

Comparison of Several Diagnostic Methods for Detecting Bovine Viral Diarrhea Virus Infection in Cattle

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Abstract : Bovine viral diarrhoea virus (BVDV) is one of the most important viral pathogens of cattle worldwide caused by Pestivirus genus, Flaviviridae family. The aim of the present study was to compare several diagnostic methods and determine the prevalence of BVDV infection for the first time in dairy herds of Fars province, Iran. For initial screening, a total of 400 blood samples were randomly collected from 12 industrial dairy herds and analyzed using reverse transcription (RT)-PCR on the buffy coat. In the second step, blood samples and also ear notch biopsies were collected from 100 cattle of infected farms and tested by antigen capture ELISA (ACE), RT-PCR and immunohistochemistry (IHC). The results of nested RT-PCR (outer primers OI100/1400R and inner primers BD1/BD2) was successful in 16 out of 400 buffy coat samples (4%) as acute infection in initial screening. Also, 8 out of 100 samples (2%) were positive as persistent infection (PI) by all of the diagnostic tests similarly including RT-PCR, ACE and IHC on buffy coat, serum and skin samples, respectively. Immunoreactivity for bovine BVDV antigen as brown, coarsely to finely granular was observed within the cytoplasm of epithelial cells of epidermis and hair follicles and also subcutaneous stromal cells. These findings confirm the importance of monitoring BVDV infection in cattle of this region and suggest detection and elimination of PI calves for controlling and eradication of this disease.

Keywords : antigen capture ELISA, bovine viral diarrhoea virus, immunohistochemistry, RT-PCR, cattle

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