

TITLE: INTERFERENCE OF *Mycobacterium avium* subsp. *paratuberculosis* IN BOVINE SEMINAL PARAMETERS

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ABSTRACT:

Mycobacterium avium subsp. *paratuberculosis* (MAP) is the agent responsible for Johne disease or paratuberculosis, characterized per chronic enteritis, leading to decreased production, culling of animals, reproductive disorders and susceptibility to other diseases, especially in ruminants. It has the antigen complex 85, consisting 85A, 85B and 85C proteins, present in the outer envelope, responsible for binding to the host cell fibronectin. However, we don't know about the interaction with spermatozoa and how this bacterium can alter these cells. Thus, this study proposed to determine characteristics of bovine spermatozoa in the presence of MAP as well as to study this interaction. Polyclonal antibodies, for use in the subsequent analyzes, were produced from MAP complex 85 proteins (85A and 85B) that were expressed, purified and inoculated in rabbits at three doses in 15-day intervals to obtain hyperimmune serum, then it was submitted to *Western blot* to confirm the presence of the antibodies. Two breeding bovines were used for semen collection. Seminal samples were incubated at 37 °C in water bath with a high MAP bacterial load (10^6 CFU/ mL), in the presence and absence of the antibodies, evaluating the motility and vigor observed at the 30 minute, 1, 3 and 5 hours. A seminal control sample was evaluated simultaneously. It was observed that bovine spermatozoa in the presence of MAP show a decrease in motility and vigor more pronounced when compared to the control. When antibodies were present (85A and 85B) these parameters remained similar to the control, suggesting that the presence of this bacterium may alter the viability of spermatozoa as well as MAP membrane proteins, 85A and 85B, may be related to MAP interaction/adhesion with sperm cells.

Keywords: Ruminants; paratuberculosis; complex 85; spermatozoa.

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