

Authentication and Traceability of Meat Products from South Indian Market by Species-Specific Polymerase Chain Reaction

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Abstract : Food is one of the basic needs of human beings. It requires the normal function of the body part and a healthy growth. Recently, food adulteration increases day by day to increase the quantity and make more benefit. Animal source foods can provide a variety of micronutrients that are difficult to obtain in adequate quantities from plant source foods alone. Particularly in the meat industry, products from animals are susceptible targets for fraudulent labeling due to the economic profit that results from selling cheaper meat as meat from more profitable and desirable species. This work presents an overview of the main PCR-based techniques applied to date to verify the authenticity of beef meat and meat products from beef species. We were analyzed 25 market beef samples in South India. We examined PCR methods based on the sequence of the cytochrome b gene for source species identification. We found all sample were sold as beef meat as Bos Taurus. However, interestingly Male meats are more valuable high price compare to female meat, due to this reason most of the markets samples are susceptible. We were used sex determination gene of cattle like TSPY(Y-encoded, testis-specific protein TSPY is a Y-specific gene). TSPY homologs exist in several mammalian species, including humans, horses, and cattle. This gene is Y coded testis protein genes, which only amplify the male. We used multiple PCR products form species-specific “fingerprints” on gel electrophoresis, which may be useful for meat authentication. Amplicons were obtained only by the Cattle -specific PCR. We found 13 market meat samples sold as female beef samples. These results suggest that the species-specific PCR methods established in this study would be useful for simple and easy detection of adulteration of meat products.

Keywords : authentication, meat products, species-specific, TSPY

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