

## Scanning Electron Microscopical Study of the *Aphanius dispar* (Rüppell 1828) (Pisces: Cyprinodontidae) Scales

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Most of the bony and cartilaginous fish possess scales that are found on the outer part of their skin. They are found in both marine and freshwater fish. The scales vary in their size and structure. There are several different types of fish scale. Some of the scale types are placoid, cosmoid, ganoid and cycloid/ctenoid [1]. Each type of scale has its own characteristics. Some circuli have spines on their surfaces, whereas others have smooth surface. The main functions of the scales are protection, age determination, some may indicate environmental effect and fish classification.

*Aphanius dispar* (Rüppell 1828), is a freshwater fish which is widely distributed in the fresh and brackish water of the Middle East. It has the ability to cope with different environmental conditions. This study is aimed to look at the ultrastructure of the *Aphanius dispar* scales using scanning electron microscope.

*Aphanius dispar* fish were collected from Wadi Tewi (Latitude: 22° 49' 42 N, Longitude: 59° 15' 30 E) Oman and brought into the Department of Biology laboratory and were kept in aquaria. The fish were acclimatized to the laboratory conditions for two weeks in the glass aquaria filled with aerated tap water. They were feed twice a day with Tetramin Flakes. The fish were sacrificed and the skin was dissected out and fixed in Karnovsky's buffered with sodium cacodylate to a pH of 7.4 for four hours and then cut into small pieces. The tissue were washed in cacodylate buffer and then post-fixed in 1% aqueous solution of osmium tetroxide for 1 hour and processed for scanning electron microscopy. The tissue were mounted on stubs and dried using critical point dryer. The specimens were coated with gold using low vacuum sputter coating. They were examined using SEM (JEOL 5600 LV-low vacuum).

The fine structure of the scales of the *Aphanius dispar* was observed under scanning electron microscopy. The scales have circular appearance shape (Figure 1). They possess circles called circuli (Figure 2). The circuli are arranged in rows. There is a space between the circuli which is called intercircular space. The circuli are made up of elevation (microridges). The surface of the elevations (microridges) is smooth and does not show any spine like or finger like projections. The circuli are rounded structures like balls (Figure 3).

Since the circuli of the cycloid scales have smooth elevations (microridges), on their surfaces, this study can conclude that the *Aphanius dispar* scales is of cycloid scales type.

## References:

- [1]. Jawad, LA. (2005). *Tuhinga* **16** (2005)137–167

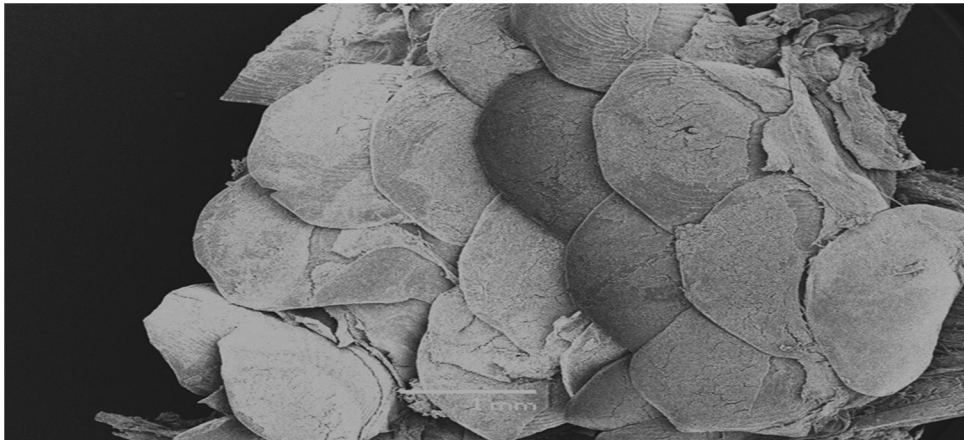


Figure 1. SEM micrograph of the general view of *Aphanis dispar* scales.



Figure 2. SEM micrograph of the scales showing the arrangement of microridges in parallel lines called circuli.

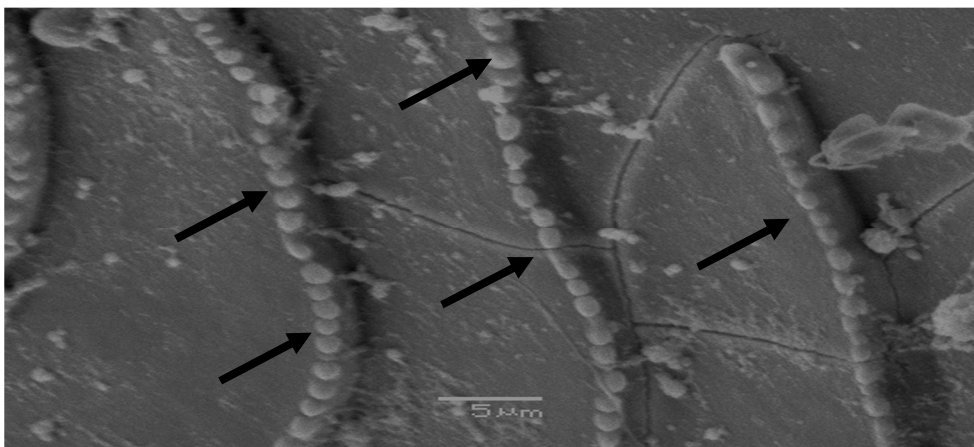


Figure 3. SEM micrograph of a scale showing circuli microridges arranged in rounded structures like balls (arrows).