



# Effect of polychlorinated biphenyls on oxidation stress in the liver of juvenile GIFT, *Oreochromis niloticus*

Y. Zheng<sup>1,2</sup>, L.P. Qiu<sup>1</sup>, S.L. Meng<sup>1</sup>, L.M. Fan<sup>1</sup>, C. Song<sup>1</sup>, D.D. Li<sup>1</sup>, C. Zhang<sup>1</sup> and J.Z. Chen<sup>1,2</sup>

<sup>1</sup>Freshwater Fisheries Research Center, Chinese Academy of Fishery Sciences, Scientific Observing and Experimental Station of Fishery Resources and Environment in the Lower Reaches of the Changjiang River, Wuxi, China

<sup>2</sup>Wuxi Fisheries College, Nanjing Agricultural University, Wuxi, China

Corresponding authors: Y. Zheng / J.Z. Chen

E-mail: zhengy@ffrc.cn / chenjz@ffrc.cn

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**ABSTRACT.** The present study clearly showed that chronic exposure to polychlorinated biphenyls (PCBs) at environmentally relevant concentrations can damage juvenile tilapia livers by modulating antioxidant enzyme activities and gene transcription, which affects toxic bioaccumulation and histological congestion. The results suggest that PCBs caused a decrease in the activity of some hepatic antioxidative and biotransformation enzymes (SOD, CAT, GST, T-GSH, and MDA) in tilapia at 7 days, as well as transcriptional changes (*sod*, *cat*, and *gst*). Except for some antioxidant parameters (T-GSH, GSH/GSSG, T-AOC, and MDA), significant declines and increases occurred at 14 and 21 days, respectively. Most of the antioxidant enzymatic signatures and genotoxicity significantly increased at 14 and 21 days. This study

presented evidence that PCBs could result in hepatic toxicity through oxidative stress in the early growth stages of tilapia, and we speculated that oxidative stress plays an important role in embryonic developmental toxicity induced by PCBs.

**Key words:** Antioxidative enzyme; Genotoxicity; *Oreochromis niloticus*; Oxidation stress; Polychlorinated biphenyls