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## Assessment of Genetic Variability and Genetic Structure of Vietnamese Chicken Breeds

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### Abstract

In Viet Nam, 11 local chicken breeds have been reported but the definition of these breeds is not fully standardised. It appears rather unlikely that comprehensive survey based on large scale phenotypic characterisation can be achieved considering the wide range of local chicken breeds and the diversity of local production systems. Therefore, there is a need to investigate genetic diversity using alternative source of information as molecular markers as a prerequisite for the development of effective conservation programs. The project aims at the molecular assessment of genetic diversity within and between Vietnamese local chicken populations and to analyse Vietnamese diversity in this species in relation to chicken populations from various continents and production systems. Twenty-nine microsatellites were genotyped in 353 individuals of nine Vietnamese local breeds and two Vietnamese exotic breeds. The latter populations originated from China and have been kept as conservation flocks at the institute of Animal Husbandry, Hanoi, Viet Nam since 1995 and 2003, respectively. The Vietnamese chicken populations were located in both the northern and southern part of Viet Nam. On average, 32 individuals were randomly collected for each population. As reference populations, 32 populations (n = 1121) from Asia, Africa, and Europe, as well as commercial purebred lines and three Red Jungle fowl populations were included from previous studies. Overall, Vietnamese populations showed high genetic variability within and between breeds. In a global context, Vietnamese chickens contributed high diversity to the global gene pool. A phylogenetic tree indicated that Vietnamese chickens clustered closely together with the Red Jungle fowl populations and one Chinese native breed. The results corresponded to known breed history and geographical distribution. A structure analysis is on the way to verify the results obtained.

**Keywords:** Genetic characterisation, microsatellite characterisation, genetic diversity, phylogenetic structure, local chickens