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Detection of pork in processed meat products by species-specific PCR for halal verification: Food fraud cases in Hat Yai, Thailand

(2020) *Food Research*, 4, pp. 244-249. Cited 1 time.

DOI: 10.26656/fr.2017.4(S1).S21

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Abstract
Consumer confidence in halal integrity of the unique and various food products provides Hat Yai, Thailand a great potential for a global destination of Muslim-friendly tourism. Islam prohibits the consumption of pork and its derivatives in any food products. The issue of food adulteration and contamination, particularly in the processed halal meat products with pork and its derivatives, greatly concern Muslim consumers. The aim of this study was to detect the presence of pork DNA from processed meat products collected from self-proclaimed “halal” Muslim street food stalls at Hat Yai, Thailand. Thirty-six samples of various processed meat products were randomly collected from seven Muslim street food stalls including patties, meatballs, and sausages containing processed chicken, beef, or a mixture of various meats. The detection of the presence of pork and its derivatives was performed by a conventional polymerase chain reaction (PCR) technique based on the pork-specific primers for a conserved region in the mitochondrial (mt) 12S ribosomal RNA (rRNA) gene. The results revealed that three out of the thirty-six samples (8.3%) were positively identified to contain porcine DNA by the detection of the expected single band of size 387 bp. The DNA method conveniently provides reliable results for routine food analysis for halal requirement. Overall, the study highlights the importance of halal integrity between the producers, suppliers, and street food business owners to provide halal food products particularly to Muslim consumers. © 2020 The Authors.

Author Keywords
Food Adulteration; Halal; Halal Integrity; Polymerase Chain Reaction (PCR)

Index Keywords
DNA, RNA 12S; agar gel electrophoresis, Article, controlled study, DNA extraction, food contamination, food processing, food quality, halal, Muslim, nonhuman, polymerase chain reaction, pork, processed meat, Thailand

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Publisher: Rynnye Lyan Resources

ISSN: 25502166
Language of Original Document: English
Abbreviated Source Title: Food Res.
2-s2.0-85081046883
Document Type: Article
Publication Stage: Final
Source: Scopus
Access Type: Open Access