

The Effect of different concentrations of ammonia on histomorphometry of kidney and some blood factors of Nile tilapia, *Oreochromis niloticus*

Azadeh Nochalabadi¹, Hassan Morovvati^{2*} and Rahim Abdi³

¹ PhD Graduate of Histology, Department of Basic Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

² Professor, Department of Basic Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

³ Professor, Department of Marine Biology, Faculty of Marine Sciences, Khorramshahr University of Marine Sciences and Technology, Khorramshahr, Iran

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Abstract

In the present study, *Oreochromis niloticus* juveniles were exposed to 10, 20, and 30% (96h LC50) of ammonia for two weeks. After this period, the fish were anesthetized and blood samples were taken from the caudal peduncle with a heparin-coated syringe to evaluate blood parameters. The 0.5 cm samples of the kidney tissue were taken, fixed in 10% formalin buffer, and after dehydration with alcohol, clarification with xylol, blocking with paraffin and cutting 4-6 microns thick with a microtome. Finally, the stained slides were studied with a light microscope. The results showed an enlarged Bowman's capsule, hyaline accumulation, epithelial detachment, increased melanomacrophage centers, necrotic glomeruli, and tubules in the kidneys after ammonia exposure. In the studies of blood serum factors with the increase of ammonia, cholesterol and BUN compared to the control and other groups. As the ammonia concentration increased, the severity of the lesions also increased. Therefore, ammonia causes changes in the structure and activity of some factors of the kidneys, which must be controlled by creating the appropriate ammonia and management conditions in the aquatic environment.

Keywords: Histomorphometry, Ammonia, *Oreochromis niloticus*, Kidney

* **Corresponding Author:** Hassan Morovvati, Professor, Department of Basic Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran
E-mail: hmorovvati@ut.ac.ir



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