VALIDATION OF METHOD 1603 OF USEPA FOR REALIZATION OF ANALYSIS OF THE PRESENCE OF ESCHERICHIA COLI IN SWEET WATERS, UPTO 24 HOURS AFTER COLLECTION.

INTRODUCTION

Escherichia coli (E. coli) is a bacterium that is commonly found in the human and animal intestines and in drinking water, and it is considered suitable for monitoring microbiological water quality. In Brazil, the CONAMA Resolution No. 274 of 2000, for recreational waters, and No. 357 of 2005, for water classification and sampling, set limits for E. coli. In São Paulo, it is the responsibility of the São Paulo State Environmental Protection Agency (CETESB) to verify the quality of the water collected in the area of the State of São Paulo (CETESB) and, within a program of monitoring, it is realized through periodic coagulation of water samples from rivers and reservoirs. The purpose of the analysis is to check the presence of E. coli recommended by the USEPA Method 1603, that is, “after 6 hours after the collection, no output values are considered significant for water samples collected from drinking water sources.”

RESULTS AND DISCUSSION

After the application of the Dixon test (Table 1) for eliminating values “outliers”, 35 samples were eliminated to the sample. For the calculation of the Dixon test, was used the formula: If A-X = (X-X), it was considered negative and the critical value for Dixon - 5% is 0.1412 and 1% is 0.0483.

Table 1: Dixon test applied to the 35 samples of the results. For the realization of the test, was used the formula: If A-X = (X-X), it was considered negative and the critical value for Dixon - 5% is 0.1412 and 1% is 0.0483.

The Table 2 shows the test F, which tests the homogeneity of the data. F calculated was equal to 1.18 which is below the F test at 1.77. Therefore, we can affirm that the obtained values were homogenous.

Table 2: Application of test F, for the evaluation of homogeneity of the variances.

The obtained values of homogeneity and distribution, the data were submitted to test Student F. As shown in Table 4, F calculated equals 0.082, which is below the F test at 1.95. Therefore, the test Student F showed that the obtained values were not significantly different from the results obtained in the samples collected from 6 to 24 hours are not different.

Table 3: Table of values obtained for the analysis of the variance. F calculated is below the F test at 1.95.

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In conclusion, after the application of the student test, the values calculated for 6 and 24 hours were found to be the same, as the obtained data were not significantly different from the results obtained in the samples collected from 6 to 24 hours.