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Molecular characterization of *Theileria orientalis* and *Anaplasma bovis* in Holstein cattle in the Republic of KoreaDu-Gyeong Han¹, Ji-Hyoung Ryu¹, Jeong-Byoung Chae², J S Chae², D H Yu³, J Park⁴, H C Kim⁵, B K Park⁶ and K S Choi¹¹Kyungpook National University, South Korea²Seoul National University, South Korea³Gyeongsang National University, South Korea⁴Chonbuk National University, South Korea⁵Kangwon National University, South Korea⁶Chonnam National University, South Korea

Tick-borne diseases (TBDs) lead to substantial economic loss to the livestock industry worldwide. In the present study, we investigated tick-borne pathogens (TBPs) in Holstein cattle from two different regions in the Republic of Korea (ROK). 151 blood samples (80 from Namwon and 71 from Jeju Island) were analyzed and the prevalence of TBPs before and after grazing were compared. Of the 151 blood samples, overall infection rates of *Theileria orientalis* and *Anaplasma bovis* were 26.5% (40/151) and 23.1% (3/13), respectively. In Namwon, two (5%, 2/40) and seven (17.5%, 7/40) cattle were positive for *T. orientalis* infection before and after grazing, respectively. In Jeju Island, *T. orientalis* infections were detected in 18 (31%, 18/58) and 13 animals (23.1%, 3/13) before and after grazing, respectively. All 3 cattle examined after grazing were co-infected with *T. orientalis* and *A. bovis*. Phylogenetic analysis revealed that our *A. bovis* isolates showed 99% homology with a Korean spotted deer isolate. This is the first report to identify *A. bovis* infection in Holstein cattle in the ROK. In addition, co-infection with *Chitose*, *Ikeda* and *Buffeli* of *T. orientalis* were observed in one animal after grazing. These results demonstrate that the incidence of *T. orientalis* and *A. bovis* infections increased after grazing. This study shows that the prevalence of TBPs is closely related to grazing and the seasonal activity of ticks. Further studies should focus on blood samples obtained from various climatic regions to identify the distribution of TBDs, as well as the association between these diseases and pathogenicity.

Biography

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