Introduction

Urosomoida Hemberger in Foissner, 1982 is hitherto ciliates and consists of 13 species to date (Shao et al. 2011). They usually occur in terrestrial habitats including freshwater ecosystem but some species are reported from highly saline soil or a lagoon (Berger 1999; Foissner et al. 2002; Paiva & Silva-Neto 2004). They usually feed on bacteria or small protozoa (e.g., alga, amoebae, flagellates, and ciliates).

Of the thirteen species, two are known to inhabit in Antarctica and they are as follows: U. antarctica and U. grunifera (Berger 1999; Foissner 1998). Type population of the two species was discovered from Antarctica (=focus classicus) and their type localities are South Victoria Land and South Shetland Islands, respectively.

Urosomoida was previously assigned to the family Oxytrichidae whose type genus Oxytricha has 18 frontal–ventral–transverse (FVT) cirri with dorsal kinety fragmentation. However, Urosomoida has reduced FVT cirri than the typical Oxytricha and lacks a dorsal kinety 3 fragmentation so that Berger (2006, 2008) placed the genus Urosomoida in the monophyletic assemblage “non-oxytrichid Dorsomarginalia”. The group name Dorsomarginalia denotes the species which have dorsomarginal kinety originated from right marginal cirral angle during morphogenesis.

The phylogenetic relationship of Urosomoida agilis and U. longa was recently investigated using the SSU rDNA sequences to represent a generic standard of this genus as the type species (Singh & Karna 2015). Based on morphogenetic features and the molecular phylogenetic results, a new genus Hemuosomoida was established and U. longa was combined as the type species of this genus. Two genera Hemuosomoida and Urosomoida are not clearly distinguished by morphologic non-division cell (“stature form”), supporting a convergence on the cirral pattern as shown in Anthebotheotheca, one of the well-known non-morphogenetic groups in family Urostylidae (Park et al. 2013).

In this study, we describe a new freshwater ciliate Urosomoida sp. n. collected from King George Island, Antarctica. Its morphology and SSU rDNA sequence were analyzed and compared to those of other congeners.

Materials & Methods

Results & Discussion (Fig. 1, 2 & Table 1, 2)

Fig. 1 Morphology of Urosomoida sp. n. in vivo (A–C) and after protargol impregnation (D, E). A, Ventral view of representative specimens. B, C. Dorsal views. Ventral cirri (VC) and cortical granules (CG), respectively. Dorsal (D) and ventral (V) view of holotype species. AZM – adoral zone of membranelles; BC – buccal cirrus; DK – dorsal kinety; DM – dorsomarginal kinety; EM – endoral membrane; FC – frontal cirrus; FVC – frontoventral cirrus; LMR – left marginal cirral row; ML – macronuclear nodules; Mi – micronucleus; PMC – paraxial membrane; PTVC – partransverse ventral cirrus; PVC – postoral ventral cirrus; RMR – right marginal cirral row; TC – transverse cirrus. Scale bars: 50 μm.

Table 1 Morphometric data on protargol-impregnated specimens of Urosomoida sp. n.

Table 2 Comparison of morphological features in U. sp. n. with those of closely related species.

Diagnosis of new species. Size in vivo 75–130 × 20–35 μm; slender to elongated shape; flexible but not contractile; grayish under low magnification. 1 contractile vacuole slightly above left of mid-body. One micronucleus between two macronuclear nodules. Groups of cortical granules sparsely distributed Ring-shaped structures in cytoplasm. 17 frontal-ventral-transverse cirri composed of 3 frontal, 1 buccal, 1 postal ventral, 2 pretransverse ventral, and 4 transverse cirri. 1 left and 1 right marginal cirral row. On average 28 adoral membranelles with undulating membranes in Oxytricha pattern. 4 kineties composed of 3 dorsal and 1 dorsomarginal kineties. Three caudal cirri.

Results & Discussion (Fig. 2 & Table 1, 2)