Poster

Validation of the microbiological method 'Recount of aerobic microorganisms at 30ºC' according to ISO 4833-2:2004

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ABSTRACT

Nowadays, the analysis of food is very important in many situations: for controlling its quality, establishing its useful life, controlling its hygiene during the production and managements techniques or when it is suspected that it causes food infections [1]. The international Organization of Standardization (ISO) is a federation whose aim is to standardize the methods used in analytical laboratories [2]. The motivation of this study is the validation of a method that is used for recounting aerobic microorganisms at 30 ºC present in food, using the technique described in ISO 4833-2:2014 [3]. This method consists on a quantitative microbiological testing, so that during the validation process it is necessary to determinate the accuracy and precision of the analysis, as well as the quantification limit [4].

In order to achieve a correct validation process, it is mandatory to validate the whole procedure, analysing wide range of samples, with a carafully planned process. During validation, the method should reflect the real conditions of the test, which can be achieved by using naturally contaminated or inoculated products, with a known level of contaminating microorganisms [4]. For the validation of the recount of aerobic colonies at 30ºC in food, five groups of colonies are employed (fresh meat, fish products, dairy products, prepared dishes and various) [5]. In our case, we use known concentrations of strains of Escherichia coli, Enterococcus faecalis and Pseudomonas aeruginosa, which are prepared from lyophilized samples [6]. These microorganisms are first inoculated in the initial suspension of the food. Then, decimal dilutions of the sample are made and it is sown on the surface. The dilution and the number of plates that we have to sow are taken from the guidelines given in the legislation [7]. The sowing is carried out in 90 mm Petri dishes with Plate Count Agar (PCA). Subsequently, it is incubated at 30ªC for 72h.

After the incubation period, colonies of each dish are counted, and the numbers of colony-forming units per gram (CFU/g) are measured [8]. Based on the results obtained, knowing the amounts that were inoculated, and taking into account the accuracy criteria, we will be able to test whether the method developed in this laboratory is valid or not [9].

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