

Commentary

Scales: Dermal Structures of Fish

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Description

Scales are little plate-molded dermal or epidermal structures that are found in the external skeletons of fish, reptiles, or a few well evolved creatures. The skeletons of numerous vertebrates are covered by two sorts of scales, specifically epidermal and dermal. Epidermal scales start from the malpighian layer of the epidermis. Such scales are found in earthly vertebrates like reptiles, birds and warm blooded animals. Thereafter, dermal scales rise up out of the mesenchyme of fish. Such scales are comprised of little, flimsy, prickly and squashed or hard plates that stick near one another. The external skeleton of a fish is called scales.

The body of an ideal fish is covered by thin scales. The scales create as outside developments of the epidermis or skin. The epidermis contains various bodily fluid cells. These cells discharge bodily fluid or ooze, which prevent parasites, fungi, microorganisms, and so forth from entering the skin without any problem. Most fish bear scales. Agnatha and catfish have no scales. Some fish, particularly paddle fish (*Polyodon*), Mirror carp (*Cyprinus carpio*) have incomplete scales. Other fish, for example, trout and freshwater eel have exceptionally little scopes. Scales cover the greater part of the body and shield the skin from injury. The scales contain variety of pigments that give the fish an assortment of shadings. The scales structure a sidelong line in the body of the fish at the edge of the body and play a significant part in recognizing vibrations in the water as it goes about as a tangible receptor.

Placoid scales

These scales are discovered uniquely in cartilaginous fish (*Chondrichthyes*) yet are missing in the subclass Holocephali. The scales cover the skin like sand grains. Placoid scales are orchestrated in various columns separately to frame the external skeleton. At the lower part of each scale is a base plate and a sharp thistle emerging from the base. This thistle is bended in reverse. Accordingly, the scales shield the skin from rough wounds. Each base plate is comprised of calcium-rich tissues. Thorny structures are embedded into the dermis with the assistance of sharp's strands and different filaments. The fork is comprised of dentin with a lacquer covering outwardly.

Cosmoid scales

No such live fish can be found. The scales were available in the body of certain Ostracoderms, placoderms, and wiped out sarcopterygian. There are four levels in this scale. Outwardly of the scales is a polish like slender and hard vitrodentin layer, beneath this layer is a hard and non-cell cosmin layer, within the grandiose layer is the isopedine layer, which comprises of the duct and the ossicular layer. The development of these scales happens towards the edge. It doesn't develop here on the grounds that there are no living cells at the base. On account of lung fish, the first cosmoid structure has changed to cycloid scales.

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Ganoid scales

Ganoid scales comprise of thick, ordinarily jewel molded plates. The rooftop likewise has tile-like scales connected next to each other to frame a hard covering. Now and again, the scales cover. Such scales are found in Chondrostian (*Polypterus*, *Acipenser*) and Holostian (*Lepisosteus*) fish. One of these fish is called ganoid fish. Pelioniscoid ganoid scales exist in the bichir (*Polypterus*). These scales comprise of a lacquer like ganoid layer outwardly, a dentin-like cosmin layer on the center, and a hard isopodine layer within. Lepidostoid ganoid scales are available in *Lepisosteus*. The scales have ganoin outwardly and isopedine within. These scales increase in all directions.

Cycloid scales

Such scales are found in lungfish, some Holosteans and non-teleostean like carp (*Cypriniformes*), hilsa (*Clupeiformes*) and cod (*Gadiformes*). Such scales comprise of round plates. The focal point of these scales is known as the core interest. Numerous concentric round development lines can be seen from the core interest. The upper piece of these development lines is comprised of flimsy hard and the lower part is comprised of sinewy connective tissue.

Ctenoid scales

Such scales can be found in current progressed teleostean fish like roost (*Perciformes*), sunfish, and so forth. The shape, surface and beautification are actually similar to cycloid scales. In any case, there are little thorns (*cteni*) in the open posterior. This is the reason this kind of scales is called ctenoid scales. These scales are all the more solidly joined.

Conclusion

The significance of scales in fish characterization is monstrous. The quantity of scales fluctuates from one animal category to another. Along the parallel line of the fish, lines of scales above and underneath it are utilized to recognize family, genera, and species in chain of command. The thistle that is framed by the change of scales assumes a significant part in fish self-protection and food chasing. Moreover, the scales shield the fish from parasites as a defensive covering. Various kinds of fish scales and their shading assist the fish with adjusting in various conditions. As the water is impermeable, water from the supply helps in controlling the invasion by entering the body of the fish or releasing water from the body into the repository.