IDENTIFICATION OF ANIMAL SPECIES IN SAUSAGES PRODUCTS BY SEQUENCE ANALYSIS OF MITOCHONDRIAL 12S RRNA GENE IN TEHRAN CITY

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Abstract - In this research, sequence analysis of mitochondrial 12S rRNA has been used for identification of animal species from meat products samples of known and unknown origin and adulterated meat products samples was evaluated .In PCR, all the 10 sausages samples generated an amplicon of 456 bp.PCR products were sequenced, Sequencing results showed that all sample contaminated with Gallus gallus jabouillei specie residuals. Sequencing and analysis of mt 12SrRNA gene was, found to be an rather ideal, authentic and unambiguous qualitative method for meat species identification.

Key Words – Animal species, Sausages products, Food authenticity, 12S rRNA gene, PCR

I. INTRODUCTION

Misrepresentation of a costlier meat with a cheaper one, is one of the most common examples of economic fraudulence prevalent in meat industry. Various techniques have been reported for detection of mislabeling. Among techniques, these. molecular particularly, polymerase chain reaction (PCR) and DNA sequencing have proven to be most authenticated tools. In this study, sequence analysis of mitochondrial 12S rRNA has been applied for meat species identification.

II. MATERIALS AND METHODS

In the present study, 10 sausages were collected from different companies and food markets in

Tehran province and 5 samples of raw meats of cattle, hen, goat, camel and donkey are used as a positive control. All of the sausages were labeled by 55% of cattle meat. Total DNA was extracted from 30 mg of meat and meat products according sambrook method to by some modifications. Procedure involves PCR of a fragment of mitochondrial 12S rRNA gene and sequencing of amplicons. Amplified product of mt 12S rRNA gene was 456 bp in size. Sequences of samples were blasted in genbank nucleotide sequence database (NCBI).

III. RESULTS AND DISCUSSION

The sequencing results demonstrated all of samples contaminated with Gallus gallus jabouillei specie residuals .Seven of samples were only included with Gallus gallus jabouillei specie but for three samples multiple signal were reported.

IV. CONCLUSION

Sequencing is an accurate technique to identification of animal species but is not suitable for mixed meat unless different PCR products can be cloned separately and therefore this approach is not suitable for routine diagnostic testing.

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