

FIRST RECORD FROM THE FAMILY OXYNASPIDIDAE (CRUSTACEA, CIRRIPIEDIA) FROM SOUTHWESTERN ATLANTIC

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ABSTRACT

Oxynaspis hirtae Totton, 1940 is recorded from the Abrolhos area (Brazil) where it was attached to the black-coral *Antipathes* sp. This is the first record of the family Oxynaspididae from the Southwestern Atlantic. *O. hirtae* is redescribed and its diagnostic characters compared with the description of *O. celata* Darwin, 1851. The presence of a filamentary appendage at the base of cirrus I and the absence of a notch at the border of maxilla I, corroborates the status of *O. hirtae* as a valid taxon.

Keywords: Cirripedia, Oxynaspididae, Antipatharia, Taxonomy, Brazil.

INTRODUCTION

The family Oxynaspididae has a circumtropical and subtropical distribution. All species occur below 10 m and are found associated with black-corals, which are used merely as substrate. Darwin (1851) described the first species of this family - *Oxynaspis celata* from Madeira fixed to *Antipathes* sp. (= *Aphanipathes woolastoni* Gray, in Totton, 1940).

After Darwin many authors described new varieties and subspecies of *O. celata* from tropical and subtropical seas: Annandale (1909), based on material from India, described *O. celata indica* and Broch (1922) described two additional subspecies - *novazelandica* and *japonica*, the names of which correspond to their distributions.

In 1940, Totton described the subspecies *hirtae* based on morphological details not observed earlier by Darwin (1851) in his species. The specimens examined by Totton (1940), collected in the West Indies, were attached to the black-coral *Paratipathus hirta* (= *Antipathes hirta* Gray, 1825). Later, Bacon (1976), studying specimens from Trinidad, treated *hirtae* as a distinct species, and defined the characters that separate it from *O. celata*.

Zevina (1982), however, in her revision of the Lepadomorpha of the world, considered all subspecies of *O. celata* as synonymous, and recognizes it as a wide-ranging tropical species.

Until now, four species of *Oxynaspis* have been recorded from the Western Atlantic: *O. patens* Aurivillius, 1892; *O. gracilis* Totton, 1940; *O. hirtae* Totton,

1940 and *O. floridana* Pilsbry, 1953. All of them, however, were collected in the West Indies and along the Florida coast.

RESULTS

Oxynaspididae Pilsbry, 1907

Oxynaspis Darwin, 1851

Oxynaspis hirtae Totton, 1940

Oxynaspis celata var. *hirtae* Totton, 1940: 474, figs. 10-11.

Oxynaspis hirtae: Bacon, 1976: 9, figs. 3-4.

Examined material: Popa Verde Reefs, the Abrolhos reef complex, South Bahia, Brazil (18°00.2'S; 39°03.9'W), 50 spec. (Capitulum height - 3.4 to 8.3mm, Peduncle height - 1.0 to 15.0mm), 15m, on *Antipathes* sp, MNRJ 2859, 3264 and 4149.

Habitat: fixed to black-corals (*Antipatharia*).

Description: Capitulum entirely covered by calcified plates, except in an area between the carina and scutum-tergum plates (Figs. 1a-d, 2); recovered by thin yellowish cuticle, and ornamented with many small spines.

Scutum with occludent margin usually with twice length of occludent margin of tergum; upper portion usually with toothed margin (Fig. 1b). Umbo located midway along occludent margin, producing small elevation at this region. Basal angle of occludent margin with small projected expansion (Fig. 1c). Surface of scutum with many ribs radiating from umbo and, usually very prominent, at tergal, carinal and basal margins, giving them a toothed appearance. Basal margin straight to slightly convex. Occludent margin slightly sinuous due to presence of the umbo (Fig. 2).

