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# Light- and electron-microscopic studies of olfactory organ of Red-tail shark, *Epalzeorhynchus bicolor* (Teleostei: Cyprinidae).

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## Abstract:

Olfaction plays a major role in various life activities of fish. The present study describes for the first time the gross morphology, histology, histochemistry, surface architecture and ultrastructure of the olfactory epithelium of Red-tail shark. It possessed a pair olfactory rosette, connected to the external by two nasal openings. The olfactory rosette was oval in shape, consisted of 45,48 lamellae. The lateral surface of olfactory lamella is covered with sensory epithelium, whereas the non-sensory area restricted mainly at the margin of the lamellae. Sensory epithelium contained ciliated, microvillous olfactory receptor cells (ORCs), crypt and rodlet cells. In addition to the presence of basal and microvillous supporting cells. The non-sensory epithelial cells were consisted of rodlet cells and stratified epithelium. The later was divided into ciliated and non-ciliated cells. Neuromasts were found in the apical third of the lamellae. Histochemistry of the olfactory epithelium revealed presence of PAS-positive granules in cytoplasm of rodlet cells were, while the ruptured ones stained strongly with PAS, AB and Sudan black B. The apical portions of supporting cells were stained with PAS and AB. Grimelius Silver method showed positive reaction of ciliated, microvillous ORCs, crypt and rodlet cells. Red tail shark seemed to have an acute sense of smell and depend mainly on the olfactory organ in detection of food and this study is important for future studies on behavior of this species. The functional significance of all olfactory epithelial cells was discussed with special references to stages and role of rodlet cells.

## Keywords:

Olfactory epithelium *Epalzeorhynchus bicolor* Histochemistry Histoarchitecture Ultrastructure

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