

A new species of *Nassarius* (Gastropoda: Nassariidae) from the China seas

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Abstract. This paper describes a new species of the family Nassariidae, *Nassarius glabrus* sp. nov., from the South China Sea, and the East China Sea. The new species is characterised by its glossy and smooth shell surface with longitudinal ribs on only the first 2–4 postnuclear whorls, its light brown colour with sparse yellowish-brown blotches, its deep suture and prominent shoulder. The new species inhabits sandy or muddy-sand sediments at depths of 110–280 m.

Key words. Gastropoda, Nassariidae, *Nassarius*, *Zeuxis*, new species, China seas

INTRODUCTION

Species of the family Nassariidae mainly live in sandy or muddy sediments and are widely distributed from the intertidal to the neritic zone, and even to deeper depths. In the two and half centuries since Linnaeus, taxonomic studies on nassariids have brought to light many confused names, synonyms and mistaken identifications. For example, of the 1,323 names proposed for recent species, only 319 are regarded as valid by Cernohorsky (1984).

The Indo-West Pacific region has the highest biodiversity of the family Nassariidae, with the genus *Nassarius* comprising 211 living species (Cernohorsky, 1984). Some 70 nassariid species have been reported from Australia (Wilson, 1994) and 69 from Japan (Tsuchiya, 2000). During the Rumphius Biohistorical Expedition in 1990, 47 species were collected from Ambon, Indonesia (Kool & Strack, 2000). Martin (2008) reported 41 species from the coasts of the Philippines, and 64 species were recorded from Vietnam by Hylleberg & Kilburn (2003). New species continue to be reported from this region (Kool, 1995, 1996, 2003, 2004, 2005, 2006, 2009, 2013; Kool & Dekker, 2006; Zhang & You, 2007; Yang & Zhang, 2011a; Zhang, 2013a).

In China, only 43 species have been recorded according to Qi (2004) and Zhang (2008a, b). The species diversity of the family Nassariidae of China was arguably still unsatisfactorily known until the recent studies by Zhang (2009, 2010, 2013a, b), Yang (2010), Zhang & Yang (2010), and Yang & Zhang (2011a, b), which described two new species, added 10 new records, and provided revised identifications for several other species. More than 60 species, distributed from the Bohai

Sea into the South China Sea, are now known from Chinese waters. Working on nassariid material collected from the South China Sea in the Marine Biological Museum, Chinese Academy of Sciences, an unknown species belonging to the genus *Nassarius* was recently found. An available name for this species could not be located in the available literature (e.g., Adams, 1852; Reeve, 1853; Cernohorsky, 1984; Tsuchiya, 2000; Martin, 2008), nor in online resources, so based on its distinct morphological characteristics, this species is herein described as new to science.

MATERIAL AND METHODS

Specimens were collected during the National Comprehensive Oceanographic Survey and Nansha Islands Survey and deposited in the Marine Biological Museum (MBM), Chinese Academy of Sciences, Qingdao, China. The holotype was preserved in 70% ethanol without soft parts. Paratypes were air dried. As there were no properly preserved animals, the radula could not be described. Additional specimens from the East China Sea were also obtained from commercial sources, but without precise coordinates. Measurements were made point-to-point with a vernier caliper to nearest 0.1 mm. Photographs were taken using a Cannon EOS600D camera.

Abbreviations used are as follows: MBM, Marine Biological Museum, Chinese Academy of Sciences, China; NHMUK, Natural History Museum, London, United Kingdom; MNHN, Museum national d'Histoire naturelle, Paris, France; HD, Henk Dekker collection, Winkel, the Netherlands; ZMA, Naturalis Biodiversity Center, Leiden, the Netherlands; ZRC, Zoological Reference Collection, Lee Kong Chian Natural History Museum, National University of Singapore, Singapore; SL, Shell Length; SW, Shell Width; St., Station.

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SYSTEMATICS

Family Nassariidae Iredale, 1916

Subfamily Nassariinae Iredale, 1916

Genus *Nassarius* Duméril, 1805Subgenus *Zeuxis* H. Adams & A. Adams, 1853*Nassarius (Zeuxis) glabrus*, new species
(Fig. 1A–C, G)

Nassarius (Zeuxis) algidus — Li et al., 2010: fig. 1g, i [non Reeve, 1853].

Type locality. South China Sea.

