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The pore system of shells of freshwater and marine mussels

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The peculiarities of structure and arrangement of the shell pores in 12 species of Unionidae, Pectinidae, Solenidae, Tellinidae, Ostreidae, Veneridae are described. Pores of elliptical shape dominate. They are situated at the level of inner surface of the valve. SEM examination showed that some species possess additional formations, fringing the pores and shaped as semicircles, narrow fissures, and raised edges. Certain differences in height/width index of the pores of different genera of Unionidae have been found.

Поровая система раковин пресноводных и морских двустворчатых моллюсков

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Описаны особенности строения и расположения пор раковин 12 видов Unionidae, Pectinidae, Solenidae, Tellinidae, Ostreidae, Veneridae. Преобладают поры элиптической формы. Они располагаются на одном уровне с внутренней поверхностью створки. У ряда видов обнаружены и дополнительные образования, окаймляющие поры (их наличие определено с помощью электронного сканирующего микроскопа) в виде полуколец, узких щелей, приподнимающихся краев. Установлены отличия в индексе (высота/ширина) пор между различными родами Unionidae.

The first data on the pore system of calcified layers of the bivalve shells were obtained by Schroder [1907], who discovered it in Sphaeriidae (*Musculium lacustre*). Further use of electron microscopy made it possible to reveal pores and proceeding canals, traditionally called tubuli, in shells of Pisidioidea and Unionidae [Rosso, 1954; Dyduch-Falniowska, 1983; Alekseev, 1987; Adler, Fiechtner, 1991; Araujo, 1992; Izzatulaev, Korniushin, 1993] and in marine chitons [Boyle, 1976; Sirenko, 1992], scaphopods [Ivanov, Memmi, 1989], bivalves [Omori, Kobayashi, 1963; Waller, 1980; Matsutaro,1980; Tiu, Prezant, 1989; etc.]. However, shapes (and sizes), the arrangement of pores and their density, as well as peculiarities of the canals in Unionidae, Pectinidae, Solenidae, Tellinidae, Ostreidae, Veneridae are still very poorly known.

Shells of 5 species of marine bivalves (Pectinidae — 1, Solenidae — 1, Tellinidae — 1, Ostreidae — 1, Veneridae — 1) and 7 species of freshwater bivalves (Unionidae — 3, Anadontinae — 4) were collected by the authors in continental waters of Ukraine and also in the Black Sea and the Sea of Azov in 1964-1994.

Samples for the investigation were taken from the shell umbonal parts. The splits were fixed on stubs with XC-12 paste. The platinum coating (20 nm thick) was applied with the FINE COAT installation. Measurements were made on the photos made with JEM 2000 FX II scanning electron microscope (Figs. 1, 2).