

Review on halal forensic: A focus on dna-based methods for pork authentication

ABSTRACT

Food product authentication is important at every level of the food manufacturing process, starting from raw materials until finished products. Authentication also plays an important role in assuring accurate food labelling, which is required to help consumers select suitable types of food products. Food adulteration is one of the vital issues addressed by halal authentication, especially for food products that contain pig traces or porcine ingredients. Various methods that aim to guarantee the authenticity of foods have been developed over the past years. In this article, a short review of recent food analytical methods related to authenticity studies, with special regard to pork identification, is provided. The focus of this review is DNA-based methods, which have gained the interest of the scientific community. The specificity, sensitivity and fast and high throughput of the methods are highlighted. In the present case, methods that are capable of detecting pork by using DNA barcode, polymerase chain reaction (PCR)-restriction fragment length polymorphism, conventional PCR, real-time PCR and isothermal amplification are discussed. Although PCR is the most popular method, recent studies have shown that isothermal amplification is a potential alternative because it is rapid, simple and does not require the use of any complicated instruments, such as a thermal cycler and sequencer