



RESEARCH
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Polymorphism at DGAT1 locus in Indian buffalo, zebu and *Bos indicus* x *Bos taurus* cattle breeds

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Abstract : An investigation was carried out to detect variable positions DGAT locus of Indian cattle and buffalo breeds. DNA samples were collected from 540 animals belonging to four breeds of riverine buffalo (*Bubalus bubalis*), three breeds of Indian zebu cattle (*Bos indicus*) and three synthetic cattle breeds (*Bos indicus* x *Bos taurus*). PCR-RFLP with *Cfr I* restriction enzyme was performed to detect polymorphism in the 411 bp fragment covering partial exon-7 to partial exon-9 region of the DGAT1 gene. Monomorphic KK genotype was observed in buffalo and Indian zebu cattle breeds. Three genotypes, KK, KA and KA were observed in synthetic cattle breeds (*Bos indicus* x *Bos taurus*) with highest frequency of KA. The frequency of K (lysine) allele were 0.74, 0.72 and 0.69 in Frisiana, Frieswal and Sunandini cattle respectively. Sequence analysis revealed double nucleotide substitution at 202nd position of the fragment from AA to GC, which corresponds to the 14th position of the exon 8 with amino acid substitution of hydrophobic alanine (A) to positively charged lysine (K) in the peptide sequence. These results provide an opportunity to validate its association with milk yield traits in synthetic cattle breeds for utilizing in selection programmes.

Key words : DGAT1 gene, Polymorphism, Cattle, Buffalo and RFLP

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