Tergum nearly triangular, basal angle rounded. Occludent margin thickened, toothed and convex in outline. Apex slightly recurved. Region of scutal angle with many ribs reaching perpendicularly the scutal and occludent margins (Figs. 1a, 2)

Carina curved, with central umbo (Fig. 1a, d). Basal arm of carina usually half length of distal arm in small specimens, reaching proportion of 0.74 in larger ones. Carina base enlarged, slightly rounded to straight (Fig. 1d). Majority of specimens with basal margins of carina and scutum aligned (Fig. 2a-c), although angled in some specimens (Fig. 2d-f).

Peduncle with variable length, from 0.23 to 2.05 times length of capitulum; covered by thick epicuticle, similar to capitulum.

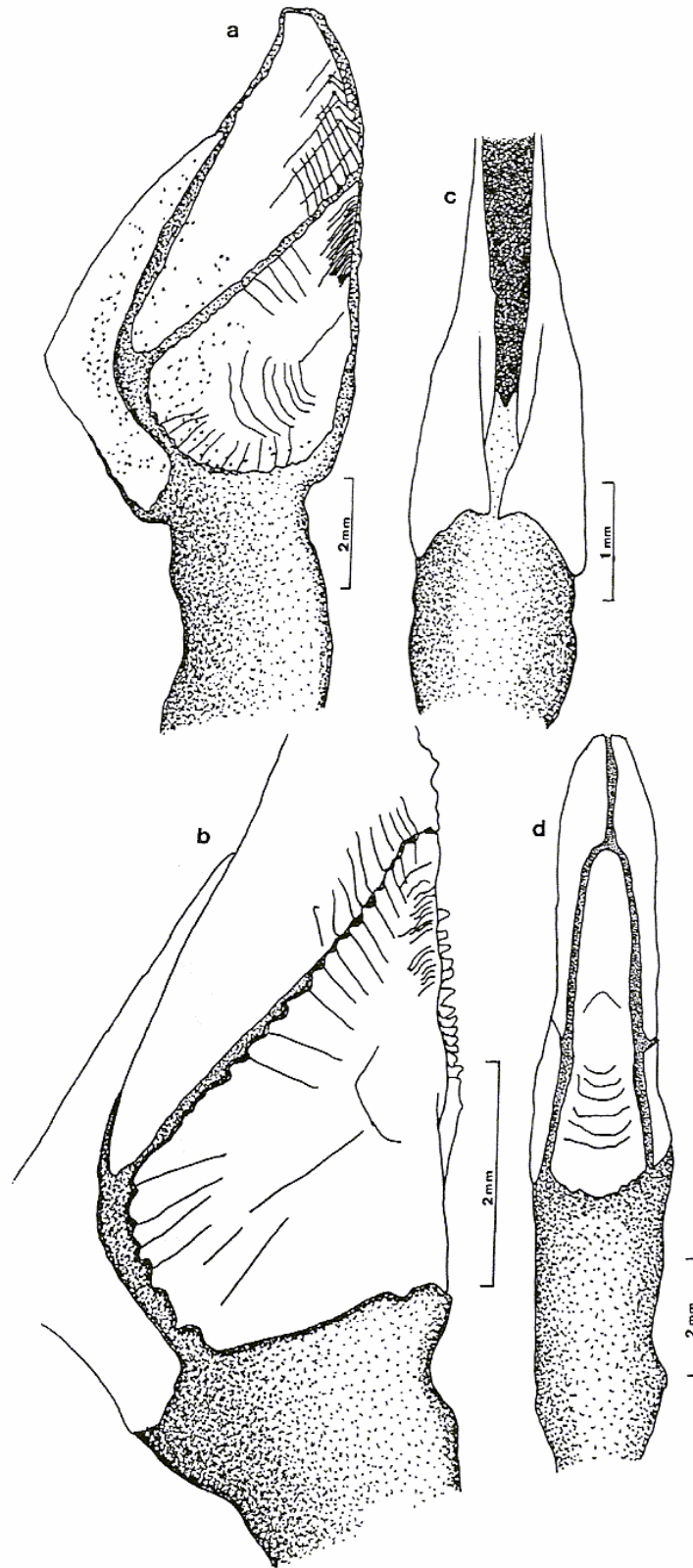


Figure 1. *Oxyaspis hirtae* (collection MNRJ 2859). a) General view of the left side; b) Detail of scutum of another specimen; c) Rostral view of another specimen; d) Carinal view of another specimen.

