PORCINE RAPID AMPLIFICATION KIT

PATENT NO.PI2017702029

Loop-mediated Isothermal Amplification (LAMP)	Polymerase Chain Reaction (PCR)
More Sensitive and specific	Less Sensitive and specific
Fast (30 minutes to 60 minutes)	Slow (2 hours ++)
Simple (No gel needed)	Complex (Verify through gel)
Portable (Genie III Machine)	Standalone (Workstation)
Visibility (Using Fluorescence Dye)	None (Verify though gel)

BRIEF TECHNOLOGY

- The identification Pork DNA using Loop-mediated Isothermal Amplification of DNA (LAMP).
- Technique to detect DNA of specific nucleotide sequence.
- Targeted on 6 location nucleotide sequence.

CURRENT ISSUES

- Various source from porcine have been more popular among manufacturers due to the low cost and bulk quantity of the raw materials.
- However, religions such as Islam and Judaism forbid the consumption of gelatin that is derived from porcine material
- Cases had been reported such as Sultana et al. (2018) study, where they found branded gelatin samples from various Malaysian outlets that were porcine positive although the product was labelled as halal gelatin.
- This shows that highly processed gelatin based products are vulnerable to adulteration with undeclared elements such as porcine traces; it could also be due to contamination indicating poor manufacturing practice.
- Therefore, to assess the quality of the products, screening of porcine element in food products is essential and this requires a reliable method for detection.

INVENTIVENESS & NOVELTY

- Loop-mediated isothermal amplification (LAMP) assay is an extension of the DNA based detection which is potentially promising because of its high sensitivity and specificity.
- LAMP assay is simple because it amplifies DNA in a single thermal condition using an incubator or water bath from a very minimum target DNA copies
- Analysis this LAMP assay may represent a simple, rapid, reliable and sensitive DNA-based test for determining the species origin of highly processed products.

USEFULNESS & APPLICATION

Porcine rapid amplification kit which use LAMP technology was more promising compare to several analytical methodologies such as gas chromatography/mass spectrometry, liquid chromatography with electrochemical detection, an enzyme-linked immunosorbent assay), Some of these analytical approaches have been used in various countries and organizations as detection method for commercial meat products. However, the methods currently used rely on laboratory and operating of special equipment.

IMPACT OF THE PRODUCT

- Highly sensitive
- Portable can be used in field
- The result of detection can be seen by naked eyes
- Quick, easy-to-use and cost-effective without expensive tools.

MARKET POTENTIAL

Food safety monitoring
- Assuring safer and healthier halal food

TRL : 8 – Product complete and qualified

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4 QUALITY EDUCATION

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