

**HISTOLOGICAL AND ULTRASTRUCTURAL EVIDENCES OF  
CHROMAFFIN CELLS AND INTERRENAL TISSUE IN THE HEAD  
KIDNEY OF *OREOCHROMIS NILOTICUS* AND *EPINEPHILUS  
TUVINA* (TELEOSTS)**

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**ABSTRACT**

This work presents the structure and ultrastructure of the chromaffin cells (CCs) and the interrenal tissue (It), as well as the morphology of the head kidney of the fresh water fish, *Oreochromis niloticus* and the salt water fish, *Epinephilus tuvina*. The head kidney is composed of fused bilateral lobes located anterior to the swim bladder and ventrolateral to the spinal cord. The parenchyma revealed lympho-haemopoietic tissue, melano-macrophage centre, chromaffin cells and interrenal tissue.

Chromaffin cells were found in small groups under the endothelium of the posterior cardinal vein and its branches (PCVs) closely associated with the interrenal tissue. Ultrastructural analysis confirmed the existence of two main types of chromaffin cells, distinguished on the basis of different types of secretory granules. The first type is characterized by the presence of vesicles with spherical and strongly electron-dense core granules, which are eccentrically located. Such cells were interpreted as noradrenaline cells. Meanwhile, vesicles that were completely electron-lucent or containing small less dense granules with small halo separating the granule from the vesicular limiting membrane were identified as adrenaline cells.

The interrenal tissue consisted of cords or strands of cells grouped around the posterior cardinal vein and their branches and interposed with the haemopoietic tissue. Ultrastructure analysis has revealed only one interrenal cell type which contains abundant sER and numerous mitochondria with tubulo-vesicular cristae, characteristics of a steroid producing cell. High innervation of the chromaffin cells was clearly demonstrated in *E. tuvina*. Many unmyelinated axons emerged from nerve bundle invading the clusters of chromaffin cells in *E. tuvina*. Nerve endings were attached to the chromaffin cells by synaptic junctions and were invaginated into the cell.