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SHORT COMMUNICATION

Description of *Jubanyella plemmyris* gen. nov. et sp. nov. (Cnidaria: Hydrozoa: Narcomedusae) from a specimen stranded off Jubany Antarctic station, with a new diagnosis for the family Aeginidae

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Jubanyella plemmyris, a new genus and species of aeginid narcomedusan, is described from one complete specimen stranded on Potter Cove beach, King George Island, Southern Ocean. The new genus and species is proposed in order to accommodate the specimen described in the family Aeginidae; Jubanyella gen. nov. contains undivided stomach pouches, therefore necessitating a new diagnosis for this family.

INTRODUCTION

Zooplankton mass strandings are occasionally reported in the Southern Ocean (Davenport, 1995). In Potter Cove beach, off the Argentinean base Jubany on King George Island, this is a recurrent event in summer (Davenport, 1995; Favero, 1995; Pakhomov *et al.*, 2003; V. Fuentes, Alfred Wegener Institute, unpublished data). In March 2003, a zooplankton stranding that consisted mainly of gelatinous organisms, such as the ctenophore *Beroe* sp., the scyphomedusa *Desmonema* sp. and the salp *Salpa thompsoni* Foxton, was observed. In addition, a single specimen of a large aeginid narcomedusan was found intact. The macroscopic and microscopic examinations of this specimen revealed that it did not fit into any known aeginid genus. Descriptions of new species of medusae based on stranded specimens are unusual, and to our knowledge, only the scyphomedusa *Eupilema inexpectata* from the Benguela Current has previously been described in this way (Pagès *et al.*, 1992). The present study describes the new genus and species, provides a new diagnosis of the family Aeginidae and summarizes the present knowledge on narcomedusan diversity and distribution in the Southern Ocean.

RESULTS AND DISCUSSION

Systematics follows Bouillon *et al.* (2004).

Phylum Cnidaria Verrill, 1865

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Class Hydroidomedusa Claus, 1877
Subclass Narcomedusae Haeckel, 1879
Family Aeginidae Gegenbaur, 1856 emend. Maas, 1904.
Jubanyella new genus

Diagnosis

Aeginidae with undivided stomach pouches; with peripheral canal system, with primary perradial tentacles, with peronia of variable length; stomach pouches extending slightly beyond points of tentacle rising on exumbrella, without otoporpae.

Jubanyella plemmyris new species (Figs1–3)

Material

A single specimen (holotype) found in March 2003 stranded in fairly good condition on Potter Cove beach, in the vicinity of the Argentinean Antarctic station Jubany (62°14′S 58°40′W), King George Island, South

