzed, 77 (85.55%) had total coliforms, making their consumption unappropriate. Of these, 68 (75.55%) samples indicated the presence of *E. coli* and 13 (14.44%) samples showed satisfactory results. It is therefore concluded that the presence of pathogenic microorganisms in water indicates that the sources used are not satisfactory for human consumption and require treatment processes by chlorination or boiling before consumption.

De acordo com a Portaria 2914/2011 do Ministério da Saúde, em 100 mL de água analisada, coliformes totais ou *E. coli* não devem estar presentes. Desse modo das 90 amostras analisadas, 77 (85,55%) apresentavam coliformes totais inviabilizando o seu consumo. Destas, 68 (75,55%) amostras indicaram a presença de *E. coli* e 13 (14,44%) amostras apresentaram resultados satisfatórios. Conclui-se então que a presença de microrganismos patogênicos em água indica que as fontes utilizadas não estão satisfatórias para consumo humano e necessitam de processos de tratamento por cloração ou fervura antes do consumo.