J Vet Sci Technol 2017, 8:6 (Suppl)
DOI: 10.4172/2157-7579-C1-031

Blood biochemical and antioxidant profile of male sahiwal (Bos indicus) calves as affected by addition of graded levels of vanadium in the diet

Chander Datt, Digvijay Singh, Ritika Gupta, Swati Shivani, Akash Mishra, Veena Mani and Khushboo Jain
National Dairy Research Institute, India

Vanadium is a newer trace element often classified as occasionally beneficial element in the livestock. It is reported that vanadium supplementations affect the level of triglycerides, total cholesterol and glutathione peroxidase activity and leads to increase in expression and activity of glutathione peroxidase having a positive impact on the immune status of the animal. The present study was planned to evaluate the effect of vanadium supplementation on blood parameters and antioxidant profile in male Sahiwal calves. 20 Sahiwal calves (Average age: 6±0.82 months; body weight: 71±8.06 kg) were selected and distributed randomly into 4 groups. Animals were supplemented with 0, 2, 4 and 8 ppm of vanadium in groups T1, T2, T3 and T4, respectively (ICAR, 2013). A growth trial of 120 days was carried out and Blood samples were collected at monthly intervals and analyzed for plasma biochemical parameters, enzymes and hormone using specific kits. The activity of superoxide dismutase (SOD), catalase and glutathione peroxidase (GPx) in blood lysate was estimated to assess the antioxidant status of the animals. The data were analyzed using software package SPSS version 20.0. The feed intake and body weight gains were similar in all the groups. The plasma glucose, total protein, aspartate amino transferase (AST), alanine amino transferase (ALT) and IGF-1 levels were not affected by vanadium supplementation. Plasma triglyceride level decreased ($P<0.05$) by 17.37% and 16.64% in 4 and 8 ppm (T3 and T4) supplemented groups compared to control (T1) and cholesterol level showed a declining ($P<0.05$) trend with increase in vanadium concentration in the diet. The ALP activity was higher ($P<0.05$) in groups T3 and T4 compared to group T1 and T2. Blood GPx activity was higher ($P<0.05$) in groups T3 and T4 as compared to T1 and T2 whereas SOD and catalase activity was similar in all the groups. It could be concluded that vanadium supplementation at 4 and 8 ppm level increased plasma ALP and GPx activity while decreasing triglyceride and cholesterol concentration in male Sahiwal calves.

chandatt@gmail.com

Notes: