

## Genetic Diversity of Helmeted Guineafowl (*Numida meleagris*) Based on Microsatellite Analysis

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### Abstract :

Characterization of the genetic diversity of indigenous animal populations is a prerequisite for providing needed information for the conservation of useful genotypes against future uncertainties in the face of daunting global challenges such as climate change, emerging diseases, population growth, and rising consumer demands. In this study, a total of 232 helmeted guineafowls (*Numida meleagris*) sampled from three populations in Ghana, one population in Benin and two populations in Japan were genotyped across six autosomal microsatellite loci. Three vulturine guineafowls (*Acryllium vulturinum*) were included as outgroup. A total of 66 alleles were observed with an average of 11.0 alleles per locus. The indigenous West African populations (Ghana and Benin) were more genetically diverse ( $N_a=9.8$ ;  $H_o=0.457$ ) but less differentiated ( $F_{ST}=0.162$ ) compared to the non-indigenous populations in Japan ( $N_a=4.2$ ;  $H_o=0.236$ ;  $F_{ST}=0.389$ ). The information from this study would be useful for selection and improvement programs necessary for the sustainable exploitation of this agriculturally and commercially important species as a suitable alternative to chicken.

### Key Word :

genetic diversity, Ghana, helmeted guineafowl, microsatellite

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