



Description and phylogeny of a new prostomatid, *Metacystis similis* nov. spec. (Protista, Ciliophora) from the East China Sea

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Abstract

The living morphology and infraciliature of a new marine prostomatid, *Metacystis similis* nov. spec., have been observed and investigated. Based on both morphological and molecular biological data, several closely-related and easily confused taxa were compared. The diagnosis for this new taxon: cylindrical marine *Metacystis* with a slightly blunt anterior end, *in vivo* 50–70 x 18–23 µm; body not loricate, uniformly cinctured by 16–18 transverse rings of cilia, which are also arranged in 32–36 longitudinal kineties; oral apparatus consisting of one circumoral dikinety and six girdles of densely packed monokinetids; single spherical macronucleus located in the center of the body; caudal region possessing one transparent, protruding hemicycle terminal vacuole. Information concerning the small-subunit rRNA gene sequence of the new species was also provided.

Key words: Marine ciliates, Prostomatida, Morphology, *Metacystis similis* nov. spec.

Introduction

The suborder Prostomatina, for which the literature is scattered and few studies have been carried out since 1960, comprises the minority of Ciliophora and only contains two families: Holophryidae and Metacystidae. Thereinto, Metacystidae can be divided into three genus (*Vasicola* Tatem, 1869; *Pelatractus* Kahl, 1930; *Metacystis* Cohn, 1866) by the body shape and presence/absence of monokinetids in the oral infraciliature (Small & Lynn 1985).

The genus *Metacystis*, established by Cohn (1866), was found in freshwater, marine and brackish water habitats (Bick 1972; Carey 1992; Foissner 1984). However, few correlational research or reports about this genus have hitherto been carried out, especially since the molecular data of *Metacystis* have not been available until now. In 1930, 11 species of this genus was described in detail by Kahl (1930), and consequent studies (Aladro-Lubel & Martinez-Murillo 1999a, b; Borrer 1972; Carey 1992; Chen, 2009; Detcheva et al., 1979; Dietz 1964; Dragesco *et al.*, 1974; Foissner 1984, 1996; Penard 1922; Puytorac 1994; Small & Lynn 1985; Song & Wilbert 2002) has greatly contributed to knowledge concerning the diversity and morphology of the genus.

In this present study, a population of *Metacystis*, which was derived from Chongming, Shanghai, China during a sampling cruise for the faunistic investigation of benthic microorganisms of China's coast, was investigated and described. After comparison with its congeners, we identified the present population of *Metacystis* as a new species, namely *M. similis* nov. spec. Its morphological information was presented, and the phylogenetic tree concerning the genus *Metacystis* was also constructed based on the small-subunit rRNA gene sequence, which were shown initially.

Material and methods

Sample collection, observation, and identification. The *Metacystis similis* nov. spec. was isolated from water samples with natural sediments collected near the Changjiang estuary of Chongming island (31°37'28"N,