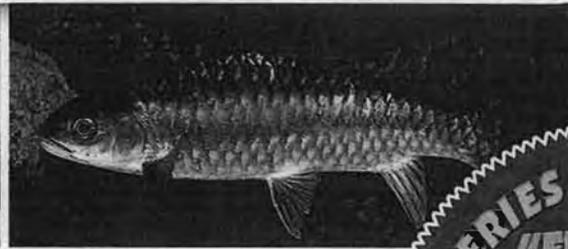




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Proceedings of the 5th National Fisheries Symposium 2008

Cyanobacterial Diversity in Selected *Tor tambroides* Cultivation Areas in Serian and Batang Ai, Sarawak

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Abstract: This study aims to assess cyanobacterial diversity in three types of *Tor tambroides* cultivation areas namely HDPE (High Density Polyethylene) layered ponds, earth ponds and cage culture in Serian and Batang Ai, Sarawak. The Sorensen's Quotient of Similarity (SQS) values were calculated and analyzed to determine the similarity in genera composition between stations. From 25 cyanobacteria genera recorded in all stations, 40% were categorized as potential toxin producers. The wide range of SQS value suggested that different types and location of ponds will have variation in physico-chemical properties of the water and lead to the different composition of cyanobacteria. Toxic cyanobacteria for example genera *Microcystis*, *Anabaena* and *Oscillatoria* may present risk of cyanotoxin bioaccumulation in fish tissues and posed hazards to aquatic animals and humans. Therefore, this research is essential in establishing baseline data on the freshwater cyanobacterial species that exist in different types of *Tor tambroides* cultivation areas. The data will be useful in risk assessment of the potential cyanotoxin contamination in water and bioaccumulation in *Tor tambroides*.

Keywords: Cyanobacteria, *Tor tambroides*, diversity, Sarawak

Introduction

Cyanobacteria occur in almost all living conditions within the lithosphere, hydrosphere or atmosphere thus making it ubiquitous. It has the ability to fix nitrogen making soil and water bodies suitable for agriculture (Bold & Wynne, 1985), source of food for human and animals (Sze, 1998) and the proliferation of cyanobacteria will effect animals and humans if it consists toxins (Skulberg *et al.* 1993). According to Carmichael (1998), freshwater cyanobacteria have higher tendency to produce toxic bloom compared to marine species. Cyanobacterial toxins can be accumulated in fish tissue (Tencalla *et al.*, 1994) through food chain. This fishes cannot avoid the ingestion of this toxin such as those in aquaculture ponds (Magalhaes *et al.* 2001).

Preliminary study on cyanobacteria composition had been carried in aquaculture ponds in Serian (Ramlah, 2005) and this work had shed some lights on diversity of cyanobacteria in selected Sarawak aquaculture ponds. However, if comparison is made between number of studies and data collected with the large number of aquaculture ponds in Sarawak, one may say that the knowledge about cyanobacteria with respect to their diversity is very limited.

This paper served as an update on cyanobacteria research in Sarawak aquaculture ponds. This short project was carried out during November 2007 and