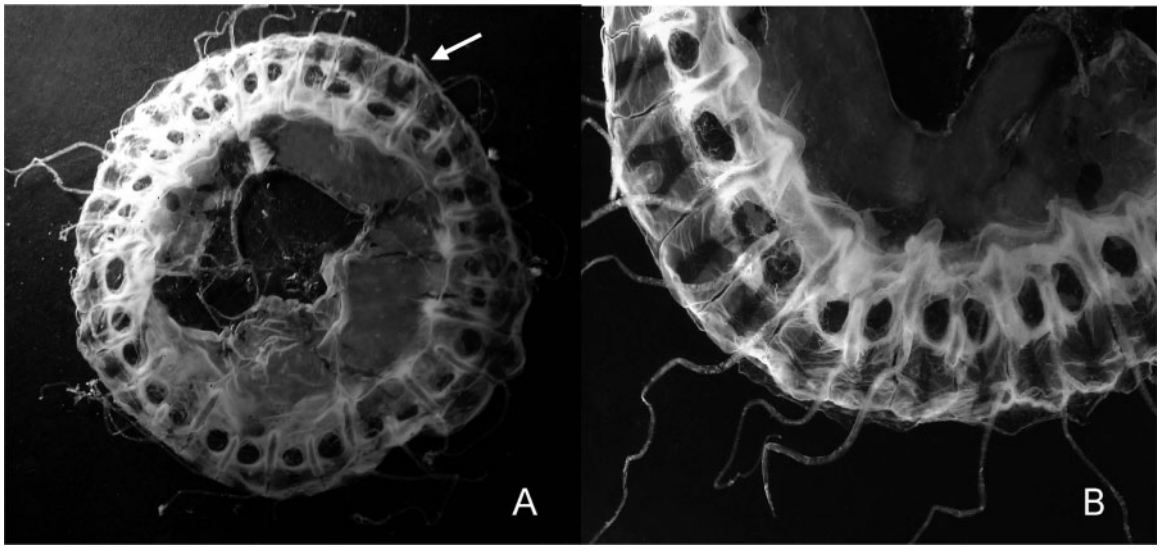

Fig. 1. Dorsal view of the preserved specimen of *Jubanyella plemmyris* gen.et sp. nov. Umbrella diameter 95 mm. (**A**) Complete dorsal view; arrow indicates the velum. (**B**) Detail of the ventral view of the stomach pouches, marginal lappets and mesogleal protuberances; arrow indicates the trace of a partition in the marginal lappet.

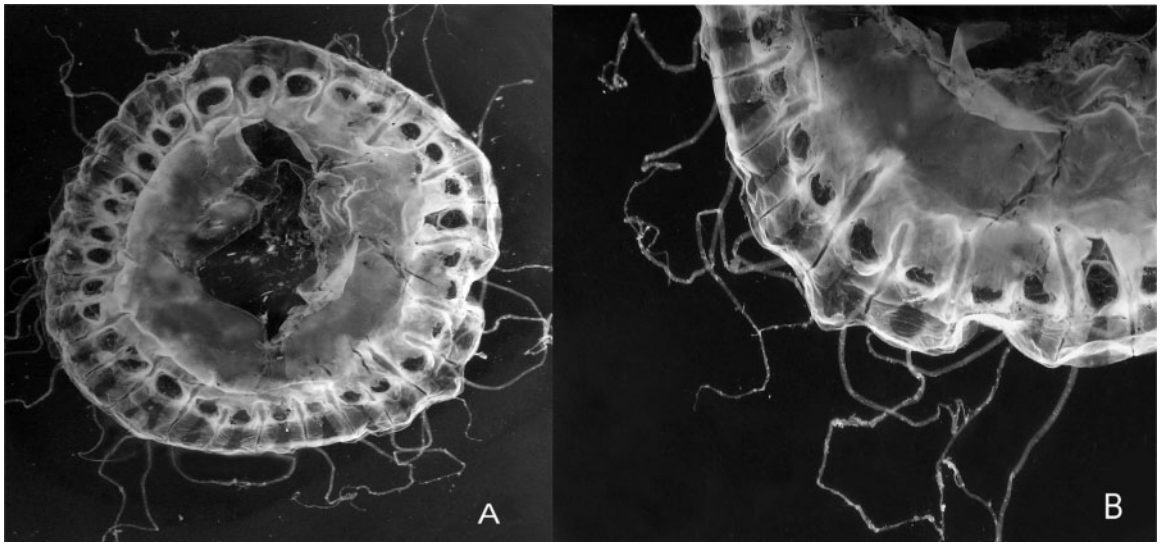

Fig. 2. Ventral view of the preserved specimen of *Jubanyella plemmyris* gen. et sp. nov. Umbrella diameter 95 mm. (**A**) Complete dorsal view. (**B**) Detail of ventral view of the stomach pouches, marginal lappets and mesogleal protuberances.

