

DNA fingerprinting of red jungle fowl, village chicken and broilers

ABSTRACT

The genomic mapping of Red Jungle Fowl (*Gallus gallus*), local Village Chicken, and broiler was carried out by random amplified polymorphism DNA (RAPD) technique. Two different sets of arbitrary primers were used (Operon OPA01-20 and Genemed GM01-50). All the genomes of the three species of chickens were amplified with OPA01-20 primers. The genomes of the Red Jungle Fowl and local Village Chicken were further amplified with GM01-50 primers. Analysis of the results based on band sharing (BS) and the molecular size of individually amplified DNA fragments showed that Red Jungle Fowl and local Village Chicken shared the species similarity of 66% with Operon primers 01-20, 64% between local Village Chicken and broiler, and 63% when DNA bands between Red Jungle Fowl and broiler were compared. With GM01-50, the BS between Red Jungle Fowl and local village chicken increased to 72%. The results showed that the local village chicken is more closely related to Red Jungle Fowl than to broiler in the genetic distance. On the other hand, broiler is 1% closer in genetic distance to local village chicken than to Red Jungle Fowl. The results also indicated that primers like OPA-7, 8 and 9 can be used as species specific DNA markers for these three species of chickens.

Keyword: Broiler; Genome; Jungle fowl; RAPD; Village chicken