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Punganur Cattle: a Native Breed of andhra Pradesh

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The state "andhra Pradesh" was found to experience hot and humid equatorial tropical climate with temperature humidity index (THÍ) crossing the critical point for many days in a year and the livestock population is expected to be under significant heat stress. In fact, the comfort/ strain inflicted by heat stress, for instance, must be evaluated considering both the severity of the stress as measured by THÍ and also the adaptability of the stock as measured by changes in physiological, haematological, hormonal and gene expression pattern of HSPs.

Picture of a Pungnur cow

Stress represents the reaction of the body to stimuli that disturb homeostasis which end up with detrimental effects (David *et al.*, 1990). animals are being exposed to different environmental conditions during a complete year. among the stressors, heat stress has been of major concern in reducing animal's productivity in tropical, sub-tropical and arid areas (Silanikove *et al.*, 1997).

Heat stress induces numerous physiological responses where an appreciable portion of energy is deviated for thermoregulation compromising the production behind. Interestingly, it was found that

the heat stress responses were less pronounced in indigenous compared to exotic breeds owing to its evolutionary process and are better adapted to hot and humid tropic maintaining their production.

"Punganur"a native cattle breed of chittoor is one of the Worlds shortest humped cattle with long tail with switch touching the ground, white and light grey in color with a broad forehead and short stature. The average height is 60-100 centimeters and weight 115-200 kgs. Punganur cattle fall in the category of Indigenous cattle breed owing to its evolutionary process and no studies have been conducted so far to evaluate the effect of varying THI on biochemical, hormonal and gene expression pattern of HSPs in Punganur cattle at various physiological states. Such studies may help us to evaluate the adaptability of stock and thus promote the propagation of indigenous breeds which maintain their production in this climate change scenario.

Punganur cattle are well known for its dual purpose and is said to be on the verge of extinction. In the process of sustaining the deteriorating population of these animals necessary studies need to be conducted out to enhance the productivity and improve the reproductive performance.

The only work done until recent times was by Naik *et al.* (2013) established base line physiological and hematology values in Punganur cattle in different age groups (bulls, cows, young bulls, heifers, and male and female calves) and during different seasons (monsoon, winter and summer). The mean RBC and WBC counts differed significantly ($P<0.01$) among the age groups and were higher during summer than either during monsoon or winter seasons. The Hemoglobin content was not significantly different among the age groups but was significantly higher ($P<0.01$) during summer than during either monsoon or winter seasons. The mean PCV (%) in different age groups and also during monsoon, winter, and summer seasons were not significantly different. The mean ESR (mm/hr) in different age groups was not significantly different but was significantly ($P<0.01$) higher during summer than during winter. The DLC count (%) among different age groups of Punganur cattle was significantly different ($P<0.01$) for Neutrophils, Eosinophis, Basophils, Lymphocyte except for monocytes. Neutrophils and lymphocytes were significantly higher ($P<0.01$) during summer, Eosinophils and Basophils during monsoon while Monocytes count was significantly higher ($P<0.01$) during winter than during other seasons.

Conclusíon

Ít ís very ímportant to conserve our natíve breeds of cattle whích are on the wedge of extínctíon. Punganur ís one such breed whích requíres ímmedíate attentíon and ít ís of paramount ímportance to propagate the breed owíng to íts natíve characters líke dísease resístance and thermo tolerance. Necessary research need to be conducted ín thís area for exploríng and valídatíon of the same.

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