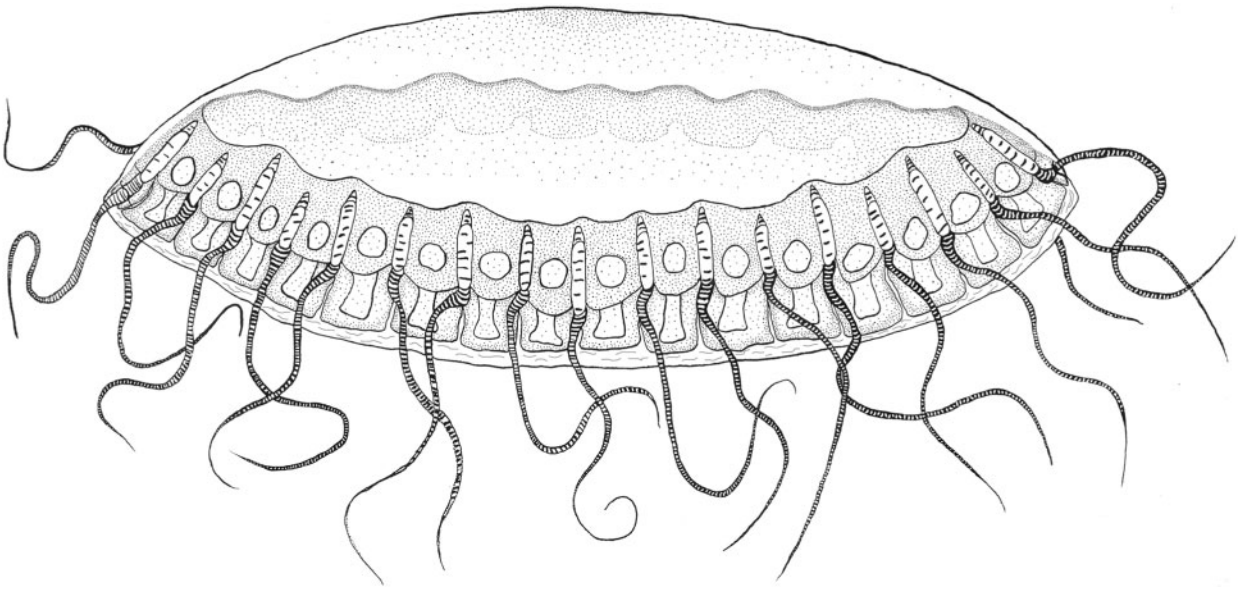

Fig. 3. Drawing of the lateral view of *Jubanyella plemmyris* gen. et sp. nov. Umbrella diameter 95 mm.

Shetland archipelago, during surveying of a 30-m transect along the shoreline during low tide after a mass beaching of zooplankton. The narcomedusae was preserved in 4% buffered formalin–seawater solution, and it was examined, drawn and photographed under a binocular microscope some months later. The holotype has been deposited in the Cnidarian Collection of the Institut de Ciències del Mar (CSIC) in Barcelona, Spain, with the catalogue number NAR-0019-1.

Etymology

Jubanyella from Jubany, name of the Argentinean station located on King George Island on the beach of which the new narcomedusa stranded; *plemmyris* (high tide, in Greek) name (feminine) in apposition.

Description

Umbrella transparent and yellowish, disc-shaped, 95 mm in diameter, flattened, smooth, with thin but firm mesoglea. Stomach circular, very large, 77 mm in diameter including stomach pouches, mouth circular with no pronounced lips; stomach wall thin, yellowish and slightly opaque.

Stomach pouches 31, interradial, irregular in shape ranging from rectangular to square, each one with a prominent globular gelatinous protuberance of the umbrellar mesoglea contained within the distal half, giving the general appearance of a rosary chain within the circumference of the umbrella. Each mesogleal protuberance is completely laterally contained within each stomach pouch cavity, without attachments to the lateral walls, and extends into the subumbrella, almost but not completely blocking the distal-most portion of the stomach pouch.

Marginal lappets 31–32, interradial, larger than stomach pouches, mostly rectangular in shape but a few slightly trapezoidal (minor base centripetal), with distal corners rounded. Peripheral canal system present. Canals uniformally wide, usually wider than the central part of each lappet, and extending vertically along both sides of each peronia. Otoporpae absent.

Tentacles 31 (plus one partially developed tentacle base), about 4–5 cm in length, rising from roots of variable length embedded between the distal portions of stomach pouches. Peronia 32, fusiform, simple, of irregular length, without cnidocysts, tapering out distally. Gonads not observed. Velum complete, very thin, 2 mm wide.

Remarks

The wider marginal lappet shows traces of its partition in the distal edge, as indicated by a thin median cleft or peronia (Fig. 1B) surrounded by the peripheral canal. No accompanying partition of proximal gelatinous protuberances was recognized. Reports of division in lappets and related structures are rare in narcomedusae, and we interpret that the specimen was forming the 32nd marginal lappet when it became stranded or that the formation of this lappet was anomalous.

New diagnosis for Aeginidae

Narcomedusae with interradial stomach pouches, divided or undivided; with or without peripheral canal system, with primary perradial tentacles leaving umbrella between stomach pouches; pouches extending beyond points of origin of primary tentacles, with or without secondary tentacles on umbrella margin; with or without otoporpae.

