

MICROPALAEONTOLOGY NOTEBOOK

The monothalamous foraminiferan *Tinogullmia* in the Black SeaN.G. SERGEEVA¹, O.V. ANIKEEVA¹ & A.J. GOODAY²¹Department of Shelf Ecosystems, Institute of Biology of the Southern Seas, Nachimov Avenue, 2, Sevastopol, 99011, Ukraine (e-mail: sergeeva@ibss.iuf.net)²DEEPSEAS Group, National Oceanography Centre Southampton, Empress Dock, European Way, Southampton SO14 3ZH, UK (e-mail: ang@noc.soton.ac.uk)

INTRODUCTION

The organic-walled allogromiid genus *Tinogullmia* was established by Nyholm (1954) based on a single species, *T. hyalina*, from the Gullmar Fjord on the Swedish west coast. This distinctive species is characterized by an elongate, smoothly curved test with two terminal apertures located at the ends of tubular extensions. A similar species occurs in Kongsfjord, Svalbard (Gooday *et al.*, 2005). Several other organic-walled allogromiids have been assigned to the genus *Tinogullmia* but are distinctly different from *T. hyalina*. A deep-water species from the NE Atlantic, described as *Tinogullmia riemanni* by Gooday (1990), has a relatively short, asymmetrical test and possibly represents a distinct genus. An undescribed sausage-shaped species from Explorers Cove, Antarctica, assigned to *Tinogullmia* by Gooday *et al.* (1996), has a less elongate shape than *T. hyalina* and a thinner wall. The purpose of this note is to report the first record of this distinctive genus from the Black Sea.

OBSERVATIONS

During the 45th cruise of the Research Vessel *Professor Vodyanitsky* in 1994, three core samples were obtained using a multiple corer (Barnett *et al.*, 1984) as part of an investigation of a methane seep area southwest of the Crimean peninsula (Station 5186; 44° 46.342'N, 31° 35.342' E, 78 m water depth). The sampling area bottom-water temperature is 8–10°C, rising to 13–15°C in summer; salinity is 17–18‰. The bottom sediment is phaseolinic silt (i.e. an aleurit silt associated live molluscs and dead molluscan shells). Each core was sub-sampled using a plastic tube, diameter 9.5 cm, length 5 cm, and the sub-core sliced into layers 1 cm thick. The sediment slices were preserved in 75% alcohol and subsequently sieved on a 64 µm screen, stained with rose Bengal, and meiofaunal organisms picked out under a binocular microscope.

The sample residues yielded two species of monothalamous foraminifera, *Tinogullmia* sp. (5 specimens) and *Psammophaga simplora* (135 specimens) (Table 1). The only other foraminiferal species present were multilocular: *Ammonia compacta* (40 specimens), *Eggerella scabra* (1), *Lagena perlucida* (5), *Lagena lateralis* (18) and *Laryngosigma williamsoni* (3). Anikeeva (2005) has reported the occurrence of *P. simplora* in the Black Sea, so this note focuses on the less common monothalamous species, *Tinogullmia* sp. Unlike *P. simplora*, this species was confined to the 0–1 cm layer. The illustrated specimen (Fig. 1) has a gently curved test, 1200 µm long and 140 µm wide, produced into narrow, terminal apertural tubes (length 55–80 µm), each with a

central thread of cytoplasm. The cytoplasm is finely granular without an obvious nucleus or other large inclusions. This individual closely resembles Nyholm's (1954) original description and illustrations of *T. hyalina*, except for its greater relative width (probably resulting in part from compression of the test under the glass cover slip), and the absence of an obvious nucleus. Because of these slight morphological differences and the relatively isolated location of the sampling site, the Black Sea specimens are assigned to *Tinogullmia* sp. It is hoped that future molecular studies will clarify the relationship between Nyholm's Scandinavian species and this closely similar form from the Black Sea.

DISCUSSION

Soft-shelled monothalamous foraminifera (organic-walled 'allogromiids' and agglutinated 'saccaminids') have often been overlooked in shallow-water settings. Most of the available

Sample	1		2		3		
	0–1	0–1	1–2	2–3	0–1	1–2	2–3
<i>P. simplora</i>	1	55	59	7	10	3	7
<i>Tinogullmia</i> sp.	0	1	0	0	4	0	0

Table 1. Numbers of specimens of two monothalamous foraminiferal species, *Psammophaga simplora* and *Tinogullmia* sp. in different sediment layers of sub-cores of three multiple corer samples from Station 5186 off the Crimean peninsula.

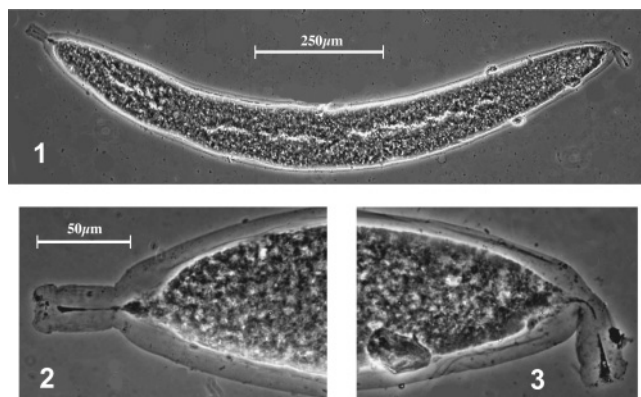


Fig. 1. *Tinogullmia* sp. from off the coast of the Crimean peninsula, Black Sea. The specimen is mounted in glycerine jelly under an unsupported glass cover slip. 1. Complete specimen slightly compressed under cover slip. 2. Undistorted terminal tube. 3. Terminal tube, probably bent as a result of distortion under the cover slip.

information is from high latitudes (Gooday *et al.*, 1996; Pawlowski *et al.*, 2002) and from localities around NW Europe (Gooday, 2002). These organisms are mentioned in a meiofaunal study conducted in the Black Sea by Sergeeva & Kolesnikova (1996). Two species assigned to the genus *Lagynis*, regarded as an allogromiid foraminiferan by Loeblich & Tappan (1987), were either reported (*L. baltica*) or described (*L. pontica*) from this region (Golemansky, 1999 and references therein). Anikeeva & Sergeeva (2001) and Anikeeva (2003, 2005) briefly discussed the occurrence of the genus *Psammophaga* and other single-chambered taxa off the Crimean coast. Otherwise, almost nothing has yet been published on monothalamous foraminiferans in the Black Sea.

Gooday *et al.* (2005) report *Tinogullmia* from a cold-water setting in Kongsfjord, Svalbard where the bottom-water temperature is $<0^{\circ}\text{C}$. Bottom-water temperatures in the Gullar Fjord, the type area for *Tinogullmia*, are at least $5.5\text{--}8.0^{\circ}\text{C}$ (Gustafsson & Nordberg, 2001). This new record of a morpho-species resembling *T. hyalina* from relatively warm water ($8\text{--}15^{\circ}\text{C}$) in the Black Sea suggests that some monothalamous morphotypes have wide geographical ranges which span a variety of environmental conditions.

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