

Genetic diversity of grasscutter (*Thryonomys swinderianus*, Rodentia, *Hystricomorpha*) in Ghana based on microsatellite markers

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Abstract

Grasscutter (*Thryonomys swinderianus*) is a fairly large rodent that inhabits sub-Saharan Africa. There are very limited ecological studies on the grasscutter despite its importance as a protein resource. The objective of this study was to apply novel microsatellite markers to determine the genetic structure and diversity of grasscutter populations in Ghana. A total of 66 hair samples were collected from grasscutters in three main agro-ecological zones of Ghana, namely Guinea Savanna ($n = 19$), Forest ($n = 16$) and Coastal Savanna ($n = 16$) as well as Volta Region ($n = 15$). Samples were genotyped at 12 polymorphic loci and the results showed relatively high diversity ($MNA = 7.3$, $HE = 0.745$) within populations. Phylogenetic analysis revealed that Forest population is closer to the Coastal Savanna population than the other populations whilst Volta Region population is closer to the Guinea Savanna population than the other populations. Pairwise F_{ST} values however indicated that all populations were significantly differentiated ($p < 0.01$). STRUCTURE clustering analysis showed that Volta population split from the Guinea Savanna population. Grasscutter populations in Ghana are genetically differentiated according to agro-ecological zones and the Volta Lake could be serving as a barrier to gene flow.