Discussion

The new genus and species *Jubanyella plemmyris* is proposed in order to accommodate the specimen described in the narcomedusan family that comprises all species with interradial stomach pouches, the Aeginidae. *Jubanyella* gen. nov. is characterized by the high number of tentacles (31 [32]), marginal lappets (31 [32]) and stomach pouches (31), the latter undivided (one invagination of the stomach between each pair of tentacles) and therefore necessitating a new diagnosis for this family.

The presence of a gelatinous protuberance of the umbrellar mesoglea in each stomach pouch is intriguing, and several hypotheses can be made as to their function; perhaps, they aid in increasing buoyancy. Gelatinous papillae are known to protrude into the subumbrellar cavity of the leptomedusas *Rhacostoma atlanticum* L. Agassiz and *Zygocanna vegans* Bigelow but are not as conspicuous as those observed in the present new genus and species of narcomedusa. Exumbrellar papillae or gelatinous protuberances are not common in medusae and occur in different taxonomic groups such as the trachymedusae (e.g. *Halicreas minimum* Fewkes) and the scyphomedusae (e.g. *Atolla chuni* Vanhöffen). The shortness of the tentacles compared with the diameter of the bell is interesting as this anatomy would not be conducive to 'stealth predation' as observed *in situ* for several other narcomedusae (Raskoff, 2002).

The absence of otocysts (statocysts) on the umbrellar margin could be attributable to their loss through abrasion during stranding. However, the lack of otoporpae seems characteristic of this species and genus, because no trace of them was observed on any of the 31 (or 32) marginal lappets, even though the very fragile velum was intact along its whole perimeter (Fig. 1A). Kramp (Kramp, 1959, 1961) diagnosed aeginids as being 'with or without otoporpae', although none of the genera listed (*Aegina*, *Aeginodiscus*, *Aeginopsis*, *Aeginura* and *Solmundella*) have otoporpae. However, it seems that aeginids can have otoporpae, because Xu and Zhang (1978) described *Otoporpa polystriata* from some specimens 4–6 mm in diameter collected in Chinese waters with some of these otoporpae reaching the exumbrellar apex. *Otoporpa* was listed as a valid genus by Bouillon and Boero (2000).

It is interesting to note that all new species of aeginids described have required the creation of a new genus with the exception of the very rare *Aeginura beebei* Bigelow. To date, three genera and species of aeginid medusae have been recorded from Antarctic waters, namely *Aegina citrea* Eschscholtz, *Solmundella bitentaculata* (Quoy and Gaimard) (Pugh *et al.*, 1997) and *Aeginura grimaldii* Maas (Navas-Pereira and Vanucci, 1990). The occurrence of the new *Jubanyella plemmyris* in Antarctic waters brings the total to four genera and four species, making it the most diverse narcomedusan family in Antarctic waters. The other two narcomedusan families, cuninids and solmarids, are more diverse in temperate waters where both families are represented by 12 and 10 species, respectively. We note, however, that the cuninid *Sigiweddellia benthopelagica* Bouillon, Pagès and Gili, is an endemic Antarctic species.

Narcomedusae are distributed over a wide vertical range of the Antarctic water column, but they are mainly deep-water organisms. *Solmundella bitentaculata* occurs from surface waters down to 1000-m depth with the highest abundances recorded below the thermocline (Pagès and Kurbjeweit, 1994; Pagès and Schnack-Schiel, 1996). *Cunina duplicata* Maas and *A. citrea* are inhabitants of the deep mesopelagic according to their frequent occurrence in the 1000- to 2000-m depth range (Pagès *et al.*, 1994; Pagès *et al.*, 1996). A more stratified sampling found that *A. citrea* is more bathypelagic, as several specimens were collected between 2595- and 2800-m depth (Pugh *et al.*, 1997). Finally, *Sigiweddellia benthopelagica* has been collected only above the seafloor between 1583- and 1034-m depth (Bouillon *et al.*, 2001). The mode of sampling of *Jubanyella plemmirys* (stranding) means that no oceanographic data on its *in situ* habitat preferences are available, so whether it is a surface dweller or an inhabitant of deeper waters is a matter of conjecture.

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