

## 缺鋅對雜交吳郭魚細胞色素 P4501A 活性之影響

黃俞璇<sup>1</sup>、侯如鴻<sup>1</sup>、王明雄<sup>1\*</sup>

<sup>1</sup>嘉南藥理科技大學 保健營養系

本研究主要探討缺鋅對雜交吳郭魚肝臟的細胞色素 P4501A (cytochrome P4501A, CYP1A) 活性的影響。吳郭魚隨機分為缺鋅組 (zinc-deficiency group) 及對飼組 (pair-fed control)，分別餵食缺鋅飼料 (5 mg Zn/ kg 飼料) 及基礎飼料 (46 mg Zn/ kg 飼料)。經八週的飼養實驗後，缺鋅組之吳郭魚血漿中的鋅濃度則明顯低於對飼組。缺乏鋅造成吳郭魚肝臟中 CYP1A 相關的 aryl hydrocarbon hydroxylase (AHH) 及 ethoxyresorufin-O-deethylase (EROD) 之酵素活性均有下降的趨勢。另一方面，以西方免疫分析吳郭魚 CYP1A 蛋白質，結果發現鋅的缺乏亦會造成吳郭魚 CYP1A 蛋白質的合成受到影響而減少。由此結果推測鋅的缺乏會影響吳郭魚 CYP1A 的表現。

關鍵詞: 細胞色素 P4501A, 吳郭魚, 鋅

E-mail: jeffreyw@mail.chna.edu.tw

## Effect of zinc deficiency on cytochrome P4501A (CYP1A) activity in hybrid tilapia (*Oreochromis niloticus* x *O. aureus*)

Yu-Hsuan, Huang, Ru-Hong, Hou, Ming-Shyong Wang

<sup>1</sup> Department of Health and Nutrition, Chia-Nan University of Pharmacy and Science, Tainan, Taiwan, R.O.C.

We investigated the effects of zinc deficiency on cytochrome P4501A (CYP1A) in hybrid tilapia. Fish were randomly assigned to one of the two dietary groups: (i) zinc-deficient (5 mg Zn/ kg diet) ; (ii) pair-fed control (46 mg Zn/ kg diet) for the zinc-deficient group. Each of the diets was a modified egg-white-based diet containing the same nutrients, but differed in the amount of zinc. After 8 weeks of the zinc-deficient diet, a decrease plasma zinc concentration was observed in the zinc-deficient fish. Zinc-deficiency resulted in decreased aryl hydrocarbon hydroxylase (AHH), ethoxyresorufin-O-deethylase (EROD), Moreover, Western immunoblot analysis using CYP1A antibody revealed an inhibition of CYP1A protein synthesis in zinc-deficient fish at 8 weeks. The results of this study suggest that CYP1A are affected by zinc deficiency in hybrid tilapia.

Key word: Cytochrome P4501A (CYP1A), tilapia, Zinc

E-mail: jeffreyw@mail.chna.edu.tw