PREVALENCE OF BABESIA BOVIS, BABESIA BIGEMINA AND ANAPLASMA MARGINALE ASSESSED BY PCR IN THE DAIRY BOVINES OF PIAUI, BRAZIL

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Bovine babesiosis is caused by the hematozoa B. bovis and B. bigemina, whereas anaplasmosis is caused by an intra-erythrocytic rickettsia named A. marginale. These infections result in a complex of diseases known in Brazil as 'tick-borne disease'. These agents have the tick Rhipicephalus microplus as their main vector. The economic impact of this complex is a consequence of direct losses due to mortality and reduced production of meat and milk. Importantly, there are no epidemiological data regarding this disease in the State of Piauí (Brazil), and the disease is likely to be underdiagnosed in its main dairy basin. Therefore, this paper aims to report preliminary data on the prevalence of 'tick-borne disease' as determined by PCR in the dairy bovines of Piauí, Brazil. Samples were collected from 78 cattle from eight municipalities in the dairy basin of Parnaíba. Cattle were nine month-old, without distinction of sex. Four mL of blood were collected by puncturing the jugular vein into tubes containing 0.2 M EDTA for extraction of DNA with the Illustra® Blood GenomicPrep. For the detection of B. bovis and B. bigemina a standard PCR reaction was performed using the following primer pairs: GAU9 (F) 5’-CTGTCGTACCCTGTGGAC-3’ and GAU10 (R) 5’-CGCAACGGGAGGAGGACA-3’; and GAU7 (F) 5’-GTTGGTCCTTTTCGCTGCG-3’ and GAU6 (R) 5’-CCACGCTTGAAGCAGAGA-3’, respectively. In the case of A. marginale two pairs of primers were used for the performing a “nested” PCR, whose sequences were on the primary stage of reaction (PCR), Am9 (F) 5’-TTGAAGTTGGAAGTGCAGGT-3’ and Am10 (R) 5’-CCATATCGAATGCACCAAAC-3’ and for the second phase of the reaction (nested-PCR), the Am11 (F) 5’-CACATTTCTTGGAGCTGG-3’ and Am12 (R) 5’-TCTCTGAGCTTTGACCCG-3’. All reactions were performed at the Laboratory of Molecular Pathology (EV/UFMG). Samples that had an amplification product of 541pb for B. bovis, 685pb for B. bigemina, and 150pb for A. marginale, were considered positive. Thirteen (16.66%) out of the 78 animals studied were positive for B. bovis, 43 (55.12%) for B. bigemina and 36 (46.15%) were positive for A. marginale. Of all these 28 animals (35.9%) were co-infected with at least two agents. Overall, 52 (66.66%) of the animals studied is inserted in the complex bovine babesiosis and anaplasmosis. This preliminary study demonstrated that the dairy basin of Parnaíba is under a condition of enzootic instability. This study must be expanded to accurately determine the actual prevalence of this disease.