

Rapid Diagnosis of Foot-and-mouth Disease Virus by Real-time PCR

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Background & Objectives: Foot-and-mouth disease virus is one of the Picornaviridae family and Aphthovirus genus. FMD is an economically important and highly contagious viral disease that affects cloven-hoofed domestic and wild animals. Rapid and accurate diagnosis is essential for effective control and prevention of foot-and-mouth disease virus. Use of new molecular techniques such as Real-time polymerase chain reaction in recent years have been paramount important. evaluating this technique for rapid detection FMD RNA during the outbreak in IRAN for the first time.

Methods: Selected 163 samples received from field were examined. A primers and TaqMan probe set specific for a highly-conserved region in FMD RNA IRES region was used. For specificity of the theses primers and probe were used Blue-tongue) BT (and Swine vesicular disease virus (SVDV) isolates RNA and for sensitivity of the rRT-PCR, 10-fold serial dilutions of Asia FMDV serotype were prepared.

Results: rRT-PCR Methods detected all seven serotypes of FMD virus from field samples. Only 4 samples were not detected by rRT-PCR that virus isolation has no detectable cytopathic effect. The detection limit of rRT-PCR was 1 TCID₅₀/ml and five subsequent dilutions up to 1 TCID₅₀ were scored positive by rRT-PCR assay, while detection of SVDV and BT isolates RNA was failed.

Conclusion: Monitoring of circulating FMD field types in Iran is important, therefore; this Methods rapidly requirement information for vaccine and control strategy would be available. As a result, the rRT-PCR assay can include a diagnostic rapid and sensitive Methods should be used in conjunction with current procedures for FMD diagnosis. Finally, other surveys must be focused on detection of specific-serotypes by rRT-PCR that has need to specific-serotypes primer/probe at these methods.

Keywords: Diagnosis; FMD Virus; Real-time PCR