

## Abstract

Milk consumption is increasing with population growth and urbanization globally. Leptin hormone (a 16-kDa protein) encoded by leptin (*LEP*) gene is associated with milk production. Various researches has proved its role in cattle and buffalo while no research work has been reported on goat which is the main nutritional source in rural areas of Pakistan. Therefore, the aim of this study is to evaluate the effect of *LEP* gene polymorphism association with milk production in Khurasani and Lehri breed (two arid region breeds of Baluchistan). For this purpose, blood samples were taken from each selected breed. DNA was extracted from blood of the collected samples through standard protocol PCR was performed by using gene specific primers followed by Next generation genotyping method. *LEP* gene was sequenced in the two breeds were Exon 2 (144 bp), Exon 3 (360 bp), 5'UTR (913) and 3'UTR (1587) the untranslated regions. The sequence analyzed shows 5 novel SNPs in coding regions (Exon2, Exon3) in both breeds ((four are non-synonymous and one synonymous change in amino acid) which replaces following nucleotide and amino acids at positions 17 A>T (Gln>leu), 43 A>T (Asn> Try), 74 A>G (His>Arg), 386 G>A (Gly>Glu) and 93 A>C (Try>Try) is the synonymous change. 5UTR with 28 and 4 SNPs, 3UTR with 2 and 9 variations in Lehri and Khurasani.