

Poster

Validation of the microbiological method "Recount of aerobic microorganisms at 22°C and 36°C in water" according to ISO 6222:1999



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Keywords: water microbiology; validation method; aerobic microorganisms; ISO 6222:1999

ABSTRACT

Motivation: The principal aim in quality control companies is to standardize the methods used in analytical laboratories following the guidelines of the International Organization of Standardization (ISO) [1]. Water is the key source of life in the planet thus it is important to estimate the amount of microorganisms present in it to ensure its quality [2]. Therefore, the main objective of this study is the validation of a method used for the quantification of aerobic bacteria in different types of water at 22°C and 36°C, using the technique described in ISO 6222:1999 [3]. It consists on the recount of the colonies in Yeast Extract Agar (YEA) medium to detect changes in the microbial population. Moreover, during the validation process, it is necessary to not only the accuracy and precision of the analysis, but also the quantification limit [4].

Methods: In the validation process it is necessary to analyse different types of water, like human consumption water, non-human consumption water and sterile distilled water. The samples can be inoculated, adding some bacteria at a known concentration, such as *Escherichia coli*, *Pseudomonas aeruginosa*, *Enterococcus faecalis* and *Bacillus subtilis*, which are prepared from lyophilized samples. However, part of the samples should not be inoculated so it is possible to study their own microorganisms and compare the results of both inoculated and non-inoculated samples. Afterwards, decimal dilutions of the sample are made. Then, the sowing is carried out in 90 mm Petri dishes with YEA following the pour plate technique [5]. These plates are incubated at 36°C for 44 ± 4 h or at 22°C for 68 ± 4 h.

Results: The results obtained confirm the reliability of the method followed by the laboratory for the recount of aerobic microorganisms in water at 22°C and 36°C.

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