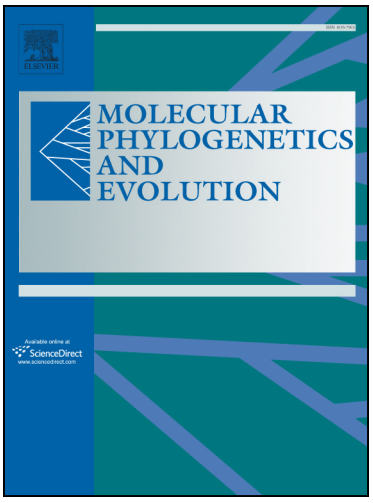

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Molecular phylogeny and comparative morphology indicate that odontostomatids (Alveolata, Ciliophora) form a distinct class-level taxon related to Armophorea

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Abstract

The odontostomatids are among the least studied ciliates, possibly due to their small sizes, restriction to anaerobic environments and difficulty in culturing. Consequently, their phylogenetic affinities to other ciliate taxa are still poorly understood. In the present study, we analyzed newly obtained ribosomal gene sequences of the odontostomatids *Discomorphella pedroeneasi* and *Saprodinium dentatum*, together with sequences from the literature, including *Epalxella antiquorum* and a large assemblage of ciliate sequences representing the major recognized classes. The results show that *D. pedroeneasi* and *S. dentatum* form a deep-diverging branch related to metopid and clevelandellid armophoreans, corroborating the old literature. However *E. antiquorum* clustered with the morphologically discrepant plagiopylids, indicating that either the complex odontostomatid body architecture evolved convergently, or the positioning of *E. antiquorum* as a plagiopylid is artifactual. A new ciliate class, Odontostomatea n. cl., is proposed based on molecular analyses and comparative morphology of odontostomatids with related taxa.

Key-words: anaerobic; ciliates; *Discomorphella*; evolution; Odontostomatea; *Saprodinium*.

1. Introduction