

Evaluation of Neogen® One Broth One Plate for the rapid detection of *Listeria monocytogenes* performance compared to cultural methods confirmation on Brazilian meat products.

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Brazil is one of the greatest meat producers globally. To maintain safe production, product analysis is performed to guarantee food safety. Rapid analysis methods are needed for microbiological monitoring to allow a quick response, supporting efficient quality control in food industries. *Listeria monocytogenes* is a pathogen whose gold standard traditional methods are laborious and can take up to 6 days to be completed, like ISO 11290-1:2017, which turns impractical for the rapid response meat industry seeks and demands laboratory space to be conducted and highly trained personnel to conduct analysis. One Broth One Plate methods can provide response from 2 to 4 days and demands considerably less material to be performed. The purpose of this work was to evaluate the performance of a one broth one plate method (AFNOR validated NEO 35/06-07/16) compared to ISO 11290-1:2017 and molecular biology colony confirmation. Three types of meat product were sampled in 47 test portions (uncooked kibbeh (n=12), cooked minced beef (n=33)) and were artificially contaminated with *L. monocytogenes* (ATCC 7644). All kibbeh samples were spiked with 2 CFU/25g, being half of them also spiked (100 CFU/25g) with *L. innocua* (ATCC 33090). Cooked minced beef were tested with blanks (n=10), low population (1.8 CFU/25g, n=10), high population (4.5 CGU/25g, n=10) of *L.monocytogenes* and 3 samples were contaminated with *L. innocua* (5.4 CFU/25g). Samples were enriched in LESS plus broth (1:10) and incubated (30 ± 1°C/25 hours). After enrichment, 100 uL were streaked in ALOA agar (37 ± 1°C/24 hours) and read. Cooked minced meat colonies were confirmed though ISO 11290-1:2017 and kibbeh through molecular biology. Sensitivity, Relative Trueness, relative limit of detection (RLOD), ND-PD and ND+PD (negative deviation, positive deviation ratios) were determined. One Broth One Plate method showed 100% of sensitivity and relative trueness, RLOD of 1 (055 - 1,82), ND-PD and ND+PD of zero, demonstrating excellent correlation to gold standard cultural method (ISO 11290-1:2017) or molecular biology colony confirmation. For the cooked and uncooked beef products tested in this study, the Neogen® One Broth One Plate (OBOP-LMO) allowed reliable and faster results, applying less material in a more simple procedure compared to ISO 11290-1:2017.

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