

ACUTE EFFECT OF ANATOXIN-A PRODUCING CYANOBACTERIA ON JUVENILE FISH *CYPRINUS CARPIO*

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Due to certain physiological characteristics, Cyanobacteria may form intense blooms in aquatic environments. The increase of eutrophication in fresh water bodies worldwide has caused these blooms to be more frequent. Because some cyanobacteria can produce toxic metabolites, ecotoxicological and health risks are of concern among environmentalists and health authorities. Anatoxin-a is one of the many toxins that can be produced by cyanobacteria. It is a potent neurotoxin (LD50 i.p. mouse 200 – 250 µg/Kg) known to be produced by several cyanobacterial genera: *Anabaena*, *Cylindrospermum*, *Aphanizomenon*, *Oscillatoria*, *Phormidium*, *Planktothrix*, *Raphidiopsis*, and *Arthrospira*). In birds and mammals, anatoxin-a mimics acetylcholine but it is not degraded by acetylcholinesterase thus causing over stimulation of the muscles. When respiratory muscles are affected the animals may die from suffocation. In respect to aquatic organisms such as fish, there are very few studies investigating the mechanism of action of anatoxin-a and its ecotoxicological effects. In this experiment we subjected common carp (250 mg) to freeze-dried cells of one toxic strain of the cyanobacterium *Anabaena sp.* After a 4 day period. Two different cell densities were assayed (10^5 and 10^7 cell/ml) and registers of death and anatoxin-a concentration in the water and in the whole fish were measured. In the higher concentration 100% of the fish died between 26 and 28 h after exposure to the cells. Whereas in the 10^5 concentration no deaths were observed. Levels of anatoxin-a in the whole fish were determined by HPLC (High Performance Liquid Chromatography) after SPE (Solid Phase Extraction). Levels of anatoxin-a in the whole fish ranged between 31.465 ng/g dw at the 10^5 cell/ml concentration and 768 ng/g dw at 10^7 cell/ml.