Emergence of tilapia lake virus in Thailand and an alternative semi-nested RT-PCR for detection

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Abstract :

Tilapia lake virus (TiLV) is an emerging virus that causes a disease in Nile Tilapia and Red tilapia. TiLV Infectious disease reduces tilapia and red tilapia production and exportation worldwide. Endemic areas of TiLV are Ecuador, Colombia, Egypt and also Thailand, which have resulted in 90% mortality after infection. Because of the severe disease after infection from TiLV, the identification of the virus in fish is very important to control the extreme spreading of the virus in Tilapia farm. Therefore, semi-nested RT-PCR technique was developed to detect TilV infection in Tilapia. The result showed that TiLV infection was found in Tilapia from different farms located in 3 regions of Thailand detected by semi-nested RT-PCR. The sensitivity of this semi-nested RT-PCR technique was high with the detection limit of 7.5 copy number of virus by using the pGEM-415 as the control template in the semi-nested RT-PCR reaction. From *in situ* hybridization, it was also revealed that TiLV was found in multiple tissues of virus including liver, kidney, brain, spleen, gill and connective tissue. The nucleotide sequence of gene segments 1, 5, 9 from TiLV isolated in Thailand was analyzed, and it was found that these gene segments had the nucleotide homology of 97% to those of TiLV discovered in Israel. The amino acid sequence encoded from these gene segments of TiLV isolated in Thailand also had the identity of 98% to those of TiLV discovered in Israel.

Keywords: tilapia lake virus, RT-PCR, Thailand