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## oral presentations

### OXIDATIVE STRESS IN CANINE BABESIOSIS

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**Background:** Canine babesiosis is a tick-borne disease caused by the intra-erythrocytic haemoprotzoan parasites of the genus *Babesia* and role of oxidative stress in its pathogenesis has been described. However, it is not clear if oxidative stress persists after clinical recovery and if it is associated with the severity of inflammation. **Objectives:** The objective of this study was to estimate a) changes in oxidative stress parameters in dogs infected with *B. canis* at presentation and after treatment, and b) whether oxidative stress response may be related to a complicated form of babesiosis such as systemic inflammatory response syndrome (SIRS). **Material and Methods:** The study was conducted using blood samples from infected dogs, collected at presentation and 15 days after treatment with imidocarb-dipropionate. Subsequently, dogs with *B. canis* were divided into two groups - with and without SIRS. Spectrophotometric methods were used to determine the activities of antioxidants (catalase, glutathione peroxidase, and paraoxonase-1) and the levels of oxidative damage parameters (malondialdehyde and thiol groups). **Results:** The activity of antioxidants was lower at presentation when compared to its activity after treatment. Interestingly, lipid peroxidation in erythrocytes was increased after therapy against babesiosis. There were no SIRS-associated differences among oxidative stress parameters. **Conclusion:** The results of the study revealed a disrupted antioxidant system in dogs with babesiosis that implicated the presence and persistence of oxidative stress in infected animals even after the treatment.



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**Keywords:** *Babesia canis*, SIRS, antioxidants, oxidative damage

**Reference:**

1. Saleh M. Erythrocytic oxidative damage in crossbred cattle naturally infected with *Babesia bigemina*. 2009. *Research in Veterinary Science*, 86:43-48.
2. Beletić A, Janjić F, Radaković M, Spariosu K, Andrić JF, Chandrashekar R, Tyrrell P, Radonjić V, Balint B, Ajtić J, Filipović, MK. 2021. Systemic inflammatory response syndrome in dogs naturally infected with *Babesia canis*: Association with the parasite load and host factors. *Veterinary Parasitology*, 291:109366.