



## New species and new records of freshwater Chaetonotida (Gastrotricha) from Sweden

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### Abstract

Gastrotricha is a small phylum of acoelomatic aquatic invertebrates common in both marine and freshwater environments. The freshwater gastrotrich fauna of Sweden is poorly known and so far only 20 species have been reported. In this study two species, *Heterolepidoderma joermungandri* n. sp. and *H. trapezoidum* n. sp., are described as new to science. Moreover, 9 species are presented as new to the Swedish fauna. Additional taxonomic information is also given for 4 species previously reported from the country. In total 7 genera of two families, Chaetonotidae and Dasydytidae, are presented and the number of reported freshwater gastrotrichs from the country is increased to 31.

**Key words:** Chaetonotidae, Dasydytidae, Freshwater fauna, taxonomy

### Introduction

Gastrotricha is a small phylum of acoelomate metazoans. They have been reported from all continents and at present about 765 nominal species are known. Gastrotrichs are among the smallest metazoans and some species can be as small as 70 µm in total body size. However, most freshwater species are larger and marine species can reach lengths up to 3.5 millimeters (Todaro & Hummon in Artois *et al.* 2011). The group is widely distributed and can be found in all aquatic environments. In the sea gastrotrichs can rank third in abundance after nematodes and harpacticoid copepods and in freshwater habitats they are among the top five most common taxa encountered (Balsamo & Todaro 2002). In marine habitats most species live interstitially, in fine to medium grained clean sand, where they constitute an important part of the meiofauna (Hummon 1982; Balsamo & Todaro 2002). Freshwater species are mostly epibenthic or epiphytic but can also live interstitially. Certain genera (e. g. *Haltidytes* Remane, 1936 and *Stylochaeta* Hlava, 1904) have adapted to a semi-planktonic lifestyle (Schwank 1990).

Gastrotricha is divided into two orders, Macrodasyida Remane, 1925 which is almost exclusively marine and Chaetonotida Remane, 1925, with both marine and freshwater representatives. Macrodasyidans are vermiform and possess anterior, posterior and often lateral and dorsal adhesive tubes. Chaetonotidans are, with very few exceptions, tenpin-shaped and usually have only two posterior adhesive tubes forming a bifurcated caudal end called the furca. Most species of freshwater Chaetonotida belong to the family Chaetonotidae Gosse, 1864, but the semi-planktonic family Dasydytidae is also well represented (Schwank 1990).

Classification of Gastrotricha is mainly based on morphology and ultrastructure. Morphometry of the body and in particular of some structures, such as the furca and the pharynx are important characters for species identification as well as distribution and shape of scales and spines. The drawback of these characters is that their range in rarely recorded species is virtually unknown. This is problematic when knowledge on intraspecific variability increases and overlaps in characters encompass species boundaries.

The Swedish gastrotrich fauna is poorly known compared to other well investigated countries in the same temperate region. In Poland 98 species have been recorded and from Germany around 90 species are known (Balsamo *et al.* 2008). A couple of years ago only 7 freshwater species, all belonging to Chaetonotidae, had been reported from Sweden (see Hofsten 1923; Schwank 1990). Känneby *et al.* (2009) described the new species *Ichthyidium*