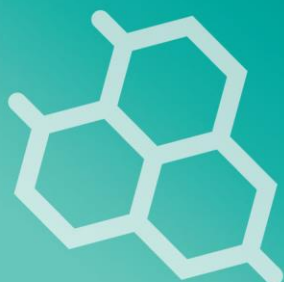


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GROWTH AND HEAT TOLERANCE TRAITS IN WEST AFRICAN DWARF SHEEP AND VARIATION IN CD14 GENE

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ABSTRACT

Although West African Dwarf Sheep (*Ovis aries*) has for decades played a strategic role in food security and income generation in Nigeria, it is still cultivated by resource-poor farmers and its impact remains mainly in the rural areas. The research investigated growth, heat tolerance traits, and genetic variations in West African Dwarf (WAD) sheep populations from Akwa Ibom State (AKS) and Cross River State (CRS), Nigeria. Forty WAD sheep (20 per population) were sampled, and measurements were taken for growth and heat tolerance traits. Blood samples were collected for genetic analysis of the CD14 gene. Results showed significant differences in body weight (BW) and body length (BL) between AKS and CRS WAD sheep, with higher values observed in AKS. While relative humidity was similar between states, ambient and body temperatures differed significantly. Genetic analysis revealed higher sequence polymorphism in the CD14 gene of AKS WAD sheep compared to CRS, with higher sequence conservation in CRS. Phylogenetic analysis identified distinct clusters, including one exclusively composed of AKS samples. Furthermore, a negative relationship was observed between ambient temperature and CD14 gene sequence variation, suggesting a potential link between genetic factors and heat tolerance in WAD sheep. The findings indicate that environmental factors influence the growth and genetic makeup of WAD sheep populations, highlighting the importance of understanding local adaptation and resilience in livestock farming, particularly in the context of climate change.



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