



## Serum Biochemical Constituents during Summer and Winter Season of Surti Goats

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### Editorial

Climate change is occurring globally and poses serious threats to animal husbandry in some areas. Developing countries are found to be the most affected one. Environment plays an important role in health and production of animals. Complex interaction of climate with animals affects animal health and production. Animals perform optimum under comfortable climatic conditions in thermo neutral range. The variation in climatic variables like temperature, humidity and radiations were recognized as the potential hazards in the growth and production of all domestic livestock species.

There has been no study on seasonal variation in accordance with biochemical parameter of Surti goats. In view of above fact research work was undertaken to study seasonal variation in biochemical parameters of Surti goats under intensive production system on eight adult apparently healthy Surti goats at Department of Veterinary Physiology & Biochemistry, College of Veterinary Science & A.H., AAU, Anand. Anand town is situated in Middle Gujarat (GJ-3) at 22°: 33' North latitude and 72°: 57' East longitude at an elevation of 39 meter above the mean sea level with subtropical climate [1-4]. The climatic condition of Anand based on observation during last 50 years (1956 to 2011) is cold and dry (average maximum temperature-27.81°C to 32.40°C)

The whole study was conducted during summer (15/04/2015 to 14/06/2015) and winter (01/12/2015 to 31/01/2016) seasons [1].

The experimental animals were reared in semi-open housing system which is made up of concrete floor under asbestos roofed housing system constructed east west direction and well covered with trees.

The experimental animals were maintained on ICAR feeding standard (1998). These experimental goats separated from the flock only at the time of blood collection. Blood samples were collected in the morning hours from the Surti goats at weekly interval during research period. Seven to eight ml of whole blood from each animal was collected aseptically from jugular vein into clot activator (for serum separation) vacutainer. Serum was separated by centrifugation at 3000 rpm for 15 minutes and stored at -20°C in deep freeze until analyzed for biochemical parameters. The serum biochemical estimations were carried on BS-120 Chemistry Analyser (Mindray) using the diagnostic kits manufactured by Crest Biosystems, Coral Clinical Systems, Goa. The serum samples were analysed for hormonal parameters by Radio Immuno Assay (RIA) method using the Kits manufactured by Immunotech, Beckman Coulter, Czech Republic [5].

The meteorological variables like temperature and relative humidity were recorded on daily basis at 7.30 a.m. and 2.30 p.m. during experimental period as well as meteorological data for last 10 years from year 2004 to 2014 collected from the observatory for estimation of Temperature Humidity Index (THI) [2]. Research Biochemical constituents' like total protein, BUN, uric acid and creatinine level were increased significantly ( $P<0.05$ ) during summer than winter season while, glucose and cholesterol level were significantly ( $P<0.05$ )

lower during summer season. Serum concentration of total protein, creatinine and uric acid were directly proportional to THI as where Glucose and cholesterol were inversely proportional with THI [3]. Serum concentrations of ALT and AST enzymes and sodium and potassium were significantly enhanced during summer than winter season and significantly ( $P<0.01$ ) positive correlated with THI. Concentrations of calcium and inorganic phosphorus were significantly ( $P<0.05$ ) declined during summer than winter season and inversely proportional with THI. Hormone concentrations of Triiodothyronine ( $T_3$ ) and thyroxine ( $T_4$ ) were significantly lowered whereas, Cortisol was significantly enhanced during summer as compared to winter season. However, these hormones were continued to be increase from 1 to 1.5 folds in summer than winter season. Experimental season and THI had significant ( $P<0.05$ ) effect on biochemical constituents and hormonal profiles.

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