

FA DAN CA_Planktothrix

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The Potency of Toxic Cyanobacteria *Planktothrix agardhii* isolated from A Retention Pond in Palembang to *Cyprinus carpio* L: A Preliminary Study

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Abstract. Potential toxic filamentous cyanobacterium *Planktothrix agardhii* was detected to be dominated in one of the retention ponds located in Palembang city. It showed a persistent domination in the location during observations. This species is known to produce a toxin that potentially causes environmental health problems. Hepatotoxin, microcystin (the cyanotoxin most commonly detected in the freshwater environment) are known types of toxin that is produced by this species. Its potential produced toxin that is in concern. A preliminary study was conducted to study its potential toxic effect to fish (*Cyprinus carpio* L.); in this study, four different concentrations of *Planktothrix agardhii* biomass were used to study its effects to *Cyprinus carpio* L. gills. The results showed the higher the biomass concentrations (5,4056 x 10⁷ cells/ml), the shorter the length of time for the fishes to be dead (a 2-2 hours 15 minutes). The fishes also showed swimming behavior changes such as swimming direction and excessive mucus secretion. Histopathological changes of the fishes' gills that exposed to *Planktothrix agardhii*, compared to the un-exposed fishes (control) were observed such as edema, lamella gill hyperplasia, and necrosis.

Keywords: Cyanobacter; toxin; *Planktothrix agardhii*; *Cyprinus carpio* L; histopathology

1. Introduction

Cyanobacteria are one of freshwater phytoplankton that naturally parts of its community, however in a certain condition they can associate to eutrophication and water quality decline. Eutrophication in ponds frequently also associated with cyanobacterial blooms that can relate to cyanotoxins released into the water when the decomposition of algal cells occurred [1]. Some of the cyanobacteria released known toxins such as *Microcystis aeruginosa*, produce hepatotoxins such as microcystin-LR (MC-LR)

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














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