

## ***Corymorpha rubicincta*, a new Hydroid (Hydrozoa, Anthoathecata, Corymorphidae) from Port Phillip, Australia**

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### **Abstract**

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*Corymorpha rubicincta* sp. nov. a solitary hydroid is known only from shallow water silty seabed at the type locality in Port Phillip, Victoria, Australia. It is fertile in winter, gonophores are probably cryptomedusoid. The red hydrocauline band is diagnostic.

### **Keywords**

*Corymorpha rubicincta*, Port Phillip, Australia, shallow water silty seabed, red hydrocauline band, cryptomedusoid.

### **Introduction**

During an ecological survey in June, 2002, 1 km north-west of Point Richards in Port Phillip, Victoria, Australia, solitary hydroids were found in an abandoned dredge excavation 4–6 m deep. The habitat in the excavation is silty sand heavily bioturbated by infaunal polychaetes and bivalve molluscs. In June, 2008 more specimens were collected from the excavation and *in situ* underwater photographs taken. Water temperature at time of collection was 13°C.

Holotype and paratype material is lodged in Museum Victoria (NMVF).

### **Family Corymorphidae Allman, 1872**

#### ***Corymorpha* M. Sars, 1835**

*Diagnosis* (after Brinckman-Voss (1970), Petersen (1990) and Bouillon *et al* (2006).

Hydroid solitary, hydranth vasiform with one or several closely set whorls of oral filiform tentacles and aboral whorl of filiform tentacles; hydrocaulus with thin perisarc, with longitudinal peripheral canals; lower part with papillae and/or long anchoring filaments; parenchymatic diaphragm; gonophores borne on blastostyles just above aboral tentacles giving rise to free medusa or fixed sporosacs.

*Material examined.* Holotype NMVF147476, one stem alcohol preserved, coll: J.E. Watson, 5 June 2008. Paratypes, NMVF 147477, six stems alcohol preserved, coll: J.E. Watson, 18 June 2002. NMVF147478, six stems coll: J.E. Watson, 5 June 2008. All material

collected from 4.5–6 m depth. Material initially hardened in 5% formalin then transferred to alcohol.

*Description (from live and preserved) holotype and paratypes* Hydroids solitary, hydrocaulus up to 4 cm high, base of hydrocaulus blunt, embedded in sediment and rooted by a thick mass of soft, intergrown hair-like filaments adherent to sand grains; filaments slightly thicker near point of attachment to hydrocaulus.

Hydrocaulus cylindrical, widest at base, tapering gradually to a transverse red band about one third to half distance up stem; stem then of same diameter to base of hydranth. Perisarc above band thin and becoming almost colourless distally; a constriction at base of hydranth; in some stems a second red band at constriction marking junction of stem with hydranth. Cauline perisarc below primary band thick and gelatinous with numerous digitate pendulous papillae; papillae becoming shorter with distance up stem, gradually reducing to wavy discontinuous internal lines of cream-coloured spots sometimes interspersed with red blotches.

Hydranth long, vasiform, capable of great extension and contraction with a single whorl of 20–24 long, slender filiform aboral tentacles tapering to a pointed tip; approximately 30 oral tentacles, much shorter than aborals, arranged in a tuft of two closely set rows, tentacles in each row alternating with those above and below. Hypostome conical when closed and oral tentacles tightly bunched, when hypostome widely open, tentacles arched backwards.

Gonophores fixed sporosacs, borne on blastostyles set in one whorl just above aboral tentacles, a blastostyle usually between each second or third tentacle. Blastostyle short, stout, unbranched,

straight to backwardly recurved; up to 20 small subspherical to knuckle-shaped gonophores clustered in groups of three to five without peduncle along one side; gonophores probably cryptomedusoid with a thick epidermal layer heavily armed with nematocysts; more mature sporosacs packed with small ova.

