

Abstract

The objective of this study was to study the association of fibromelanosis (*FM*) and sex-linked inhibitor of dermal melanin gene (*Id*) with characteristics of black boned chicken. Six molecular DNA markers (*FM* assay A, *FM* assay B, *Id*000, *Id*542, *Id*603 and *Id*881) were used to genotyping in 169 black boned chickens, 10 commercial broilers, 10 Pradhuangdum and 4 Chee-Pha chickens. The results showed that the molecular DNA markers were significantly associated with characteristics of black boned chicken. The principal component analysis showed molecular DNA markers could be clearly classified the black boned chicken from non-black boned chickens. The *FM* assay A and *FM* assay B markers could be identified the black boned chicken with 92-95 % accuracy and could be identified the non-black boned chicken with 85-90 % accuracy. Moreover, the *Id*542 marker tended toward an association with the breast muscle color trait of black boned chickens ($P=0.08$). The chickens with the AA genotype had darker the breast muscular color values than those the chickens with the AB genotype. No association of *FM* assay A, *FM* assay B and *Id*603 markers with the breast muscle color of black boned chickens were observed. These results indicated that the molecular markers of *FM* and *Id* genes could be classified the black boned chicken from non-black boned chickens. However, these molecular DNA markers could not be identified the breast muscle color levels of black boned chickens.