



Malays. Appl. Biol. (2015) 44(3): 29-32

A NON-INVASIVE TECHNIQUE TO DETERMINE THE EFFECTS OF PLUCKED FEATHER TYPE (SIZE) ON DNA YIELD IN PCR AMPLIFICATION

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ABSTRACT

Non-invasive approach in genetic sampling was introduced in avian culture as to reduce the stress of handling technique especially in fragile individuals or endangered species. The conventional conservation method causes many unfavourable impacts mostly when gathering DNA sources which affect birds' behaviour. The ability to correctly determine the sex of bird is pivotal for conservation purpose in monomorphic bird. However, the problem arises when it comes to assemble on which type of feather that could meet up the requirement of PCR amplification. Each part of the birds feather contribute in functional morphology so, sampling too much larger feather could disturb the flight performance. Therefore, there is a need to find which feather present as the most reliable source of DNA that is sufficient to run amplification. DNA was extracted and quantified in five types of plucked feather from two species of monomorphic bird. The same five feather types were used in comparing PCR success through agarose gel electrophoresis visualization by exploiting the intron length differences of Chromo Helicase DNA-binding gene (CHD gene) on the Z and W sex chromosomes. The validity and effectiveness of using thoracic feather were tested with the aim to inflict the only potential feather that will be used for future sexing purposes at least reducing the impact from feather sampling.

Keywords

monomorphic bird, non-invasive approach, polymerase chain reaction, intron length, CHD gene