



## Four new species of Anatomidae (Mollusca: Vetigastropoda) from the Indian Ocean (Reunion, Mayotte) and Australia, with notes on a novel radular type for the family

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### Abstract

Four new species of Anatomidae are described: *Anatoma herberti* n. sp. with strong axial sculpture on the shoulder and base; *A. australissa* n. sp. with almost smooth sculpture except for axial cords in the adumbilical half of the base; *A. boucheti* n. sp. with sunken protoconch and selenizone that starts after more than one teleoconch I whorl; and *A. flexidentata* n. sp. with a highly modified radula, shared only with *A. australissa*, among known anatomid species. Three of the species are only known from the Indian Ocean, while the more deep-water *A. australissa* is known from Reunion Island and New South Wales, Australia. The radula of *A. flexidentata* and *A. australissa* is strikingly different from that of other Anatomidae and Vetigastropoda in that it has flexible equally-shaped teeth in the central field and filamentous teeth in the marginal field. Similar radular morphologies are known from Calliostomatidae.

**Key words:** new species, Indian Ocean, Reunion Island, Mayotte, Australia, radula

### Introduction

The family Anatomidae contains small, slit-bearing vetigastropods and is distributed in all fully marine environments (Bandel 1998; Geiger 2003; Geiger *et al.* 2008), including several dozen undescribed species (Geiger 2008). The taxon was elevated to full family rank based on a comprehensive molecular phylogeny of Vetigastropoda (Geiger & Thacker 2005, unpubl. data; see also Kano 2008).

The Mascarene Islands (Reunion Island and Mauritius) are located 700–900 km to the east of Madagascar and the marine fauna shows a general east African affinity (Sharabati 1984; Drivas & Jay 1988). Yaron (1983) and Herbert (1986) treated the Scissurellidae and Anatomidae of the Red Sea and South Africa, respectively, with Bandel (1998) and Geiger (2006a) adding further taxa. Specimens housed in the Muséum national d'Histoire naturelle, Paris, from the Mascarene Islands could not be identified under existing names and are herein described.

The radulae of Anatomidae have been rarely illustrated, with place-holding taxa such as *Anatoma crispata* (Fleming, 1828) being the most commonly figured (*e.g.*, Hickman 1998). Notable exceptions include Herbert (1986), Sasaki (1998) and Geiger (2006c). The radula of the family was presumed to show little interspecific variability, which has shown to be the case with the more extensively