

Reference: Dolan, J.; Antipa, G. A. 1982. Pairs of similar ciliates: a method of evaluating ciliate evolution. J. Protozool. 29: 495.

Pairs of Similar Ciliates: A Method of Evaluating Ciliate Evolution, JOHN DOLAN and GREGORY A. ANTIPA, Department of Biological Sciences, San Francisco State University, California.

A comparison of the trophic morphologies of two similar, host-specific mytilid endocommensals is based on live and silver-stained specimens. The ciliates share characteristics including: cell size, cell shape, buccal location, ciliation pattern, and macronuclear shape and position. The host mussels, Mytilus edulis and Mytilus californianus, are considered to be habitats whose separation may have led to a ciliate speciation event. A comparison of buccal structures reveals differences in buccal area shape, relative size of polykinetids, and their relative positions. The differences in buccal structure force a tentative conclusion of parallel or convergent evolution as responsible for the similarity in gross morphology.

A comparison of stomatogenic stages of the two ciliate species based on silver-stained specimens has been made. See poster session - this meeting.

The two endocommensals are used to illustrate the use of "similar ciliates" as a method of evaluating evolution which has occurred within the Phylum Ciliophora. Pairs of ciliates which exhibit similar morphology and are found in like habitats should be investigated. Hypotheses of close relation or separate evolution can be tested using three independent lines of evidence: the history of the ciliate habitats, comparative ontogenies, and actual degree of structural differences. Investigation of such pairs may yield data on the relative powers of ancestry and evolution in the determination of ciliate cytoarchitecture.

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