

CNIDOCYTES OF *POLYPODIUM HYDRIFORME* (CNIDARIA, POLYPODIOZOA)**E. V. Raikova^{a,*} and O. I. Raikova^{b,c}**^a*Institute of Cytology RAS, St.-Petersburg, 194064, Russia*^b*Zoological Institute RAS, St.-Petersburg, 199034, Russia*^c*St.-Petersburg State University, Chair of invertebrate zoology, St.-Petersburg, 199034, Russia*^{*}*E-mail: ekaterina.raikova@gmail.com*

The review summarizes data on stinging cells (cnidocytes) of a parasitic cnidarian *Polypodium hydriforme*. Cnidocytes of this cnidarian belong to two categories, atrichous and holotrichous isorhizas. Their unique characters are discussed, such as monaxon symmetry of cnidocil complex, variations in shape and size of the cnidocils, formerly unknown penetration function for the glutinants, and the presence of two rows of tiny spines on the stinging threads of holotrichous isorhiza. *Polypodium* cnidocytes are compared both with cnidocytes of free-living Cnidaria and with polar capsules of Myxozoa, obligatory parasites now included into Cnidaria. For the first time the correspondence of data obtained by methods of electron microscopy and those obtained by confocal microscopy and immunocytochemistry (with α -tubulin antibodies and phalloidin staining) is studied. The periodically-striated supporting rods in cnidocytes were shown to contain tubulin, thus, supposedly they are composed of tightly packed microtubules. The cnidocytes of *Polypodium hydriforme* are considered to be a step in n stinging cells evolution between free-living and parasitic Cnidaria.

Keywords: *Polypodium hydriforme*, Cnidaria, Myxozoa, stinging cells, cnidocytes, immunocytochemistry, tubulin, phalloidin