SPECIES IDENTIFICATION FROM SELECTED BEEF PATTY BRANDS USING POLYMERASE CHAIN REACTION (PCR)

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Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
Universiti Teknologi MARA

JANUARY 2017

ABSTRACT

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Specific deoxyribonucleic acid DNA fragments can be detected by method of polymerase chain reaction (PCR), where it is widely used in various human molecular diagnostics, in forensics, food control and analysis of environmental specimens. The aim of this project was to determine the extracted DNA quality and sizes from previous researchers by using gel electrophoresis, to optimize primer annealing temperature using gradient PCR and to investigate the conformation of species from selected beef patty brands using PCR. Samples were collected from previous researchers that comprised from three different types of beef patty brands which are 1 Malaysia, Ramly and Purnama Beef Patty. Firstly, the intensity, quality and sizes of DNA were examined and decided either the DNA can be used or not by using gel electrophoresis. All the samples showed positive results either with presence of band, smear or less smear, where it can be used in the next PCR process.

Next, gradient PCR was performed in order to find the suitable melting temperature, T_M, for 'Bovis' primer. All the three samples have been checked with bovine primer to examine the quality of their meat. Expected band for bovine is 271 bp. All of the three sample bands achieved almost nearer to the expected band. This can be proved that all of the samples originally contain beef meat. In order to test the authenticity of their species, all the sample brands were tested with the other two different primers; chicken and *Sus scrofa.* All the results indicated the absence of band from primer chicken and *Sus scrofa.* This further proved that all the beef patties came from the original beef meat without contamination of other animals. As a conclusion, all the results of sample showed bovine positive result where there was band presence nearer the expected base pair which was 271 bp.

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