



## ***Besnoitia besnoiti* impact on fertility of cattle exploited in Mediterranean pastures (Alentejo)**

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*Besnoitia besnoiti* is a bovine parasite endemic in many tropical and subtropical areas whose prevalence in the Mediterranean countries such as Portugal seems to be increasing. Most infections are mild or subclinical, characterized by the formation of numerous cutaneous and sub-cutaneous microcysts, lowering the quality of skins for leather industry. Male sterility or impaired fertility is a common sequela in breeding bulls, and is one of the most negative aspects of the disease in animals that survive infection. Our objective was to investigate if asymptomatic Besnoitiosis leads to bovine infertility, by comparing seminal parameters pre and post-thawing, in vitro fertilization (IVF) and embryo rates between asymptomatic infected (n=3) and uninfected (n=5) bulls, exploited in an extensive production system in Alentejo-Portugal. Skin biopsies were submitted to histopathological analyses to identify *B. besnoiti* cysts in sires. Semen was collected by electroejaculation and sperm quality parameters before cryopreservation and after thawing were analyzed using ANOVA. The quality of semen collected from asymptomatic infected and uninfected bulls presented no differences before cryopreservation. From all the sperm post-thawed quality parameters evaluated (motility and hypoosmotic swelling test (Host); post-swim-up motility, activity, concentration and agglutination; fertilization and embryo rates) only post-thawed (51.0±36.3 vs 42.3±10.6%, P=0.05) and post-swim-up (36.3±18.8 vs 25.1±12.0 %, P=0.009) motility were significantly different between asymptomatic infected and uninfected bulls, respectively.

Semen from asymptomatic *Besnoitia besnoiti* infected bull may maintain fertilization ability although the presence of these animals in herds implies a potential transmission of the disease leading to further economic losses.

*Keywords:* *Besnoitia besnoiti*, *bovine besnoitiosis*, *infertility*, *Portugal*