Colour: rooting filaments colourless to greenish; lower two thirds of hydrocaulus yellow to reddish, colour gradually fading distally to primary band; primary band brick red; papillae below band cream. Body of hydranth pale flesh-colour, hypostome white to cream, usually a band of red spots just above aboral tentacles and similar spots on bases of inner row of oral tentacles; blastostyle and gonophores colourless to white. Tentacles translucent white.

Measurements (mm) of hydrocaulus from live specimens

Hydrocaulus	
length overall	20 – 40
diameter at base	2 – 3
diameter at cauline band	2.2 – 2.5
diameter below hydranth	1.5 – 2
distance from red cauline band to base of hydranth	5 – 12
Hydranth	
diameter at constriction below aboral tentacles	1.5 – 2
length of oral tentacle	3.8 – 4.5
length of aboral tentacle	12 – 14
Blastostyle (immature)	
length	0.1 – 1.5

Cnidome comprising one category (stenotele) of five size classes and three categories of nematocysts each of one size class (desmoneme, microbasic mastigophore, heterotrichous anisorhiza).

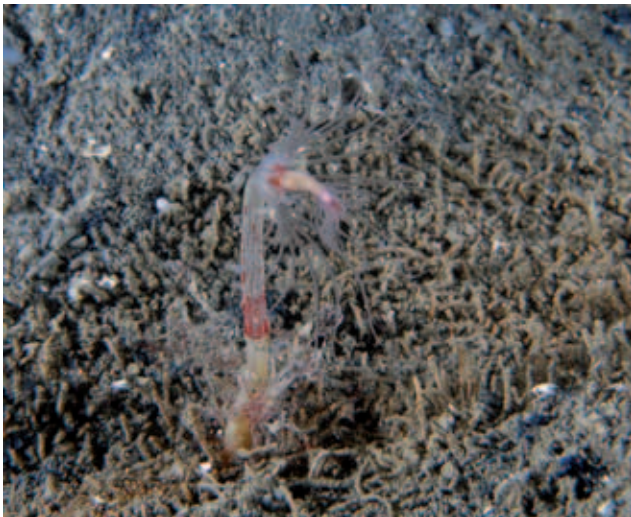


Figure 1. *Corymorpha rubicincta*, fertile hydranth, *in situ* image, depth 5 m.

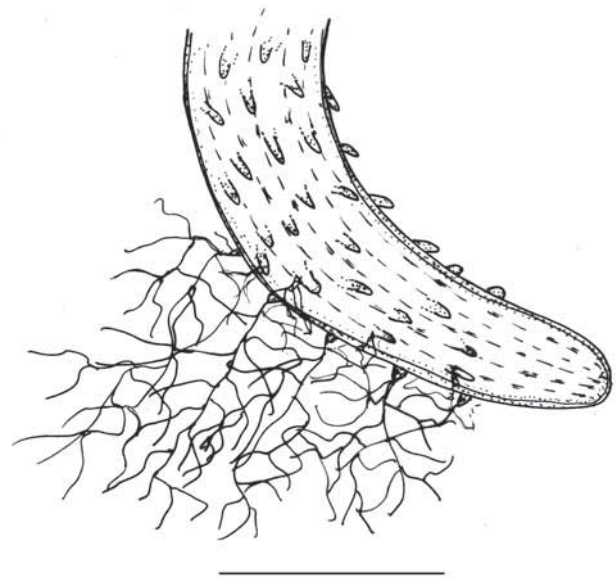


Figure 2. Rooting filaments, drawn from paratype. Scale bar 5 mm.

