



# Article

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## Deep-water Raphitomidae (Mollusca, Gastropoda, Conoidea) from the Campos Basin, southeast Brazil

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### Abstract

During the program “Environmental Characterization of the Campos Basin, RJ, Brazil”, carried out from 2001 to 2003, 117 stations were sampled on the continental slope of the Campos Basin off southeast Brazil, by the Research Vessel “Astro-Garoupa”. The samples were taken on soft bottoms at depths from 700 to 1950 m, with a 0.25 m<sup>2</sup> box corer or by dredging with a Charcot dredge. Mollusks were present at all of the stations, and among the Gastropoda the Conoidea showed the highest diversity. Here we present the results obtained for the most abundant family, Raphitomidae. We found 21 species in eight genera: *Famelica*, *Eubela*, *Xanthodaphne*, *Magnella*, *Gymnobela*, *Pleurotomella*, *Aliceia* and *Neopleurotomoides*. The last two genera are reported here for the first time in the South Atlantic Ocean. Among the 21 species two had been previously reported for this region: *Magnella malmii* (Dall, 1889) and *M. extensa* (Dall, 1881). Three species had been reported for Brazil, but the new finds expand their known geographical distribution: *Eubela limacina* (Dall, 1881), *Famelica mirmidina* (Dautzenberg & Fischer, 1986) and *Pleurotomella cala* (Watson, 1885). Twelve species are reported for the first time in the South Atlantic: *Aliceia aenigmatica* Dautzenberg & Fischer, 1897, *Xanthodaphne dalmasi* (Dautzenberg & Fischer, 1897), *Xanthodaphne araneosa* (Watson, 1881), *Magnella watsoni* (Dautzenberg, 1889), *Gymnobela chyta* (Watson, 1881), *G. atypha* (Bush, 1893), *Gymnobela bairdii* (Verrill & Smith, 1884), *Gymnobela blakeana* Dall, 1881, *Pleurotomella perpauvilla* (Watson, 1881), *P. bureaui* (Dautzenberg & Fischer, 1897), *P. cf. anceyi* (Dautzenberg & Fischer, 1897) and *P. coelorrhaphe* (Dautzenberg & Fischer, 1896). Four species are new to science and are described here: *Neopleurotomoides aembe*, *Xanthodaphne pichi*, *Gymnobela xaioca* and *Pleurotomella ybessa*.

**Keywords:** Conoidea, Taxonomy, continental slope

### Introduction

Raphitomidae has traditionally been classified as a subfamily of Turridae based mostly on characters of the shell and radula (Powell, 1966; Rosenberg, 2009). Taylor *et al.* (1993) suggested a new classification for the Conoidea, with a substantial rearrangement of the taxa, based on characters of the shell, operculum and foregut anatomy. However, Rosenberg (1998) noted several misinterpretations in that analysis and recommended that the more traditional classification should not be abandoned just yet.

Later, Puillandre *et al.* (2008) provided a molecular phylogeny of the “turrids”, in which most of the turrid genera were classified into the family Conidae, restricting Turridae to only few of them. Such a taxonomic suggestion was the basis of the classification proposed by Bouchet & Rocroi (2005). This suggestion was received with some resistance (Figueira & Absalão, 2010a, 2010b), since the results provided by Puillandre *et al.* (2008) did not seem robust enough to justify the amount of change to the traditional classification.

More recently, Puillandre *et al.* (2011) published a new molecular phylogeny of Conoidea with additional results which corroborated previous findings. Based on this work, Bouchet *et al.* (2011) proposed yet a new classification in which the taxa previously classified as subfamilies of Turridae were raised to status of families. This classification seems more reasonable, as it is based on more than one analysis and includes additional material and genetic markers, so we choose to follow it in the present paper.