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Bijan Esmaeilnejad, Mousa Tavassoli, Awat Samiei, Nasser Hajipour, Abbas Imani-Baran, Farhad Farhang-Pajuh



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Evaluation of oxidative stress and antioxidant status, serum trace mineral levels and cholinesterases activity in cattle infected with *Anaplasma marginale*

Bijan Esmailnejad^{a,*}, Mousa Tavassoli^a, Awat Samiei^a, Nasser Hajipour^b, Abbas Imani-Baran^b,
Farhad Farhang-Pajuh^c

^aDepartment of Pathobiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

^bDepartment of Pathobiology, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran

^cPh.D student of Veterinary Parasitology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz

E-mail address: b.esmaeilnejad@urmia.ac.ir

Abstract

This study was undertaken to assess the influence of an *Anaplasma marginale* infection on oxidative stress and antioxidant status, trace elements and cholinesterase as markers of the inflammatory process and biomarkers of oxidative imbalance. An infected group comprised of 35 crossbred Holstein cattle, about 2–3 years old, naturally infected with *Anaplasma marginale*, were divided into 4 subgroups according to their parasitemia rates (<1%, 1–10%, 10–20%, >20%) and also 10 healthy cattle as control were selected. Blood samples were taken and hematological parameters, activities of antioxidant enzymes including erythrocyte glutathione peroxidase (GSH-Px), superoxide dismutase (SOD), catalase (CAT), glucose-6-phosphate dehydrogenase (G6PD), total antioxidant capacity (TAC), median corpuscular fragility (MCF) as well as acetylcholinesterase (AChE), and serum concentrations of antioxidant trace minerals (copper, iron, zinc, manganese, and selenium) and butyrylcholinesterase (BChE) were

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