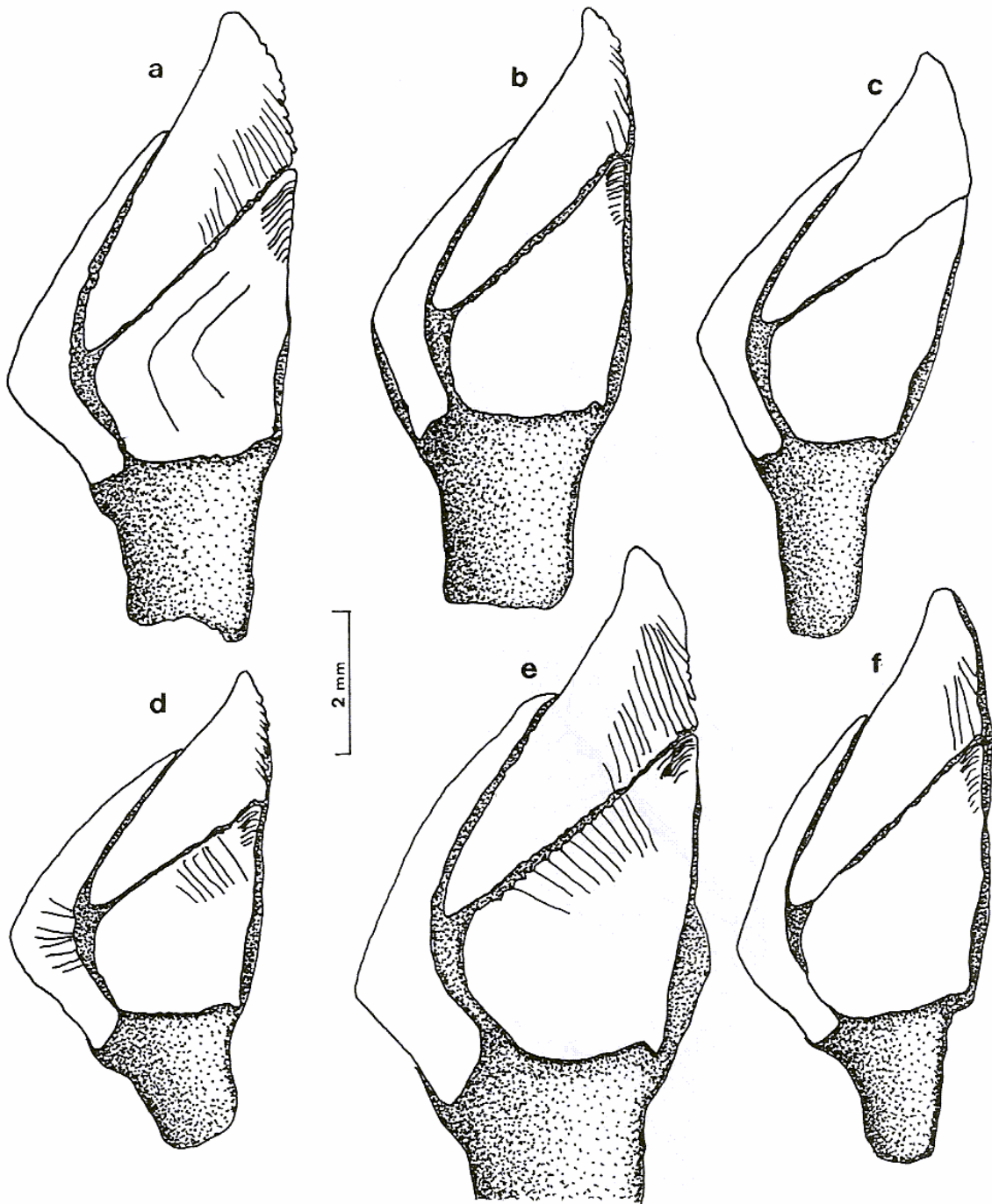


Figure 2. *Oxynaspis hirtae* (collection MNRJ 3264). a-f) General view of the left side of six specimens.

