



भा.कृ.अनु.प.-राष्ट्रीय मांस अनुसंधान संस्थान

(पूर्व भा.कृ.अनु.प.-राष्ट्रीय मांस अनुसंधान केंद्र)

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Alkaline lysis - Polymerase Spiral Reaction (AL-PSR) assay for the specific authentication of goat (*Capra hircus*) meat

Inventors/Developers: Dr Girish Patil, S., Dr S. B. Barbuddhe, Dr C. Ramakrishna and Dr Laitha Shree

Brief description about the technology

Goat meat (chevon) is the costliest meat in India and it closely resembles other red meat species mostly the sheep meat (mutton). In order to establish authenticity of chevon and confirm mislabelling there is a need for a reliable laboratory test. Polymerase spiral reaction (PSR) assay is one of the recent DNA based isothermal tests available for molecular analysis mostly microorganisms. Present study describes development and validation of a novel PSR for the detection of chevon for the first time. The goat specific PSR makes use of a pair of chevon-specific primers targeted against the mitochondrial DNA and test could be read based on the visual colour change after the addition of SYBR Green I dye to the amplified product. The possibility of cross-amplification was ruled out by testing related meat species (meat species buffalo, cattle, chicken, pig and sheep) and results of PSR were further confirmed by fluorometry and agarose gel electrophoresis. PSR could be undertaken at isothermal temperature of 62 °C temperature for 60 min with the limit of detection of 0.5 ng DNA and detection of meat admixing of 0.1%. The PSR was found efficient in the detection of not only raw meat but also meat heated to 121 °C for 30 min. When combined with the alkaline lysis method of DNA extraction, the goat-specific PSR takes only 90 min for sample analysis and hence can be used as field assay.

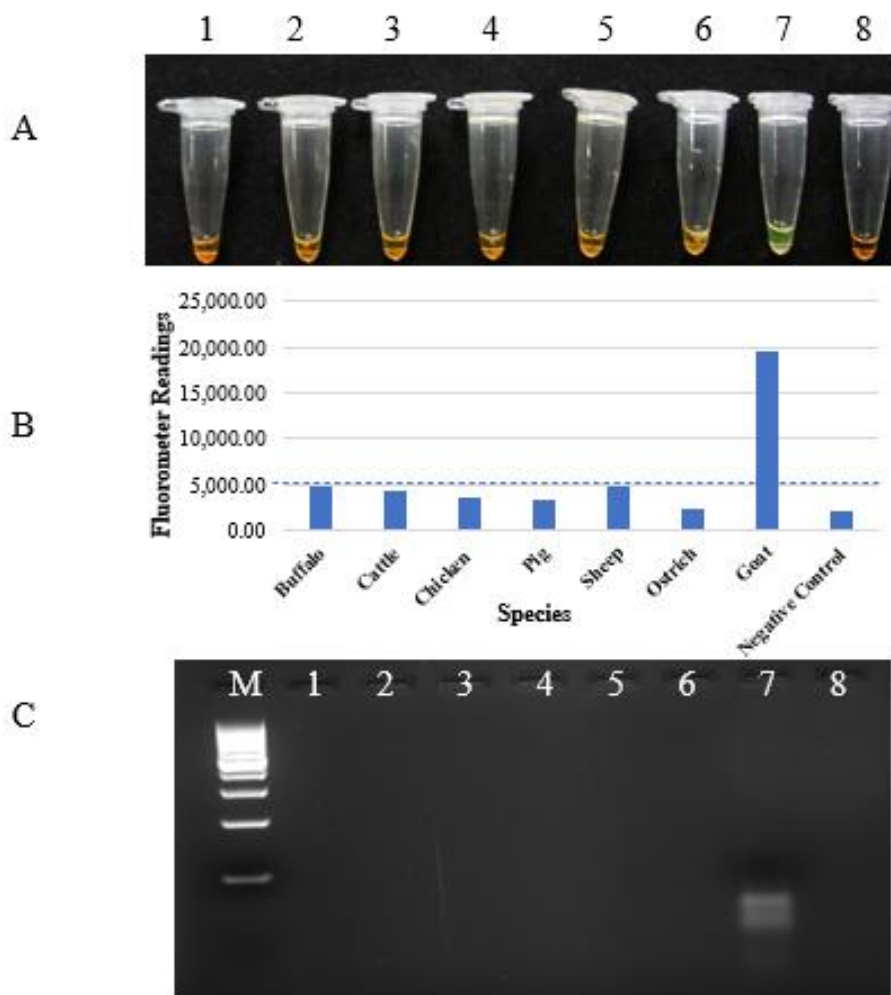


Fig. Polymerase spiral reaction showing goat specific amplification. 1) Buffalo, 2) Cattle, 3) Chicken, 4) Pork, 5) Ostrich, 6) Sheep and 7) Goat (Lane 8. No template control). A) Visual, B) Fluorometric and C) Agarose gel electrophoresis. Green colour indicates presence of goat DNA while orange colour indicates it's absence.

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