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Efficacy of herbal preparation in reducing oxidative stress during periparturient period in crossbred dairy cows

xidative stress is the result of excess free radical production beyond the capacity of antioxidant defense of the body. Dairy cows during periparturient period experience oxidative stress, which may increase risk of developing various periparturient disorders. Over the past few decades, use of herbal drugs for treatment of various diseases in dairy cattle has gained momentum as they have high safety profile, good efficacy and do not pose drug residue problem. The present study was therefore, planned to evaluate the efficacy of herbal preparation supplementation on oxidative stress parameters during periparturient period. A total of 16 healthy multiporous crossbred dry cows during their last trimester of pregnancy were randomly divided into two equal groups. Group I was kept as control, while Group II received herbal preparation "Stress Check" (Indian Herbs) @ 15 gram per day/cow during last 15 days of expected calving and up to the first 15 days after calving. Blood samples were collected by jugular venepuncture during far off dry (FOD) period (>10 days following dry off and not <30 days prior to calving), close up dry (CUD) period (Between 3 and 21 days prior to calving) and early milking period (3 to 30 days in milk), for the estimation of lipid peroxidation (LPO), super oxide dismutase (SOD), reduced glutathione (GSH), total proteins, albumin, blood urea nitrogen (BUN), creatinine, glucose, non-esterified fatty acids (NEFA), beta hydroxyl butyric acid (BHBA), calcium, magnesium, phosphorus, sodium, potassium, copper, iron and zinc. In comparison to Group I, significant (p<0.05) decrease in erythrocytic LPO along with non significant increase in the SOD and GSH levels were noticed in the Group II during early milking period. Within group, a significant decrease in the LPO levels in the early milking period as compared to the FOD period was evident. Glucose levels in Group II was significantly higher than Group I during the early milking period. The mean BUN and sodium levels were lower than the normal range in Group II, during the early milking period, while mean levels of creatinine, total protein, albumin, NEFA, BHBA, calcium, magnesium, phosphorus, sodium, potassium, copper, iron and zinc remained within the normal range, though values varied considerably. The present study revealed that the herbal preparation, "Stress Check" was effective in reducing oxidative stress in dairy cows during the periparturient period.

Biography

Sarnarinder Singh Randhawa has completed his PhD from C S A University of Agriculture and Technology, Kanpur, India. He is the Director of Research of Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, a premier veterinary university of India. He has published more than 230 original research papers in referred international and national journals; visited USA, Canada, Brazil, Italy and France for the presentation of research papers in the past and to learn animal health programmes. He is a fellow of five National Academies and Scientific Societies and has a professional experience of more than 34 years in Veterinary Sciences. He is also the President of Indian Society for Veterinary Medicine.

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