

QUALITY OF MUSCLES IN NILE TILAPIA (*OREOCHROMIS NILOTICUS*) IN DEPENDANCE ON ACCUMULATION AND DEGRADATION OF MICROCYSTINS IN MUSCLES AND THE LIVER

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The aim of this study was to investigate kinetics of accumulation and elimination of microcystins in the tissues of Nile Tilapia and evaluate the effect of cyanobacteria developing under natural conditions on the composition of fish muscles. Experimental fish were exposed to natural cyanobacterial water blooms (mainly *Microcystis aeruginosa* and *M. ichthyoblabe*) which contained microcystins (total concentration 1187 - 1211 µg/g DW, concentration in water 17.4 - 25.4 µg/l). After four-week exposure, fish were transferred to dechlorinated potable water for another four-week period modelling thus their preparation for consumers. Samples of the liver and muscles were collected every week during exposure and subsequent period of stay in dechlorinated potable water. Microcystin concentrations increased with the exposure duration, the highest concentrations (determined with HPLC-MS) were detected in the hepatopancreas (up to 380 ng/g⁻¹ fresh weight - fw), concentrations in the muscle were generally below the detection limit (2 ng/g fw), and the highest concentration determined in the fish muscle was 15 ng/g fw. The cyanobacterial water bloom had only little effects on the muscle composition (dry matter, content of proteins, fats, and ash, spectrum of amino and fatty acids), and few statistical significant changes in comparison with control fish were found. This study indicates that toxic cyanobacteria that often grow in the environment of commercially produced fish do not affect the dietetic value of Nile Tilapia muscles. On the contrary, our previous studies with Common Carps and Silver Carps showed that composition of the muscle was affected by toxic cyanobacteria indicating thus high species-specific sensitivity of different fish.

Keywords: amino acids, fatty acids, blue-green algae, bioaccumulation

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