Labrum strongly inflated, without teeth. Palp paddle-like with long simple setae along extremity and upper margin (Fig. 3a). Mandible with 5-6 teeth, second were separated from first; lower tooth sometimes bifid (Fig. 3b-c). First maxilla without notch or sinuosity. Apical border of cutting edge with 2 or 3 strong spines, followed by several median size setae as far as inferior angle (Fig. 3d-e). Second maxilla nearly rectangular and with several long simple setae (Fig. 3f).

First pair of cirri with unequal rami, far from cirrus II. Basis of cirrus I with only one filamentary appendage, at posterior edge (Fig. 3g). Cirri IV-VI with anterior curvature of intermediary articles with five pairs of setae each, the proximal pair being very small. Postero-distal angle with long setae (Fig. 3h).

Caudal appendage unsegmented, short and with tuft of long setae at extremity (Fig. 3i). Number of articles from cirri I-VI from two specimens given in Table 1.

Table 1. Cirral counts of two specimens of *Oxynaspis hirtae* Totton.

Cirrus	I	II	III	IV	V	VI
Right	8-9	13-15	16-15	17-16	16-18	18-17
Left	8-9	12-14	16-16	16-16	17-17	18-16
Right	7-11	15-16	16-17	16-16	18-20	19+-19+
Left	7-9	14-17	17-18	18-19	19-18	19-12

Remarks: Totton (1940) and Bacon (1976) recorded *Oxynaspis hirtae* from West Indies and Florida. Herein its distribution is extended southward to 18°S - the first record of the species in the Southwestern Atlantic. Totton (1940) found this species living on the black-coral *Anthipathes hirta*, which is the same genus to which the specimens studied were found.

Many of the diagnostic characters used to characterize *O. hirtae* are variable and not useful to differentiate it from *O. celata* sensu stricto. Darwin (1851) observed the carina with a basal limb smaller in length than the distal limb in *O. celata*, whereas Totton (1940) described for *O. celata hirtae* a carina with a basal/distal limb ratio of less than half. The basal/distal carinal limb ratio observed has a wide amplitude, ranging from 0.34 to 1.09. Many have a ration larger than 0.5. Even though the majority of the specimens show a ratio of around 0.5, large specimens usually have a larger basal limb (Fig. 4).

Totton (1940) observed that the occludent margin of tergum of *O. celata hirtae* is proportionally longer in relation to the occludent region of scutum, than that observed by Darwin (1851) in *O. celata*. The specimens studied here display a larger variability, the occludent margin of the tergum ranging from 1/3 to 2/3 of the occludent margin of scutum. The same variability is seen in the carina scutum basis position. Totton (1940) noted that the base of the carina

