

Adaptation and molecular characterization of two Malaysian very virulent infectious bursal disease virus isolates adapted in BGM-70 cell line

ABSTRACT

Two Malaysian very virulent infectious bursal disease virus (vvIBDV) strains UPM0081 and UPM190 (also known as UPMB00/81 and UPM04/190, respectively) isolated from local IBD outbreaks were serially passaged 12 times (EP12) in specific pathogen free (SPF) chicken embryonated eggs (CEE) by chorioallantoic membrane (CAM) route. The EP12 isolate was further adapted and serially propagated in BGM-70 cell line up to 20 passages (P20). Characteristic cytopathic effects (CPEs) were subtly observed at P1 in both isolates 72 hours postinoculation (pi). The CPE became prominent at P5 with cell rounding, cytoplasmic vacuoles, granulation, and detachment from flask starting from day 3 pi, up to 7 days pi with titers of $10^{9.50}$ TCID₅₀/mL and $\log_{10} 10^{9.80}$ TCID₅₀/mL for UPM0081 and UPM190, respectively. The CPE became subtle at P17 and disappeared by P18 and P19 for UPM0081 and UPM190, respectively. However, the presence of IBDV was confirmed by immunoperoxidase, immunofluorescence, and RT-PCR techniques. Phylogenetic analysis showed that these two isolates were of the vvIBDV. It appears that a single mutation of UPM190 and UPM0081 IBDV isolates at D279N could facilitate vvIBDV strain adaptability in CEE and BGM-70 cultures.