Performance Evaluation of 3M™ Petrifilm™ Rym To Fast Enumeration of Yeasts and Molds

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Resumo

In recent decades, the microbiological enumeration methods development for food industry was intense. That led to the development of new tools which were faster, more sensitive and more reproducible, easier to handle and with an affordable cost. In order to enumerate yeasts and molds population within 48 hours, 3MTM recently launched the plate 3M™ Petrifilm™ RYM. This plate has AOAC-PTM (2014) approval and consists in a modification components and indicators of the original plate media. The aim of this study was to verify the reproducibility, the measurement uncertainty and if there was significant statistical difference ($p \leq 0,05$) between the traditional method (ISO 21527-2) and the alternative (3M™ Petrifilm™ RYM) in yeasts and molds population enumeration. This was accomplished by testing two naturally contaminated matrices (wheat flour; n=2) and buffalo mozzarella cheese (n=1), obtained from São Paulo-SP city shops. The traditional method to yeasts and molds population enumeration followed the ISO method guidelines and the alternative one followed manufacturer recommendations with the incubation temperature at 25°C. All the three samples were inoculated in different occasions, varying shifts, days, DG-18 agar and diluents lots, scales, micropipettes, laminar flows and analysts. To determine the alternative method reproducibility and uncertainty, each matrix was analyzed 10 times by two different analysts and tested under the two methods. The results of the 3M™ Petrifilm™ RYM showed that yeasts and molds colonies in the flour samples appeared with weak growth (without the blue-green color characteristic

visualization), needing the additional 12 hours incubation. The visualization of the colonies recovered from the Mozzarella cheese sample with the prevalence of yeasts was possible at 48 hours while the mold samples with a predominant mold population required the Petrifilm RYM plates to be incubated for 60 hours. The alternative method 3M Petrifilm™ RYM was equivalent under ANOVA test (p ≤ 0,05) when compared to the traditional method, to fast enumeration of yeasts and molds, at the three contamination levels tested for the three samples. The repeatability and reproducibility of the alternate and reference methods with two matrices evaluated in this study will be discussed.

Palavras-Chave: Bolores e leveduras, Petifilm RYM, Avaliação de desempenho

Agência de Fomento: