

Abstract

Project Code : MRG6180017

Project Title : Evaluation of different avian embryonated eggs and cell cultures for efficient isolation and propagation of newly emerged duck Tembusu virus

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Project Period : 2 years

Abstract :

Duck Tembusu virus (DTMUV) has been identified as a causative agent of an emerging disease in ducks. Currently, DTMUV is widely distributed and becomes endemic in duck populations in Asia, causing significant economic losses to the duck producing industry. To early detect and control this emerging disease, the establishment of effective diagnostic methods, including host systems for virus isolation, is essential. In this study, various host systems, including different avian embryonated eggs (duck and chicken) and cell cultures (primary duck embryo fibroblast (DEF) cells, primary chicken fibroblast (CEF) cells, baby hamster kidney (BHK-21) cells, African green monkey kidney (Vero) cells and *Aedes albopictus* clone C6/36 (C6/36) cells), were evaluated and compared for their ability to support DTMUV isolation and propagation. Our results showed that all the host systems tested were susceptible to DTMUV infection; however, BHK-21 cells support more efficient replication of DTMUV compared to other host systems tested. In addition, BHK-21 cells had the highest DTMUV isolation rate when tested with experimental and field clinical samples. Notably, all circulating clusters of DTMUV, including DTMUV cluster 1, 2 and 3, were successfully isolated from duck clinical samples by using BHK-21 cells. In conclusion, our data support the use of BHK-21 cells as a host system for primary isolation of DTMUV from duck clinical samples. This study highlights the importance of selecting the most appropriate host system for efficient isolation and propagation of DTMUV from duck clinical samples.

Keywords : avian embryonated egg; cell culture; duck Tembusu virus; host system; virus isolation