Material examined. Holotype: 1 shell (SL 16.1 mm × SW 9.5 mm) (MBM062377), South China Sea, St. 6189, 17°00'N 109°30'E, 164 m, muddy bottom, R/V 101, coll. Liu Jixing, 11 March 1960. Paratypes: **South China Sea:** #1, 1 shell (SL 18.7 mm × SW 10.0 mm) (MBM179987), St. 6079, 20°00'N 113°00'E, 128 m, in sandy bottom, R/V Hanggong I, coll. Ma Xiutong & Wang Yongliang, 20 October 1959; #2, 1 shell (SL 15.6 mm × SW 8.3 mm) (MBM179988), St. 32, 8°29.67'N 109°00.42'E, 143 m, in coarse sandy bottom, R/V Shiyuan III, coll. Wang Shaowu, 17 September 1994; #3, 1 shell (SL 17.9 mm × SW 9.8 mm) (MBM179989), St. 17, 5°15.46'N 114°09.57'E, 173 m, in sandy mud bottom, R/V Shiyuan III, coll. Chen Ruiqiu, 9 May 1987; #4, 1 shell (SL 16.6 mm × SW 9.8 mm) (MBM179990), St. 43, 5°27.66'N 110°16.12'E, 167 m, in sandy and muddy bottom, R/V Shiyuan III, coll. Chen Ruiqiu, 15 May 1987; #5, 1 shell (SL 10.6 mm × SW 6.1 mm) (ZRC.MOL.5727 [ex MBM228998]), St. 36, 5°00'N 111°17'E, 110 m, in muddy bottom, R/V Shiyuan III, coll. Chen Ruiqiu, 14 May 1987; #6, 2 shells (SL 14.5 mm × SW 8.7 mm; SL 14.0 mm × SW 8.1 mm) (MBM179991), St. 32, 8°29.67'N 109°00.42'E, 143 m, in sandy bottom, R/V Shiyuan III, coll. Wang Shaowu, 17 September 1994. **East China Sea:** #7, 1 shell (SL 17.3 mm × SW 9.7 mm) (NHMUK 20140087), 1 shell (SL 17.3 mm × SW 9.8 mm) (MNHN-IM-2012-2764), 2 shells (SL 18.3 mm × SW 10.1 mm; SL 15.3 mm × SW 8.5 mm) (HD 29396), 250 m, sand bottom, 2011; #8, 1 shell (SL 14.4 mm × SW 8.0 mm) (HD 20989), 140–280 m, sand and mud bottom, June 2006; #9, 3 shells (SL 17.3 mm × SW 9.6 mm; SL 15.8 mm × SW 8.3 mm; SL 14.7 mm × SW 8.2 mm) (HD 20727), 150 m, sand bottom, June 2007; #10, 1 shell (SL 17.4 mm × SW 9.2 mm) (HD 32712), 120 m, on sand and mud, March 2013.

Description. Shell elongate-ovate, small or moderately small, up to 18.7 mm in length, solid, with 7–8 whorls. Spire slender, whorls convex. Suture distinct, with a ledge-like and prominently keeled shoulder. Body whorl large and inflated. Protoconch comprises 2 glassy light brown whorls without axial ribs, and with a keel just above the suture. Shell surface glossy and smooth without sculpture apart from the first 2–3 spire whorls which bear distinct axial ribs crossed by weaker spirals. 3–4 spiral cords present at base of the body whorl. Shell light brown in colour, with faint irregular yellowish-brown flame-like patterns, and alternating reddish-brown and white marks at the sutural keel. Aperture ovate, interior light brown, without ribs; inner lip arc-shaped with slight callus. Columellar callus with few to numerous

small plicae. Leading edge of outer lip thin, more thickened at the posterior side. A few axial ribs are located adjacent to the thickened dorsal side of the outer lip. Anterior canal broad and short, circled by 4–5 spiral grooves. Posterior canal thin and small.

Etymology. The species is named after its glossy and smooth shell. The specific name *glabrus* derived from Latin *glaber*, which means smooth.

Habitat. The new species has been found in muddy-sand and coarse sandy bottom at 110–280 m depth.

Distribution. Thus far known only from the South and East China seas. The South China Sea localities are indicated in Fig. 2; localities in the East China Sea have been omitted because of lack of data.

