

Porcine-specific polymerase chain reaction assay based on mitochondrial D-loop gene for identification of pork in raw meat

ABSTRACT

The porcine-specific polymerase chain reaction assay was developed to detect the presence of pork in raw meat either in pure or in a mixture with different meat species. A porcine-specific DNA fragment could be observed by using a porcine-specific primer designed based on a porcine specific sequence of mitochondrial D-loop gene. Amplification of porcine DNA produced 174 bp porcine-specific DNA fragment and no polymerase chain reaction products were detected when assay applied to DNA of other meat species confirming the specificity of the primers. The assay was able to detect as low as 0.1% (v/v) porcine DNA spiked on DNA of cattle, sheep, goat, chicken, and deer. Furthermore, a detection limit of 0.001 ng/ μ L porcine DNA showed the high sensitivity conferred by the developed porcine-specific polymerase chain reaction assay.

Keyword: Porcine-specific PCR assay; Mitochondrial D-loop gene; Specificity; Detection limit; Sensitivity