P.28.- Detection of heat treated rendering animal tissue in feeds for farm animals by Light Cycler and conventional PCR

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The ban of animal proteins from ruminant feedingstuff has been an effective measure to stop the spreading of the BSE epidemy from the centres of infection. The search for bone residues by optical microscopy is actually the official method for identification of animal material in feeds. This method has difficulties in the determination of the contaminating animal species and in the detection and quantification of the contamination when caused by bone free rendering material. The PCR and real time PCR assays may complement the classic method, permitting a quantitative analysis of contaminants, detecting the species of origin, increasing sensitivity, reducing the time and increasing the automation of analyses. We designed species-specific primer pairs and PCR protocols for the detection of bovine, ovine, pig, poultry, dog and mouse materials in feeds. The target amplicons were identified in the mitochondrial genome present in thousand of copies per cell and short enough (around 120 bp), to obtain amplification products also in heat treated food and feed. Species specificity was tested across 35 different animal and plant species. Methods have been tested on commercial feeds artificially contaminated by animal tissue previously autoclaved according to the European Conditions (133C, 20', 3 bar). The detection limit of the assays is lower than 0.1 % (1 kg / ton). Moreover for bovine, ovine, pig and poultry we set up a method for quantitative analysis of meat products by Light Cycler PCR.

Keywords

BSE prevention, feedingstuff safety, tissue contamination, species detection, quantitative PCR.