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Heat shock proteins as biomarker for selecting thermo tolerance cattle breeds

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A possible move towards reducing the impact of heat stress on cattle productivity is to perk up genetic programs that select animals with thermotolerance. Genetic differences for thermotolerance at the physiological and cellular levels are documented by a series of studies on *Bos indicus* and *Bos taurus*. Heat shock proteins (Hsp) are known to play major role in protection of cells from thermal stress. We have identified that polymorphism within the promoter region of Hsp70.1 may effects on the cellular expression of Hsp70 .1 mRNA and associated with the physiological parameters as well as milk production traits in dairy cattle. We have also investigated that Hsp90 expressed differentially in peripheral blood mononuclear cells (PBMC) under heat stress among Sahiwal (*Bos indicus*) and Frieswal (*Bos indicus* x *Bos taurus*) breed of cattle. An allele specific PCR protocol was standardized to identify the single nucleotide polymorphism within the HSP90AB1 gene (SNP g.4338T>C). Our results revealed that TT genotypes had significantly ($P<0.01$) higher Heat tolerance coefficient (HTC) than CT and CC genotypes among different cattle breeds.

Biography

Rajib Deb is working as a Scientist under Indian Council of Agricultural Research, India. Presently he is working on cellular thermo tolerance genes of cattle and their implication for selecting genetically thermo resistant breeds. Besides these he is also involved in identification of biomarkers associated with improved male fertility traits in cattle.

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