

## The detection of bovine coronaviruses in fecal and nasal specimens from cattle in Turkey

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Coronaviruses have been described in many mammalian species, including humans, and have gained prominence in zoonotic preserve viruses, especially after SARS-coronavirus (Severe Acute Respiratory Syndrome) and MERS-coronavirus (Middle East Respiratory Syndrome) outbreaks. Bovine infectious coronaviruses (BCoV), often have been described as an important cause of diarrhea, especially in newborn calves, in many countries including Turkey. Besides the newborn calves' diarrhea, BCoVs also causes digestive system infections (winter dysentery) and respiratory system infections in adult cattle. In this study, we aimed to investigate the presence of coronavirus as an aetiological agent in cattle with respiratory disorders or diarrhea and to analyze the relationship with other coronaviruses reported before. Therefore, 50 feces samples and 50 nasal swab samples from calves with diarrhea and adult cattle with respiratory disorders, respectively, were tested for the presence of coronavirus. Among the nasal samples and fecal samples, 5 (10%) and 8 (16%) were positive based on the

results for BCoV N gene by nested RT-PCR (Reverse Transcription-Polymerase Chain Reaction). Sequence analysis was performed via service procurement. Comparison analysis completed with the web tool NCBI-BLAST, BioEdit and MEGA-X programmes for phylogenetic analysis. Our results demonstrated that BCoV is a pathogen having a role in mentioned disorders alone or along with other possible viral or bacterial pathogens. The phylogenetic analysis of N gene region of detected BCoVs indicated that all of them were related to the reference strain Mebus. Further studies on the epidemiology and molecular characterization of different gene regions will provide a better understanding of the importance of BCoVs in these cases and the pathogenetic mechanism that provides sensitivity to different systems. Thus, the analysis of S gene, coding the protein which has several important functions during virus-host interaction are still continuing for BCoVs detected in this study.