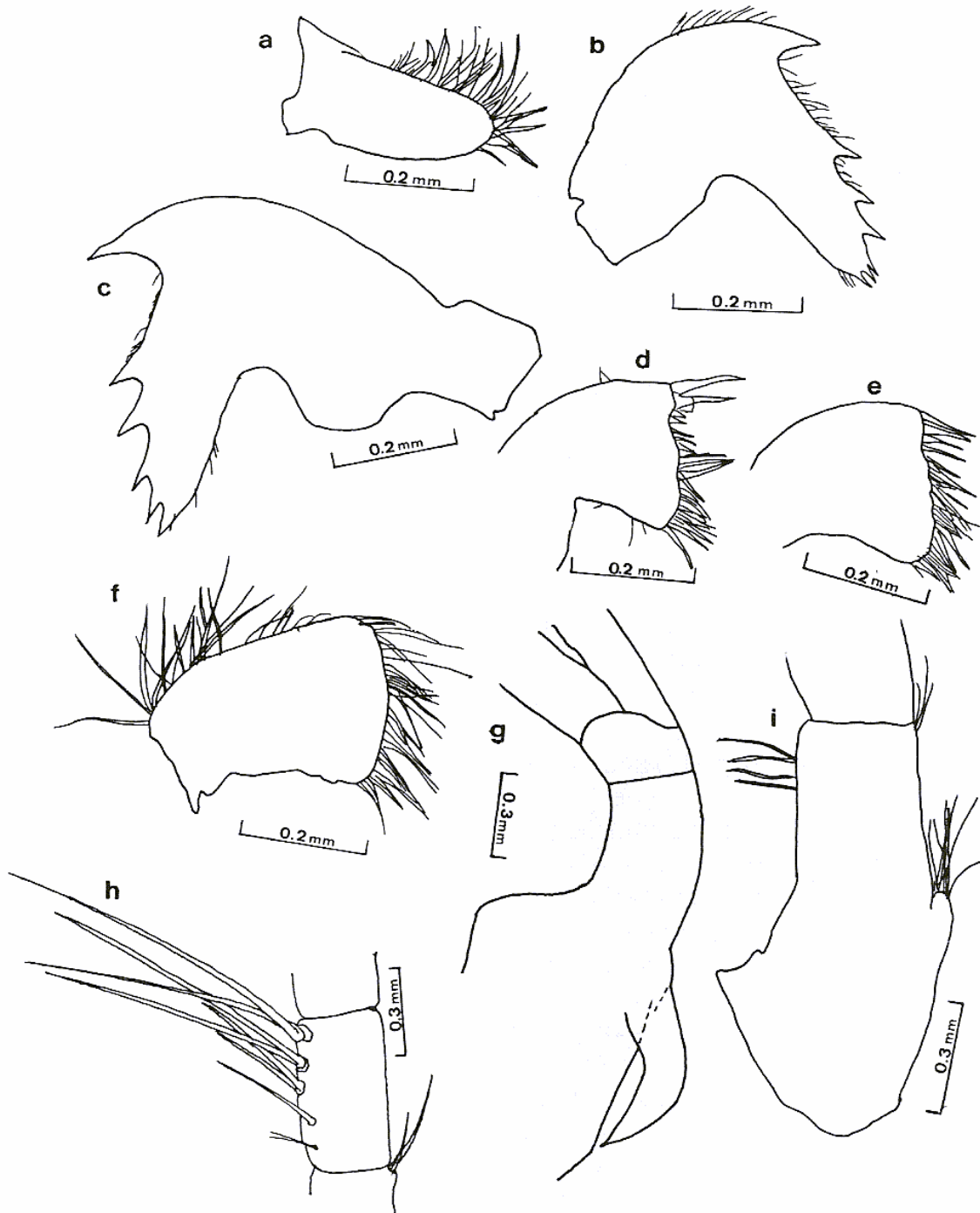


Figure 3. *Oxynaspis hirtae* (collection MNRJ 2859). a) Palp; b-c) Mandible of two specimens; d-e) First maxilla of two specimens; f) Second maxilla; g) Filamentary appendage of cirrus I; h) Medium article of cirrus VI; i) Caudal appendage.

