RESUMO - PROTOZOÁRIOS E AGENTES TRANSMITIDOS POR VETORES DE IMPORTÂNCIA EM SAÚDE

MOLECULAR DETECTION OF ANAPLASMA MARGINALE IN DAIRY CATTLE ON A FARM LOCATED IN PIRAÍ-RJ

Olivia Zen Gianfrancisco (oliviazen.gianf@gmail.com)

Carolina Melo De Souza Nunes (carolmelodsn2@gmail.com)

Isabella Barbosa Oliveira De Macedo (isabellabomacedo@gmail.com)

Isadora Dos Santos Dias (isadorasdias100@gmail.com)

Jaqueline Lima De Miranda (jaque.miranda@outlook.com)

Daniel Yusa Dominguez Freitas (yusadaniel@gmail.com)

Tiago Lima Nogueira (14tiagolima17@ufrrj.br)

Argemiro Sanavria (sanavriasanavria@gmail.com)

Matheus Dias Cordeiro (mathcordeiro@hotmail.com)

Bruna De Azevedo Baêta (babaeta@ufrrj.br)

The conventional high-productivity animal farming system, aiming at greater profitability, faces challenges due to endo- and ectoparasites and resistance to antiparasitic drugs. Ticks of the species Rhipicephalus microplus and flies of the

species Stomoxys calcitrans, commonly found in Brazilian cattle herds, are vectors of the bacterium Anaplasma marginale, the primary agent responsible for bovine anaplasmosis and a key component of the disease complex known as Bovine Parasitic Sadness (BPS). These diseases cause anemia, loss of appetite, weakness, and subsequent declines in production and reproduction among cattle herds, sometimes resulting in death in severe cases. Another important transmission route to note is iatrogenic, due to the use of needles contaminated with the bacterium. This study aimed to conduct molecular detection of Anaplasma marginale agents in a conventional dairy cattle herd located in Piraí-RJ. Blood samples were collected from 109 dairy cows via the coccygeal artery, and each sample was stored in a tube containing ethylenediaminetetraacetic acid (EDTA). Subsequently, total blood samples underwent DNA extraction using a commercial kit (Promega®, USA), following the manufacturer's recommendations. To assess extraction efficacy, the obtained DNA was subjected to polymerase chain reaction (PCR) using primers targeting the GAPDH gene. Upon confirming DNA viability, the samples underwent another conventional PCR targeting the 23S rRNA gene of the Anaplasmataceae family, through the amplification of a 515 bp product. Only samples amplified for the 23S rRNA gene were subsequently subjected to a conventional PCR targeting the gene for the main outer membrane surface protein of bacteria in the genus Anaplasma, called MSP4, aiming to detect Anaplasma marginale through a final product with a molecular weight of 831 bp. Of the 109 samples tested for the 23S rRNA gene, 73 amplifications were observed, with a prevalence of 67%. Among the 73 samples tested for the MSP4 gene, 71 amplifications were observed, equivalent to 97% of the samples, indicating a high probability of Anaplasma marginale occurrence among the positive samples for Anaplasmataceae 23S rRNA in the studied herd. Literature data also demonstrate a high occurrence of this agent in Brazilian herds, suggesting that early diagnosis of this disease and vector control can help mitigate the damage caused by this agent.

Palavras-chave: anaplasma; bps; dairy cattle.