Abstract

Order Diplomonadida belongs to the supergroup Excavata and comprises both free-living and endobiotic protists. Until recently, research on diplomonads was focused mainly on endobiotic representatives, particularly the parasite *Giardia intestinalis*, which has been the object of interest of many studies. Diplomonads are anaerobic protists that lack aerobic mitochondria. Instead, they possess reduced mitochodnrial derivates – hydrogenosomes or mitosomes. According to the morphology, the diplomonads are divided into unizoic (single karyomastigont) and diplozoic ones (doubled karyomastigont). Evolution of the cell morphology of diplomonads still remains unclear, and a thorough study focused on free-living diplomonads can help to elucidate this problem. Besides, the diplomonads are interesting because many secondarily free-living representatives of this group exist.

This study is focused on the phylogeny a morphology of free-living diplomonads. We determined 65 new SSU rDNA sequences, mainly from free-living diplomands. Phylogenetic analyses showed genera *Trepomonas* and *Hexamita* as well as unizoic diplomonads non-monophyletic. Also, several diplomonad lineages containing both free-living and endobiotic species were recovered. We conducted a detailed study of morphology of two genera, *Trepomonas* and *Gyromonas*. Morphological study of *Hexamita* was not possible because of methodological difficulties. We determined four trepomonad and one gyromonad species on the basis of available literature. We were unable to determine some of our *Trepomonas* lineages, which may represent three novel species.

Key words: Diplomonadida, diplozoic, Excavata, *Gyromonas*, *Hexamita*, karyomastigont, *Trepomonas*, unizoic.