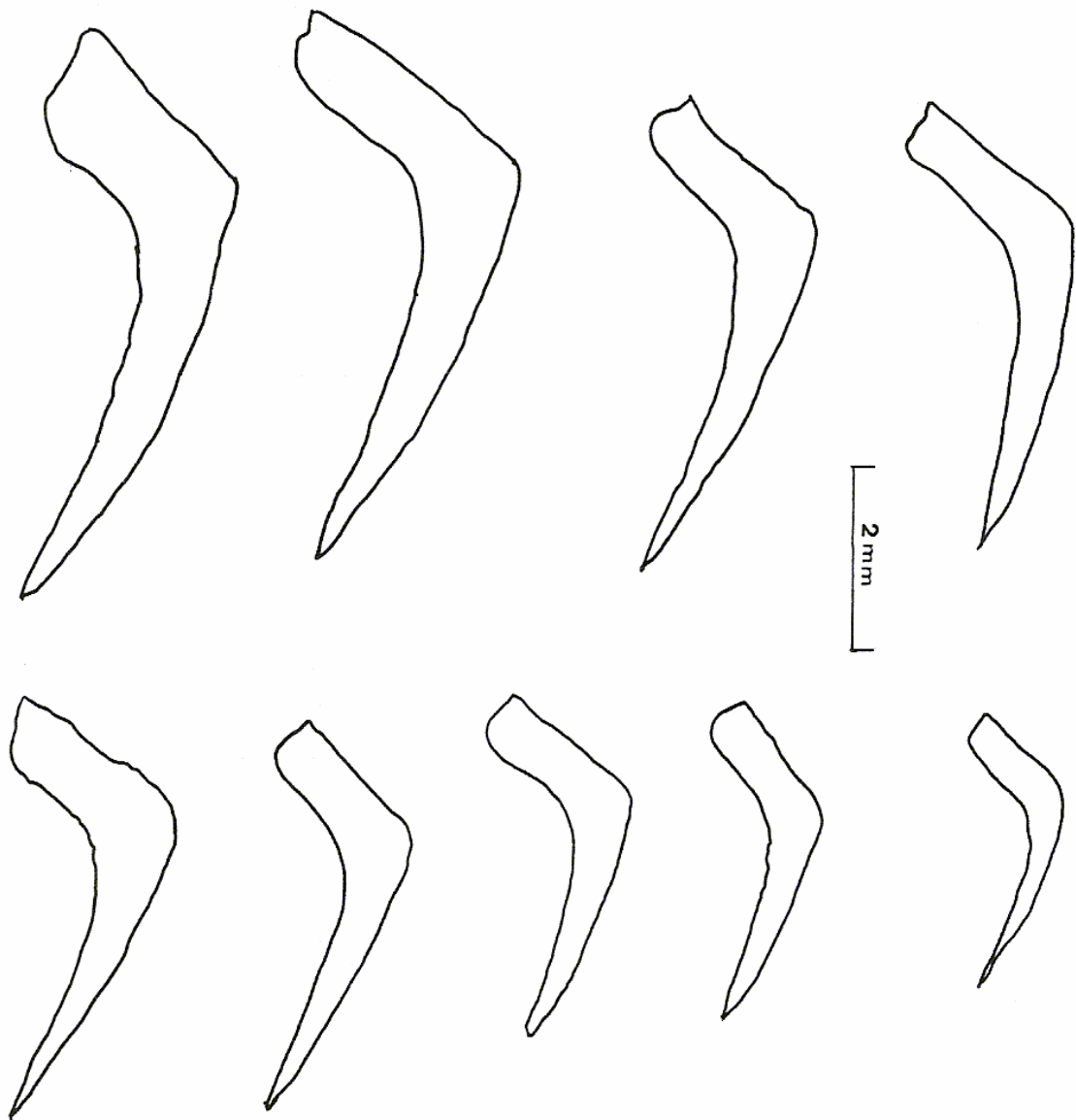


Figure 4. *Oxynaspis hirtae* (collection MNRJ 3264). Lateral view of several carinae.

and scutum had a straight outline. The material examined here exhibited great variability in outline (Fig. 2), from a straight contour to a pronounced angle. The mandibles also have a variable number of teeth, although different numbers in left and right mandibles can be observed in a single individual.

Despite the great variability in external characters, the following diagnostic features of the appendages appear to be more stable: the presence of a filamentary appendage and the absence of a notch on the first maxilla in *O. hirtae* compared with the absence of filamentary appendage and the presence of a notch in the first maxilla in *O. celata* (Figs. 3d-e, 3g).

It is our view that only internal characters may reliably distinguish *O. celata* Darwin, 1851 from *O. hirtae*. To synonymize the two species as proposed by Zevina (1982), therefore, may have been premature. The two species are allopatric in distribution with *O. hirtae* replacing *O. celata* in the Western Atlantic.

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