

Genetic polymorphism of follicle stimulating hormone beta (*FSH β*) gene and its association with body weight, scrotal measurements and seminal quality traits in indigenous goats

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In goat farming, buck fertility is important because most farms typically retain one buck for every few dams. Follicle stimulating hormone is essential for regulating fertility and varies in its beta subunit (*FSH β*), which provides specificity. To explore the possibilities of using *FSH β* gene as candidate marker, this study was aimed to investigate polymorphism at *FSH β* gene by PCR-RFLP assay and association of polymorphic variants of *FSH β* with body weights, scrotal and seminal attributes in indigenous goats. The amplicons of 313 bp was obtained for *FSH β* gene from the DNA of 35 Barbari, 26 Black Bengal, and 31 Sirohi bucks, respectively. *FSH β* was found to be monomorphic in all three breeds using PCR-RFLP analysis. Using *PstI* and *HinfI* restriction enzymes, respectively, it revealed a single type of uncut banding pattern of 313 bp and single fragment of 157 bp. Sequence analysis also confirmed absence of *PstI* recognition site, revealing an A>G substitution at nucleotide position 4531. Frequency of AA genotype and A allele was found to be maximum. All traits, with the exception of mass motility, showed a significant breed effect. Based on the findings, it was concluded that targeted region of *FSH β* gene was fixed goat population under investigation.

Keywords: Barbari, Black Bengal, Buck fertility, Livestock, Polymorphism, Sirohi