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DEVELOPMENT OF A PCR BASED GENOTYPING PROCEDURE TO IDENTIFY THE ADULTERATIONS TO CHICKEN AND WILD BOAR MEAT IN SRI LANKA

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Substitution of expensive meat types with cheaper or unaccepted meat types is a major problem associated with the meat industry in Sri Lanka. Chicken meat adulteration with cat meat has been reported from many countries, including India. Therefore, a part of this study was focused on differentiating chicken and cat meats using DNA fingerprinting. One of the high demand game meat types in Sri Lanka is wild oar meat. Hunting of wild boar for meat is prohibited in Sri Lanka without a permit. Therefore, this study also focused on differentiating wild boar meat from commercially available pork using DNA fingerprinting. Chicken and cat blood samples were collected into test tubes containing EDTA. Pork was obtained from a local supermarket and wild boar meat was obtained from a dead animal. Blood samples were stored at 4°C and meat samples were stored at -20°C. Twenty milligrams of each from pig and wild boar meat samples were taken to extract DNA using the Promega Wizard SV Genomic DNA Purification System. Extraction of DNA from blood was done by the Phenol-Chloroform-Isoamyl alcohol method with modifications. Three hundred microliters from each blood sample was used to extract DNA. The PCR was done using two chicken primers pairs, a cat specific primer pair and a pig specific primer pair. The annealing temperatures for two chicken specific primer pairs, cat specific primer pair and pig specific primer pair were 58 °C, 54 °C and 53 °C, respectively. The Chicken specific primer pairs 1 and 2 amplified only chicken DNA but not cat DNA. The Chicken specific primer pair 1 amplified a band of 300 bp and the primer pair 2 amplified a band between 50 bp and 100 bp for Chicken DNA. The cat specific primer pair amplified only cat DNA but not chicken DNA with a band between 50 bp and 100 bp for cat DNA. Therefore, by using the cat specific primer pair and either of the two chicken specific primer pairs in combination, cat and chicken DNA were clearly distinguished from each other. The pig specific primer pair amplifies both pig and wild boar DNA. However, the primer pair produced bands between 150 bp and 200 bp for both species. Therefore, by using a 2% agarose gel, pig and wild boar DNA were not clearly distinguished from each other. A better size separation for pig and wild boar PCR products may be achieved by using a 6% denaturing polyacrylamide gels.

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