

魚類病毒性神經壞死症反轉錄聚合酶鏈反應方法建立及

優化試驗結果分析

生物組

鍾乃惠 助理研究員

摘要

魚類病毒性神經壞死症 (viral nervous necrosis, VNN)，又稱為病毒性腦病及視網膜病 (viral encephalopathy and retinopathy, VER)，是由屬於 β 野田病毒屬的神經壞死病毒 (*Nervous necrosis virus*, NNV) 引起的嚴重神經系統疾病。目前已知 β 野田病毒屬病毒可感染大多數海水養殖魚類，會引起一月齡以下的魚苗高度死亡，為影響全球海水養殖漁業的重大傳染病之一。本實驗參考世界動物衛生組織 (WOAH) 水生動物疾病診斷手冊中檢驗 NNV RT-PCR 方法，藉由調整試劑配方與反應溫度條件建立並優化檢測方法，成功提高該試驗敏感度與偵測極限值達一百倍以上。未來可供應用於現場疾病診斷、輸出水生動物檢疫檢驗和篩選無特定病原之健康魚苗及生物餌料，以協助農民減少因此病產生之經濟損失及提高養殖育成率。

Establishment of a nervous necrosis virus RT-PCR method and analysis of optimization test results

Nai-Hui Chung

Abstract

Viral nervous necrosis, also known as viral encephalopathy and retinopathy, is a severe neurological disease affecting fish. It is caused by the nervous necrosis virus (NNV) and the virus belongs to *Betanodavirus*. Betanodaviruses can infect the most aquaculture fish species, causing high mortality rates in fry younger than 1 month old. Therefore it is one of the main infectious diseases that demolishes the global aquaculture fishery industry. In this study, the NNV reverse transcription polymerase chain reaction (NNV RT-PCR) technique was established according to the Manual of Diagnostic Tests for Aquatic Animals of World Organisation for Animal Health (WOAH). The reagent formula and reaction temperature was modified to successfully establish an optimized test, which resulted in a significant increases in the sensitivity and detection limit by one hundred-fold. Onsite disease diagnosis, quarantine inspection of exported aquatic animals, and screening for specific pathogen-free fry and live feed organisms can utilize the developed method. This method has the potential to help farmers decrease economic losses caused by NNV and to enhance aquaculture yield.