Discussion. Compared with *Nassarius (Zeuxis) nanhaiensis* Zhang, 2013 (Fig. 1D–F, H), *Nassarius (Zeuxis) glabrus*, new species, differs by its protoconch which is white in colour, its suture, and keeled shoulder. The suture of *N. (Z.) nanhaiensis* Zhang, 2013 is impressed, but the subsutural part of the whorls are gradual and not shouldered, the protoconch is brown, the spire is more pointed, and the surface has wide red-brown bands. Besides these morphological differences, the two species also appear to be restricted to different depths. Except for one specimen that was collected at a relatively deep 76 m, the other 15 specimens of *N. (Z.) nanhaiensis* were taken at shallow depths of 23–38 m. In comparison, *Nassarius (Z.) glabrus*, new species, was collected only in waters deeper than 110 m, with 280 m being the greatest depth recorded.

Nassarius (Z.) glabrus, new species, also closely resembles *N. (Z.) kooli* Dekker & Dekkers, 2009 (Fig. 1I, J) morphologically, but it differs from the latter by its broader and shorter shell, more inflated body whorl, and colour and patterns of irregular yellowish-brown spots or stripes. *Nassarius (Z.) kooli* is more slender in shape, has a proportionally taller spire, deeply channeled suture, less inflated body whorl, and patterns of spiral bands, which are predominantly interrupted block-like blotches.

Nassarius (Z.) glabrus, new species, was figured by Li et al. (2010: fig. 1g, i) as *N. (Z.) algidus* (Reeve, 1853). However, the real *N. (Z.) algidus* (Reeve, 1853) is a larger Australian species with different shell colour and patterns (see Cernohorsky, 1984; Wilson, 1994). The *Nassarius (Zeuxis)* sp. figured by Li et al. (2010: fig. 1f, h) is very close to our new species, but lacks the axial ribs on the first 2–3 teleoconch whorls. In the same study, Li et al. (2010: fig. 3) reported a large genetic difference between the specimens with and without these axial ribs, and the rachidians of the radula are also different (Li et al., 2010: fig. 2). Although they still cluster together in their phylogenetic tree, we provisionally regard that species as not conspecific with *Nassarius glabrus*, new species, and further study is needed to determine their actual relationship.

