PO140 - INFLUENCE OF HOLDING TIME OF SURFACE WATER SAMPLES (8H VERSUS 24H) IN THERMOTOLERANT COLIFORM DENSITIES ENUMERATED BY THE MEMBRANE FILTRATION METHOD

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AIMS

The coliform group has been widely used as a water quality indicator and is historically related to the public health protection concept, since the fecal origin indicates the possible presence of pathogens associated with waterborne diseases. Thermotolerant coliforms (TtC), can be used as indicators for monitoring surface freshwaters and the federal Brazilian regulations have limits established for TtC in recreational and surface waters (Brazil 2000; Brazil 2005). In São Paulo State, the monitoring of surface freshwater quality is conducted by the Environmental Company of São Paulo State (CETESB) since 1974. Currently this Monitoring Program has a network with 354 sampling sites located in different and distant regions of Sao Paulo State, with a sampling frequency bimonthly. Due to this reason, it is often very difficult to deliver the samples in the laboratories within the holding time of 8h specified for nonpotable water for compliance purposes (APHA 2012a). In an attempt to overcome this issue, themotolerant coliform in fresh surface water samples were analyzed up to 8 and 24h after collection and the results were compared and submitted to statistical evaluations.

METHODS

A total of 35 water samples from Cubatão City rivers were collected in November and December 2012, and analyzed by the membrane filtration technique using mFC agar according to APHA (2012b) up to 8h and 24h after collection. The results were submitted to the following statistical tests: F test and t-Student test to verify if the variances and averages were homogeneous. The relative uncertainty of the tests was also calculated.

RESULTS

The geometrical mean of thermotolerant coliform densities of water samples analyzed up to 8 and 24 hours after collection were 3.55×10^3 and 3.53×10^3 respectively. F calculated value (1.0039) was less than the critical value (1.7720) and t-Student calculated (0.0019) was also less than the critical value (1.9954) for a 95% confidence level. The relative uncertainty of the assays was 4.3286% and 4.3252% for up to 8 and 24 h, respectively.

CONCLUSIONS

The statistical analyses showed that there are no significant differences between thermotolerant coliform densities for water samples analyzed up to 8 or 24h after the collection. Therefore, samples collected in distant sites could be analyzed within 24 hours holding time; however, the laboratory should try to establish a strategy to analyze the samples as soon as possible after collection.

REFERENCES

APHA; AWWA; WEF 2012a 9060 Samples. In: Standard methods for the examination of water and wastewater, 22th edition. Washington, DC, 2012.

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