

## Effective Removal of Tetrodotoxin with Fiber Mat Containing Activated Charcoal

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**Abstract :** From 2013, small eel farms, which are located in Han River Estuary, South Korea suffer damage because of unknown massive perish. In the middle of discussion that the cause of perish could be environmental changes or waste water, a large amount of unknown nemertean was discovered during that time. Some nemerteans are known releasing neurotoxin substance. In this study, we isolated intestinal bacteria using selective media and conducted 16s rDNA microbial identification by gene alignment. As a result, there was a type of bacteria producing TTX, blocks sodium-channel inducing organism's death. TTX production from the bacteria was confirmed by ELISA and liquid chromatography coupled with mass spectrometer. Additionally, the activated-charcoal which has an ability to absorb small molecules like toxin was applied to fibrous mesh to prevent ingestion of aquatic organisms and increase applicable area. The viability of zebrafish in the water with TTX and charcoal fiber mat were not decreased meaning it could be used for solving the perishing problem in fish farm.

**Keywords :** nemertean, TTX, fiber mat, activated charcoal, zebrafish

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