

APPLICATION AND DETECTION METHODS OF *LISTERIA MONOCYTOGENES* AND FISH SOIL ON OPEN SURFACES IN ORDER TO OPTIMIZE CLEANING PROTOCOLS

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ABSTRACT

*Surfaces in the food industry are often fouled with bacteria and organic materials. However, many efficacy assays neglect to incorporate the presence of organic material into their testing methods. A range of fouling and testing methods using *Listeria monocytogenes* and organic material (fish extract) were designed to determine the efficacy of two different cleaning methods. The optimum concentration so as to visualise both cells and organic material in the assays was 10^7 CFU/ml with 0.4 g/ml fish extract. The optimum method for applying the cells and organic material to substrata occurred when the cells and organic material were mixed together, dried onto the surface and stained. Following cleaning it was demonstrated that organic material was retained on the surfaces following the first clean. As the number of cleans increased, cells were removed from the surfaces but the organic material remained. The pattern of organic material retention was different on the surfaces with the different cleans, but neither method was better at removing the retained organic material. It was difficult to recover cells from the surfaces using the swabbing method. More cells were removed from the surfaces by the spray than the spray with wipe clean. There was no difference in cell number retention for either of the *L. monocytogenes* spp. The application of the cleaning agent interfered with the differential staining method. The results demonstrated that it may be prudent to use 'reused' surfaces in some microbiological and cleaning assays. Further, to determine the efficacy of a cleaning method, the method of cell and organic soil application to a surface is important, and a range of different detection methods should be used.*