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GENE FLOW BETWEEN NIGERIAN SHEEP BREEDS AS REVEALED BY MICRO SATELLITE DNA MARKERS

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ABSTRACT

The presence and level of gene flow between the four major Nigerian sheep breeds (West African Dwarf (WAD), Yankasa, Balami and Uda) was assessed using microsatellite DNA markers. DNA was extracted from 50~1of whole blood using the ZymoBead™ Genomic DNA Kit The DNA was amplified by PCR in a MyCycler™ Thermal Cycler (Biorad, Hercules, CA) using 15 microsatellite markers selected. DNA fragment analysis of microsatellite markers was carried out using the Applied BioSystems 3730xl DNA Analyzer (Applied Biosystems, Carlsbad, CA, USA). The level of gene flow or population structure was assessed by STRUCTURE software and barplots generated by DISTRUCT. At K=2, two clusters was constituted from breeds descending from Balami and Yankasa, both of which are from Northern region in Nigeria. At K=3 and K=4, one more cluster emerged and further analyses did not reveal any additional strong high level substructure, so separating the entire the entire datasets into 3 major clusters was chosen as the final configuration. There are however, several cases of admixtures in the genome of some of the individuals that constitute the cluster. Yankasa and Salami breed had more cases of admixtures followed by Udawhile the WAD was the least breed with cases of admixtures.