

# A NEW SPECIES OF *IPHINOPSIS* (CAENOGASTROPODA, CANCELLARIIDAE) FROM BRAZIL

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**Abstract** *Iphinopsis splendens* is described for deep water off the Southeastern coast of Brazil, the main diagnostic characters are the more elongated shell outline; sculpture of broader threads; periostracum with an axial micro-sculpture and total reduction of umbilicus. Some anatomical information is given based on dry specimens, showing a very long and coiled stored proboscis, lack of radula and a well-developed, funnel-like jaw plate.

**Key words** *Iphinopsis*, new species, Brazil

## INTRODUCTION

The genus *Iphinopsis* Dall, 1924 (type species *Iphinoe kelseyi* Dall, 1908, OD) encompasses eight species, most from deep waters of the Indo-Pacific and north Atlantic oceans. The genus was revised by Bouchet & Warén (1985: 261-263), where a comprehensive taxonomic treatment, including a discussion, is found. Beyond the type species, which occurs in California, the following species are also included in the genus: *I. choshiensis* (Habe, 1958) from Japan; *I. inflata* (Friele, 1879) from Norway; *I. nuda* (Dall, 1927) from off Georgia; *I. traverseensis* (Clarke, 1961) from the South Sandwich Islands, south Atlantic; *I. euthymei* (Barnard, 1960) from South Africa; *I. fuscoapicata* Bouchet & Warén, 1985, from Ireland; and *I. alba* Bouchet & Warén, 1985, from Gulf Gascogne, North Atlantic.

This paper is part of a project on the revision of the Brazilian malacofauna and on a phylogenetic re-evaluation of the Caenogastropods supra-specific taxa. A new species of this genus is described, the first from the southern coast of the Western Atlantic.

## DESCRIPTION

*Iphinopsis splendens* new species  
Figs 1-8

**Holotype** From Museu de Zoologia da Universidade de São Paulo, MZSP 45671.

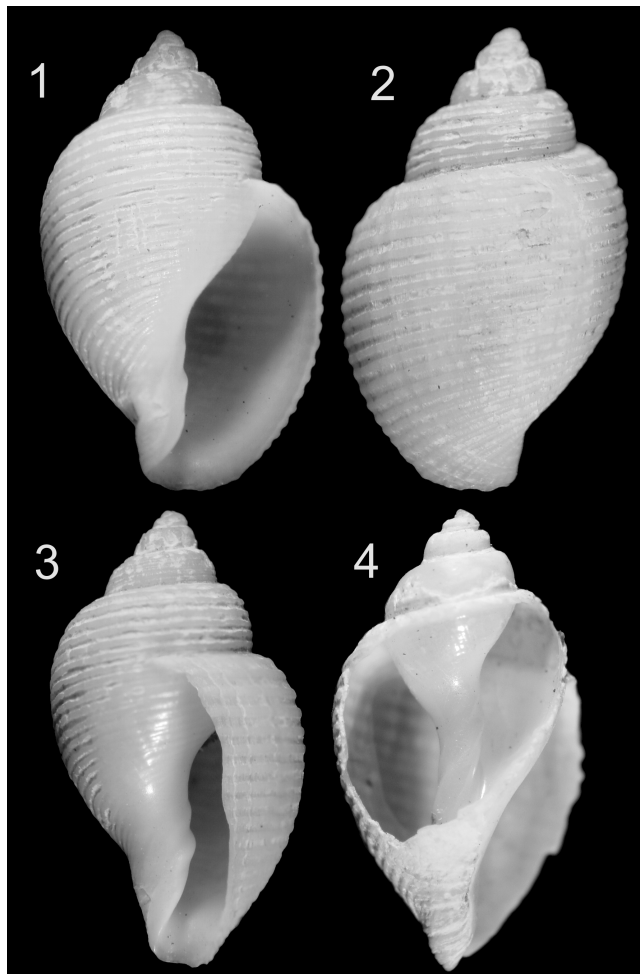
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**Paratypes** MZSP 45670, 2 specimens; 45669, 8 specimens from type locality.

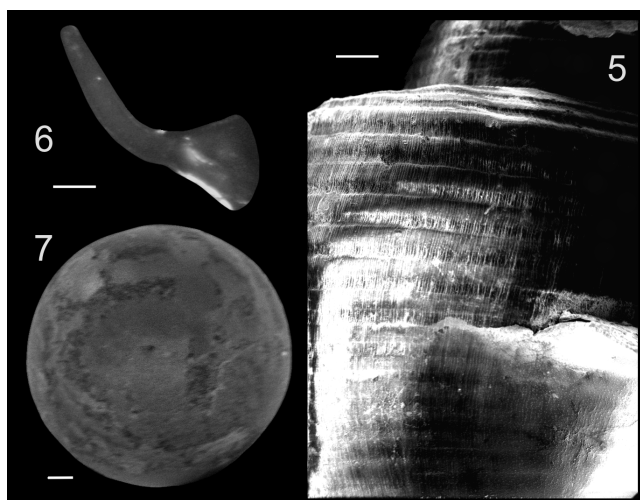
**Type locality** BRAZIL, Rio Grande do Sul, off Cassino, 33°39'S 51°07'W, 200 m depth (Sta. W. Besnard 1891, viii/1972).

**Diagnosis** Shell outline elongated (length-width ratio about 1.75); sculpture of broad threads (about 7 in penultimate whorl); periostracum with an axial micro-sculpture; inner lip with a pair of tall plicae.

**Shell** (Figs. 1-5) Small (about 10 mm), whitish, opaque, elliptical, up to 5 convex whorls. Spire bluntly pointed, about half length of body whorl. Protoconch mammillated, rounded, opaque, smooth, of one whorl, generally eroded. Transition of teleoconch unclear. Spire with each whorl sculptured by 5-7 uniform spiral threads (Figs 2, 3), each one broad, and low interspaces about half of the width of each thread. Body whorl with about 22-24 spiral threads with characters similar to those of spire, uniformly distributed and spaced. Aperture elliptical, orthocline (Figs 2-3). Periostracum thin, possessing low, but well marked axial lines, very close to each other, being slightly taller in interspaces of spiral threads (Fig. 5). Umbilicus (or pseudo-umbilicus) absent. Outer lip simple, edge cutting, externally folded because of threads of sculpture; inner surface whitish, smooth glossy. Canal short, wide (about half of larger portion of aperture width). Inner lip with pair of oblique folds in region just superior to canal; remaining region smooth, glossy. Callus thin, whitish, semi-transparent,



**Figs 1-4** *Iphinopsis splendens* shell. 1-3 holotype MZSP 45670, apertural, dorsal and profile views 4 paratype MZSP 45669 with part of body whorl removed for showing columella. Shells length = 10.2 mm.



**Figs 5-7** *Iphinopsis splendens* SEM images. 5 detail of shell in region between penultimate and body whorls, showing periostracum. MZSP 45669. Scale bar = 200  $\mu\text{m}$  6 jaw plate, left view. Scale bar = 100  $\mu\text{m}$  7 statolith. Scale bar = 10  $\mu\text{m}$ .

covering beginning of body whorl, extending little beyond aperture. Columella sigmoid, broad; pair of folds lying along its inferior region, surrounding inferior siphonal furrow (Fig. 4).

The following data are based on dry (mummified) specimens:

*Head-foot* (Fig. 8) Head slightly protruded, socket-like, with about half of head-foot width. Tentacles stubby, with about same length of head width. Eyes well-developed, located in outer region of tentacles base. Tentacles bases touching one another. Foot thick, occupying about half whorl. Pedal gland furrow deep, bordered by thick edges, occupying entire anterior foot edge. Columellar muscle of half a whorl. Operculum absent.

*Pallial organs* Mantle edge thin, simple. Siphon thick, about same length of head. Osphradium occupying about half of pallial cavity.

*Digestive system* Proboscis narrow, very long (about 1.5 times shell length), coiled inside rhinchoideal cavity. Radula lacking. Jaw-like plate located at oral tube (Fig. 6); anterior and middle regions narrow, forming a tube; posterior region expanding, funnel-like; posterior border thin, circular; ventral edges straight, touching one another along median line.

*Central nervous system* Not seen in detail except by pair of statocysts located at short distance from proboscis base, immersed into pedal musculature; statolith (Fig. 7) weakly smaller than statocyst, perfectly spherical.

*Measurements* (in mm) 10.5 by 6.1 (Holotype), 7.5 by 4.6 (Paratype MZSP 45669).

*Distribution* Only know from type locality.

