SUB-ÁREA: Diagnóstico Molecular, Bacteriológico e Sorológico da Leptospirose

Bovine leptospirosis in Caatinga biome, Brazil: New insights into diagnosis and epidemiology

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Bovine leptospirosis causes economic losses and raises public health concerns. It is possible that there are peculiarities in the epidemiology of leptospirosis in regions with a semiarid climate, such as the Caatinga biome in Northeastern Brazil, where the climate is hot and dry, and the etiological agent require alternative routes of transmission. This study aimed to close knowledge gaps to the diagnosis and epidemiology of *Leptospira* spp. infection in cows from the Caatinga biome. Samples of blood, urinary tract (urine, bladder and kidney) and reproductive tract (vaginal fluid, uterus, uterine tube, ovary and placenta) were collected from 42 slaughtered cows. Diagnostic methods included the microscopic agglutination test (MAT) using a collection of 24 serovars belonging to 17 different pathogenic serogroups of five species as antigens, polymerase chain reaction (PCR), as well as bacterial isolation. Anti-*Leptospira* spp. antibodies were found in 27 (64.3%) of the animals analyzed using MAT at a 1:50 dilution (cut-off 50), while 31 (73.8%) animals had at least one organ/fluid where the presence of leptospiral DNA was identified, and 29 (69%) animals were positive at bacteriological culture. The highest sensitivity values for MAT were obtained at the cut-off point of 50. The most frequent biological materials regarding *Leptospira* spp. DNA detection were placenta (13 out of 15 samples; 86.7%), uterus (17 out of 42 samples; 40.5%) and kidneys (14 out of 42 samples; 33.3%). Leptospiral DNA was identified in at least one microbiological culture in 19 (45,3%) animals, and the biological materials with the highest frequencies were uterus (eight/42; 19.1%) and placenta (two/15; 13.3%). Sequenced samples based on the *LipL*32 gene presented 99% similarity with *L*. *borgpetersenii*. In conclusion, even under hot and dry climate conditions, it is possible that *Leptospira* spp. can spread through alternative routes such as venereal transmission; moreover, a cut-off of 50 is recommended for the serological diagnosis of cattle from the Caatinga biome.

Keywords: *Leptospira* spp.; semiarid; serology; cut-off point; bacteriological culture; PCR.

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