Nematocysts, measurements ( $\mu\text{m}$ )

Nematocyst	Dimensions	Aboral Tentacle	Oral Tentacle	Gonophore
Stenotele (i)		Absent	N	A
capsule	18-19 x 13-15			
shaft	13			
Stenotele (ii)		Absent	Absent	A
capsule	15-17 x 14-15			
shaft	14			
Stenotele (iii)		C	Absent	Absent
capsule	14-16 x 11-14			
shaft	12			
Stenotele (iv)		A	Absent	R
capsule	12-13 x 8-10			
shaft	8-10			
Stenotele (v)		Absent	C	Absent
capsule	10-11 x 8-9			
shaft	8			
Desmoneme	7-10 x 6-8	A	A	Absent
Microbasic mastigophore	12-15 x 4-6	A	A	C
Heterotrichous anisorhiza		R	Absent	R
diameter	15-16			

Key to abundance: A = abundant, C = common, N = not common, R = rare

Aboral, oral tentacles and gonophores with abundant stenoteles. Desmonemes absent from gonophores. The heterotrichous anisothorhiza has a very long and spinous thread.

### Remarks

Similar species of *Corymorpha* considered were: *Corymorpha nutans* M. Sars, 1835, *Corymorpha januarii* Steenstrup, 1854 and *Corymorpha forbesii* (Mayer, 1894); all were rejected because they have many more aboral tentacles than *Corymorpha rubicincta* and moreover, all release medusae. Other Pacific records of *Corymorpha* are *Corymorpha symmetrica* Hargitt, 1924 and *Corymorpha tomoensis* Ikeda, 1910, and *Corymorpha sagemina* Hirohito, 1988 both of which are also likely to produce medusae. *Corymorpha carnea* (Clark, 1876) is about three times larger, has branched blastostyles and medusoid gonophores (see Hirohito, 1988).

The only previous record of *Corymorpha* from Australia is that of Stechow (1932) who described *Corymorpha* (*Euphysa*) *balssi* from Shark Bay in Western Australia. His infertile colony was from the carapace of the spider crab *Schizophrys dama*, the type material of which is lodged in the Zoologische Staatssammlung, München (Ruthensteiner *et al.* 2008). The carapace of a crab (see photograph, Figure 2E, Ruthensteiner *et al.*, 2008) seems an unlikely habitat for *Corymorpha* which is usually found on a silty seabed. Ruthensteiner *et al.* (2008) also give a figure (Figure 7B) of a previously unpublished illustration of a specimen of *Corymorpha* drawn by Stechow's graphicist W. Rössler which may be Stechow's specimen of *C. balssi*. Examination of the colony on the crab carapace will settle the question of whether it is indeed a *Corymorpha* or more likely, a species of *Zyzyzus*. Although I have not examined this material and while the true identity of Stechow's material needs to be established, the species is clearly not *Corymorpha rubicincta*.

The lines passing upwards through the hydrocaulus of *Corymorpha rubicincta* are obscured in the lower stem region by the thick gelatinous perisarc. Under high magnification the reddish specks and blotches throughout the hydrocaulus

appear to be groups of zooxanthellae. Papillae are present on the lower part of most stems but are absent from some stems and may develop as the hydrocaulus matures; well developed papillae are long and finger-like, becoming button-like up the stem, then gradually fading to blotches in the perisarc. The distinctive red band part way up the stem is present in all hydrocauli; only some stems have the secondary, thinner band below the hydranth.

Blastostyles were abundant on specimens collected in June (winter) of 2002 and 2008 but were absent from the few hydrocauli remaining at the locality six weeks later in July, 2008. The thick epidermal layer of the gonophores obscures the internal structures thus preventing accurate diagnosis

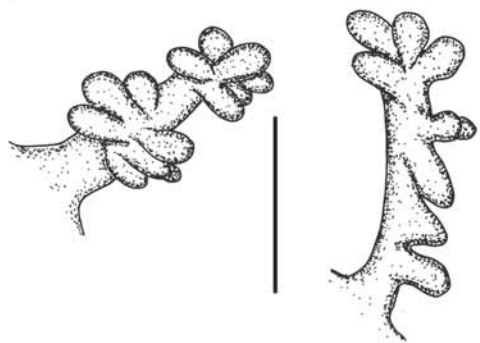


Figure 3 Blastostyle, two views showing developing gonophores. Scale bar, 1 mm.

