

Title Analysis of total aerobic viable counts in samples of raw meat using fluorescence-based probe and oxygen consumption assay

Author Fiach O'Mahony, Rebecca A. Green, Chris Baylis, Richard Fernandes and Dmitri B. Papkovsky

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Abstract

A simple test for determining total aerobic viable counts in raw meat is presented. Homogenates of meat samples are prepared in full PBW medium, dispensed in the wells of 96-well plate together with the oxygen-sensing probe, Redlight, covered with oil and monitored on a fluorescent reader at 30 °C. The probe produces characteristic sigmoidal profiles of fluorescence reflecting depletion of sample dissolved oxygen, with onset time indicating the initial microbial load. The test provides rapid and accurate results (1 and 12 h for contamination levels of 10^8 and 10^3 cfu/g, respectively) and correlates well with the ISO:4833:2003 method ($r = 0.86$), which make it useful as alternative to conventional culture methods for the quick, high throughput determination of TVC (30 °C) in meat samples.