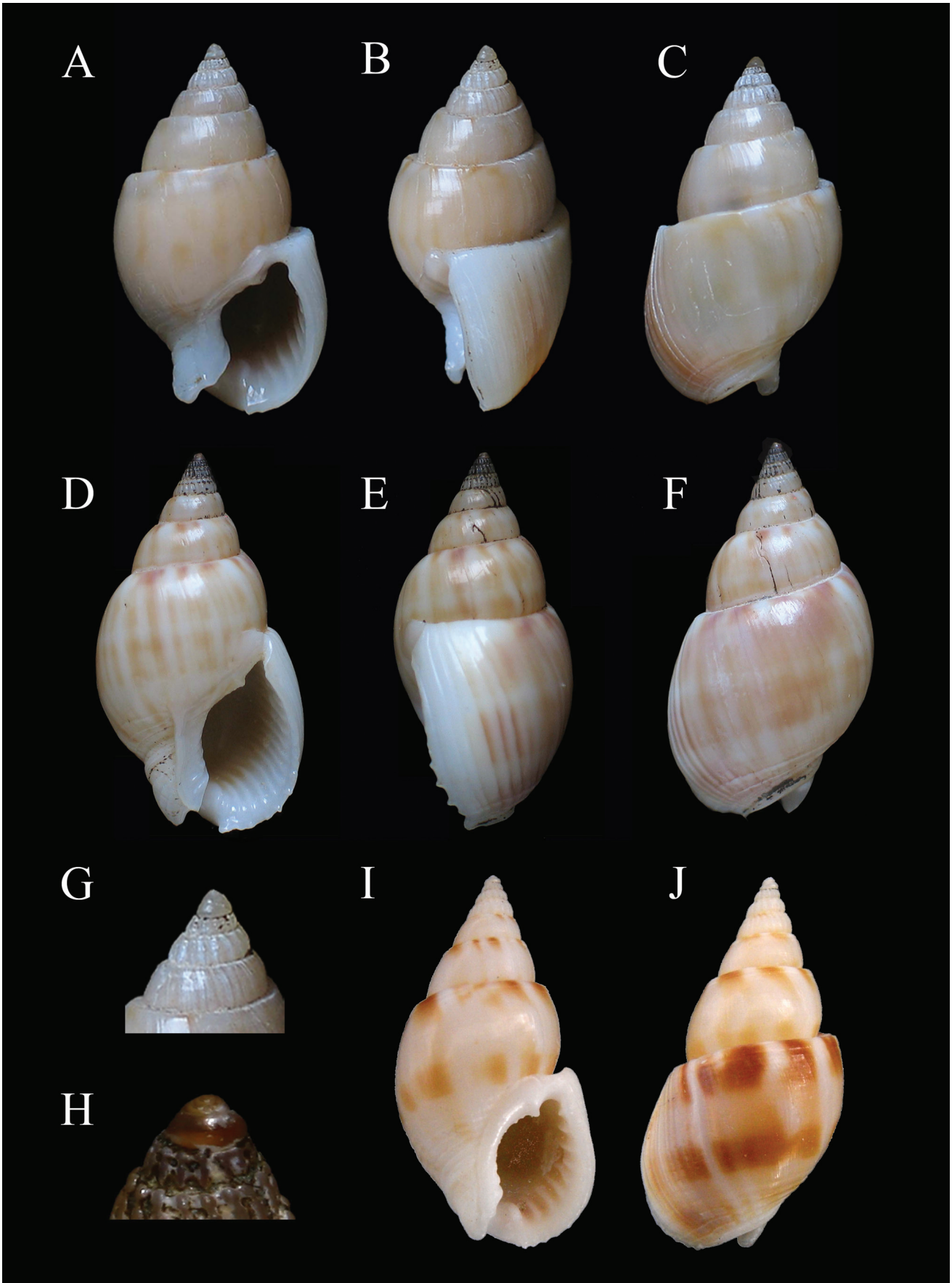


Fig. 1. A–C, G, *Nassarius glabrus*, new species; D–F, H, *Nassarius nanhaiensis* Zhang, 2013; I, J, *Nassarius kooli* Dekkers & Dekker, 2009. *Nassarius glabrus*, holotype (MBM062377), SL 16.1 mm, South China Sea: A, apertural view; B, lateral view; C, dorsal view; G, protoconch. *Nassarius nanhaiensis*, holotype (MBM062273), SL 22.2 mm, South China Sea: D, apertural view; E, lateral view; F, dorsal view; H, protoconch. *Nassarius kooli*, holotype (ZMA Moll.04.09.053), SL 20.4 mm, Balicasag Island, Philippines: I, apertural view; J, dorsal view.

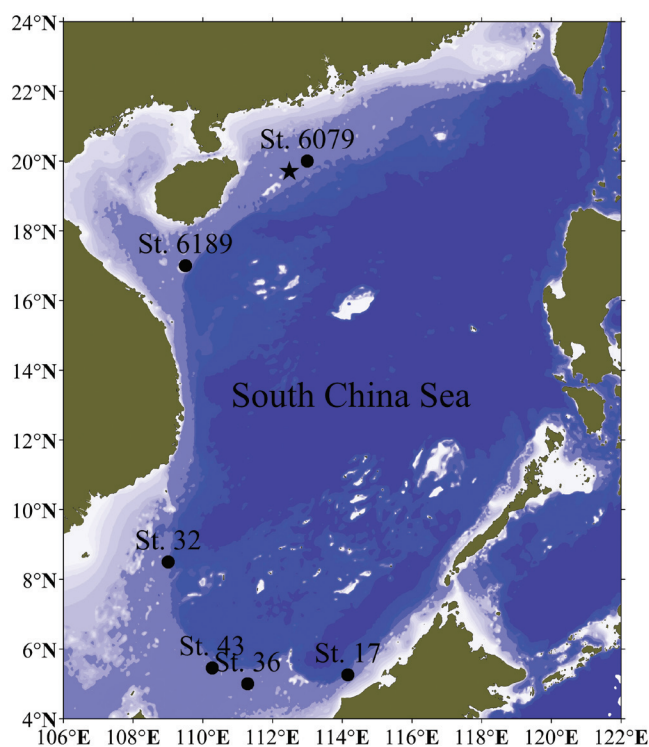


Fig. 2. Sampling stations of *Nassarius glabrus*, new species. The star-shaped symbol is used to indicate the locality of this species recorded by Li et al. (2010).

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