LIV-06

A loop - mediated amplification-based detection method for Salmonella in animal feed

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Loop-mediated amplification (LAMP) is an alternative nucleic acid amplification to the polymerase chain reaction (PCR).. It uses at least 6 oligonucleotide primers to mediate amplification of target sequences, which confers high specificity on the assay. LAMP operates with great rapidity, and amplification products can be detected within a few minutes of the start of the reaction. Unlike PCR, LAMP operates isothermally, and thus does not require thermocycling equipment. LAMP instrumentation is highly portable, and thus has the potential to be used outside the analytical laboratory. In the analysis of feedstuff materials for the presence of pathogenic microorganisms, this could be an advantageous feature, potentially facilitating the screening of samples at-site to allow a rapid turnaround of materials. A LAMP-based method has been developed for the detection of Salmonella in animal feed stuffs. The method is based on the assay of Zhang et al. 2011

(Appl. Env. Microbiol. 77 6495-6501), modified to contain controls to correctly identify performed reactions. The assay is harnessed to a sample treatment comprising standard culturing procedures, to be fully compatible with current practice. The method should be useful for analysis of a wide range of feedstuff materials for the presence of Salmonella species.

Keywords loop-mediated amplification;Salmonella;detection;control

Acknowledgement The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° KBBE-265702 (QSAFFE)