

Comparative morphology of parenchymal cells in acoelomorpha and plathelminthes

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Abstract

© INVERTEBRATE ZOOLOGY, 2017. Parenchyma is one of the important morphofunctional features of the organization of Acoela and Plathelminthes. It plays a main role in many physiological processes of their organism such as digestion and excretion, regulatory processes, transport as well as their wonderful ability to regeneration. The study of its nature and development is important for understanding of these processes as well as for obtaining data on morphology, phylogenetics and evolution of this significant group of metazoans. According to this aim, we have carried out a comparative morphological research of parenchyma in 1 species of acoel and 10 species of flatworms, including free-living ones, fluke and tapeworm, on ultrastructural level. As a result of analysis of ultrastructural organization of these species' parenchyma the morphofunctional classification of cells is proposed. We distinguish seven cell types differing by the structure and certain functions. The parenchyma of each species examined is characterized by a unique combination of these cell types. Occurrence of the similar parenchymal cell morphotypes in representatives of Acoela and phylogenetically distant groups of flatworms, to our opinion, allows considering the specialization of this tissue as a parallel evolution.

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Keywords

Acoela, Flatworms, Morphofunctional classification, Parenchyma, Plathelminthes, Ultrastructure

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