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SPECIFICS OF MICROSCOPIC STRUCTURE OF SOME FISH SPECIES FINS

B. Borisevich, A. Ayshpur, K. Gribenic

National university of life and environment sciences of Ukraine, Kyiv

Summary

The results of the study of the microscopic structure of the thoracic, abdominal and dorsal fin of perch, roach and carp. Established that the microscopic structure of the various fins generally the same as within the same species of fish and different investigated fish species. Bone tissue that forms fin bones of perch, roach and carp, does not contain osteocytes. Between bones tissue of the fin which connects adjacent bones has dense fibrous cord of connective tissue in the center that is surrounded on two sides of the dermis, then - the skin, covered by an unidentified cells.

Fish, perch, roach, carp, fins, microscopic structure.

Introduction. Fish farming is one of the perspective sectors of agriculture in our country. Diseases of different etiology cause significant losses at this area [4]. Fighting these diseases includes necessity to have the most complete picture of their pathogenesis. However, at present, little is known about fish of different species physiology. In addition, it is very superficially studied anatomy and microscopic structure of various organs and tissues [2].

Analysis of recent publications. In the available world literature microscopic structure of fish fins of different species is not described [2, 3]

The purpose of research. We set out to study the microscopic structure of perch, roach and carp fins.

Material and methods. For research was used the thoracic, abdominal and dorsal fins of 7 freshly caught clinically healthy perch, 9 freshly caught clinically

healthy roach and 6 freshly caught clinically healthy carp. For the histological studies fins were fixed in 5%, neutral aqueous solution by prescription of Lilly formalin, decalcificated with 10% solution of EDTA, dehydrated in ethanols of increasing concentrations and through chloroform embedded in celoidin-paraffin. Slices thickness of 4 – 6 microns obtained using sleigh microtome painted with haematoxylin and eosin Karatsi [1].

Results. During histological studies of perch, roach and carp fins, we have found that the microscopic structure of the thoracic, abdominal and dorsal fins generally is the same within one fish species and in different investigated species. Differences between the fins in different species and between different fins in each of species manifested in size and proportion of different morphological components of fins.

Throughout its length, each fish fin of investigated species is presented with thin bony spines, which are connected by strips of heterogeneous microscopic structure tissue. We have found differences in the microscopic structure of the fins in their different parts. Directly under the skin every fin bone is constructed of two separate arcs of bone tissue that form an oval structure, completed inside with other tissues.

Bone tissue of each fin bones represented with laminated bone that, however, has microscopic structure peculiarities. Outside bone is covered with periosteum, in which are not often located osteoblasts. Tightly packed bony plates arranged concentrically and form distinct layers that are clearly differentiated by the nature of their painting.

The outer layer of bony plates is painted weakly basophilic. Behind it is located oxyphilic layer of bony plates. After that, inside fin bone is more basophilic layer of bony plates. A characteristic feature of fin bones is the lack of osteocytes and osteoblasts in all layers of the bone.

Inside the oval bone structure is fibrous connective tissue and fibrous cartilage, which are closely related to each other and form a single structure. From this structure in two laterally spaced intervals between the bony arches goes relatively

thick strands of fibrous connective tissue that outside woven into the muscle tissue, which enables movement of fins in the right direction.

Each fin bone at this level is connected to the adjacent bones relatively thick strands of fibrous connective tissue.

In the higher parts, microscopic structure of fins is different. Bone tissue of each fin bone also presented with lamellar bone that is formed by two laterally spaced bony arches, slits between them, as opposed to areas directly under the skin, posted cranial and caudal. Inside the oval bone structure is also fibrous connective tissue and fibrous cartilage, which are closely related to each other and form a single structure.

From this structure goes between bone tissue part of fin connecting adjacent bones. This tissue in all fins of all investigated species of fish presented fairly thin strip that forms the periodic bumps and has a characterized microscopic structure. Through centre goes not thick, but very tight cord of dense fibrous connective tissue that is surrounded from two sides with dermis. Derma of fin, in contrast to the dermis of the skin of fish presented loose and dense fibrous connective tissue, which we think is due to the increased kinetic load on the fins while fish moving.

Over the dermis is layer of the epidermis that, unlike the epidermis of fish body built only two layers - the basal and superficial. Outside the epidermis is covered by an unidentified by us substance and not identified line of cells. An unidentified substance is painted subtle and has very mild basophilic properties. Not identified cells have the appearance of elongated spindle with a subtle painted cytoplasm and elongated fusiform nucleus. The latter has weakly basophilic properties.

Conclusion.

1. Bone tissue that forms fin bone of perch, roach and carp does not contain osteocytes.

2. Between bone part of fin that connects adjacent bones in the centre has cord of dense fibrous connective tissue that is surrounded on two sides with dermis, then - skin, covered by an unidentified cells.

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