

Histomorphology of excretory kidney of, Common carp, *Cyprinus carpio* during different salinity adaptation

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Abstract

In this research, excretory kidney of, Common carp, which is a very important Warm water fish species, has been studied under various environmental salinity changes. This research was conducted to find out how *C. carpio* can resist without changes in structure and damage of tissues, especially the cells involved in osmotic regulation of kidney against different salinity. For this purpose, 120 specimens of common carp were placed for 2 weeks in saline treatment with 4ppt, 8ppt, 12ppt and freshwater as a control treatment with three replications. For histomorphology studies, samples were taken at a maximum thickness of 0.5 cm. After fixation in 10% formalin buffer, the routine procedure of tissue preparation was done and sections of 4-6 μm thickness stained with Hematoxylin and eosin. In microscopic studies excretory kidney including nephrons and glomerulus were seen scattered throughout of this organ. Urinary tubules were seen as, proximal and distal convoluted tubules and collecting ducts. In histometric studies, during the period of adaptation with different Salinities, the highest number and diameter of glomeruli were seen in 12ppt salinity and the lowest was seen in 8ppt and 4ppt. On the other hand, the highest number and diameter of collecting ducts were observed in the control treatment and the lowest was for 12ppt and 8ppt Salinities. Also, the maximum and minimum thickness of the muscle layer of collecting tubes belonged to salinity 4ppt and 8ppt. Therefore, according to the results, it can be concluded that the tolerance and adaptability of *C. carpio* are high to the salinity changes due to rapid changes in the tissue and physiological structure of the kidney for osmoregulation. So, the species has been able to adapt to the changes in its environmental salinity and to survive.

Keywords: Excretory kidney, *Cyprinus carpio*, Histomorphology, Salinity, Adaptation

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