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Detection of adulteration and identification of meat and milk species using molecular genetic techniques

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PCR and PCR-RFLP techniques were used for rapid and sensitive identification and authentication of species-specific meat (buffalo, camel, cat, cattle, dog, donkey, goat, horse, pig and sheep) and milk products (buffalo, camel, cattle, goat and sheep). PCR products of the gene encoding SSR region were 603, 603, ≤100 and 374 bp in buffalo, cattle, pig and sheep, respectively. For discrimination between buffalo and cattle, the amplified cytochrome *b* gene (359 bp) was digested by *Taq*I restriction enzyme. Two fragments 191 and 168 bp were generated in buffalo, whereas no digestion occurred in cattle (359 bp). PCR products were 672, 808, 221 and 221 bp in cat, dog, donkey and horse, respectively. To discriminate between donkey and horse, PCR product of mt-DNA in both donkey and horse (359 bp) was digested by *Alu*I restriction enzyme. Three fragments 189, 96 and 74 bp were generated in horse, whereas no fragments were obtained in donkey (359 bp). PCR amplified fragment size was 300 bp in camel, while the fragment size in goat was 855 bp. The proposed PCR assay represents a quick and sensitive method applicable to the detection and authentication of meat and milk species-specific.

Biography

Salah Abdel-Rahman is a Professor of molecular genetics at Department of Nucleic Acid Research Genetic Engineering and Biotechnology Research Institute City of Scientific Research and Technological Applications Alexandria, Egypt. PhD in 2003, Department of Molecular Animal Breeding, Institute of Animal Science, Faculty of Agriculture and Horticulture, Humboldt University, Berlin, Germany. Dr. Salah has an expertise in Mapping of quantitative trait loci (QTL) affecting production traits on different chromosomes in farm animals using microsatellite markers. Improvement of quantitative production traits (meat, milk, fertility, wool… etc) in farm animals using marker-assisted selection (MAS). Detection of adulteration and identification of meat and milk plus genetically modified organisms (GMOs) using molecular genetics techniques. DNA fingerprinting and national animals and plants genetic sources preservation.

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