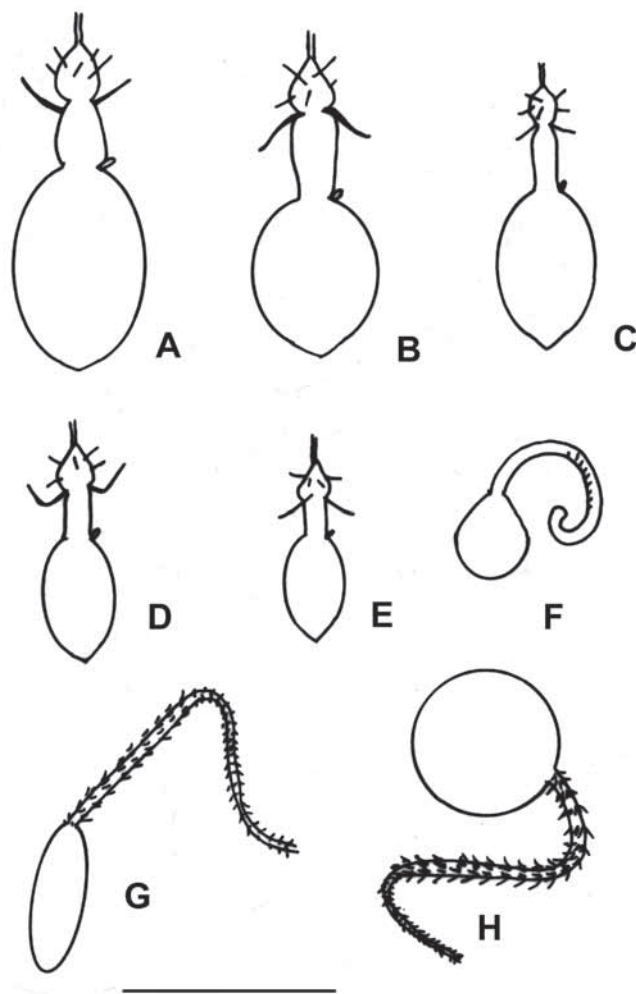


Figure 4. Cnidome, 4A, stenotele (i) from oral tentacles. 4B, stenotele (ii) from gonophores. 4C, stenotele (iii) aboral tentacles. 4D, stenotele (iv) from aboral tentacles and gonophores. 4E, stenotele (v) from oral tentacles. 4F, desmoneme from oral and aboral tentacles, 4G, microbasic mastigophore. 4H, heterotrichous anisothorhiza from aboral tentacles and gonophore. Scale bar, 20  $\mu$ m.

however, they are almost certainly cryptomedusoid. The ova are small, 10–32  $\mu\text{m}$  in diameter, although not numerous and are visible only under high magnification when the gonophore is crushed. An *in situ* image (June 2008) showed a group of 35 young hydrocauli (some to 6 mm high) grouped around the base of a parent stem, suggesting that fertilized ova may drop from the gonophore directly to the substrate to commence growth as new hydrocauli.

Information on the cnidome of the hydroid of *Corymorpha* is from Bouillon (1985), Schuchert (1996) and da Silveira and Migotto (1992) who list desmonemes, anisorhizas, stenoteles and micro- and macrobasic mastigophores and heterotrichous anisorhizas. With the exception of macrobasic mastigophores *Corymorpha rubicincta* has the same categories of nematocysts.

This is the first undoubted record of *Corymorpha* from Australia.

**Ecology.** *Corymorpha rubicincta* occurs on silty substrate in quiet water conditions within a narrow depth range of 5–6 m on the sloping sides of an old excavation in the seabed. The rather flaccid scattered hydrocauli stand more or less erect above the bed. It may be a summer species as intensive search at the type locality in July (mid-winter) at a water temperature of 10°C found only two moribund stems.

**Etymology.** The species is named for the red band encircling the hydrocaulus.

#### Acknowledgements

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