14th Proceedings of the Seminar on Veterinary Sciences, 19 – 20 October 2019

IDENTIFICATION OF SELECTED ANIMAL SPECIES USING POLYMERASE CHAIN REACTION-RESTRICTION FRAGMENT LENGTH POLYMORPHISM (PCR-RFLP) TECHNIQUE

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ABSTRACT

Adulteration of food is fast becoming one of the most important global issues with increased awareness and emphasised made on authenticity and traceability of food. In the meat industry, adulteration of meat posed not just economic problems but could also relate to religion and cultural issues. The polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) of mitochondrial 12S rRNA gene is a technique developed to identify animal species based on DNA using a universal primer, followed by digestion with restriction enzymes. The PCR amplification of DNA using the universal primer will yield a 456-bp fragments for all species tested, namely pig, cattle, buffalo, sheep and goat. Digestion of the amplicons with restriction enzymes of AluI, HhaI, ApoI and BspTI resulted in species-specific band patterns that could confirm, identify and differentiate the animal species. The PCR-RFLP technique was suitable and successfully used to identify single animal species in raw and processed food of animal origins as well as animal feed.