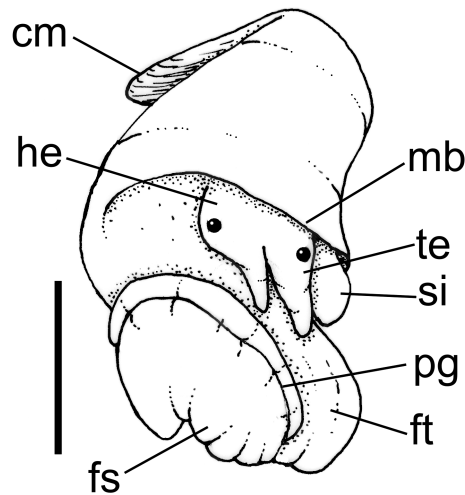
*Habitat* Deep water, 200 m depth.

*Material examined* Types.

*Derivation name* The specific epithet is derived from Latin *splendeo*, meaning splendid, referring to the beauty of the shell.

## DISCUSSION

The shells of all *Iphinopsis* species are similar, being only differentiable by small details. The most outstanding feature of *I. splendens* is the



**Fig. 8** *Iphinopsis splendens* head-foot (re-hydrated). Scale bar = 1 mm. Abbreviations: **cm**, columellar muscle; **ft**, foot; **fs**, foot sole; **he**, head; **mb**, mantle border; **pg**, pedal gland furrow; **si**, siphon; **te**, tentacle.

elongate shell shape. Its length/width ratio is on average 1.75, while the remaining species it is about 1.50 (*I. traverseensis* = 1.42; *I. kelseyi* = 1.55; *I. alba* = 1.50; *I. inflata* = 1.54; *I. fuscoapicata* = 1.43) (Clarke, 1961; Bouchet & Warén, 1985). Only in *I. euthymei* is the shell more elongate with an approximate ratio of 1.8 (Barnard, 1960) *I. nuda* has the ratio about 1.71.

The sculpture of *I. splendens* is more coarse with fewer and slightly wider spiral threads than in any of the other species. In *I. splendens* there are 6-7 spiral threads in the penultimate whorl, while there are over 10 in *I. euthymei* (Barnard, 1960), *I. traverseensis* (Clarke, 1961), *I. kelseyi* and *I. inflata* (Bouchet & Warén, 1993), and about 8-9 in *I. alba* and *I. nuda*.

The pair of columellar folds in the inner apertural lip of *I. splendens* are more developed than those of remaining species (Figs 3, 4). The periostracum axial micro-sculpture is apparently more developed in *I. splendens* (Fig. 5), but the information about this is not given in the consulted literature.

However, the more distinctive feature of *Iphinopsis splendens* is the total absence of an umbilicus (or pseudo-umbilicus). This feature is normally particularly well developed in cancellariids, including *Iphinopsis* species. Although the umbilicus of the genus *Iphinopsis* is normally not so developed, only in *I. alba* is the umbilicus very narrow, almost absent.

The generic attribution of *Iphinopsis splendens* is based on the shell similarity with the type species and the remaining species, despite the lack of umbilicus. Other features also allow the generic attribution, such as the deep water occurrence and the absence of a radula.

Few comparisons of the anatomy can be made as little information is available for the remaining species. Bouchet & Warén (1985) also studied dry specimens and presented the only published anatomical information to date. They also found no radula in *Iphinopsis* and that agrees with the findings here.

The cancellariid subfamily Admetinae, from the northern hemisphere, also lack the radula, and it is possible that the species described here, representing *Iphinopsis*, indicates placing the genus in the Admetinae (Harasewych & Petit, 1986, 1998). In contrast, conchologically similar Australian and Antarctic species have a radula (e.g. *Nothoadmete*, Oliver, 1982). The absence of a radula in *Iphinopsis* (at least those known in this sort of detail) indicates that it is allied more closely to northern hemisphere members of the subfamily than to species from Australia or Antarctica. This is further supported by the well developed jaw plate which is also in *Admete viridula* (Fabricius, 1780), (Harasewych & Petit, 1986).

As the very characteristic radula of the Cancellariidae is absent in *Iphinopsis*, the family placement remains uncertain. However, the presence of a well-developed jaw plate is one of the more outstanding features of the family, as it is not commonly found amongst the other neogastropods [except Volutomitridae (Kantor & Harasewych, 1992; Bouchet & Kantor, 2004)]. Another character in common between *Iphinopsis* and other cancellariids is the very long proboscis, coiled and located inside the rhynchodeal cavity. A more detailed comparison between *I. splendens* and other cancellariids is being done in an ongoing larger paper on the phylogeny of the Cancellarioidea.

The similarities in shell between *Tromina abyssicola* (Clarke, 1961) and those of *Iphinopsis* are clear. This similarity could suggest the same generic attribution but *T. abyssicola* has a stenoglossan radula which excludes it from the Cancellariidae.

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