

# On Some Hydroids (Cnidaria) from the Coast of Pakistan

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**Abstract.**- The paper deals with the occurrence of eleven species of the hydroids from the coast of Pakistan. All the species are reported for the first time from Pakistan. These species are *Hydractinia epidocleensis*, *Pennaria disticha*, *Eudendrium capillare*, *Orthopyxis* cf. *crenata*, *Clytia noliformis*, *C. hummelincki*, *Dynamena crisioides*, *D. quadridentata*, *Sertularia distans*, *Pycnotheca mirabilis* and *Macrorhynchia philippina*.

**Key words:** Hydroids, Coelenterata, Pakistan, *Hydractinia*, *Pennaria*, *Eudendrium*, *Orthopyxis*, *Clytia*, *Dynamena*, *Sertularia*, *Pycnotheca*, *Macrorhynchia*.

## INTRODUCTION

In comparison to other invertebrates, hydroids are one of the least known groups of marine animals from the coast of Pakistan. Haque (1977) reported a few Cnidaria from the Pakistani coast including two hydroids *i.e.* *Plumularia flabellum* Allman, 1883 (= *P. insignis* Allman, 1883) and *Campanularia juncea* Allman, 1874 (= *Thyroscyphus junceus* (Allman, 1876) from Keamari and Bhit Island, Karachi, respectively. Ahmed and Hameed (1999), Ahmed *et al.* (1978) and Haq *et al.* (1978) have mentioned the presence of hydroids in various habitats along the coast of Pakistan. Javed and Mustaqim (1995) reported *Sertularia turbinata* (Lamouroux, 1816) from Manora Channel, Karachi. The present paper describes eleven species of Cnidaria collected from the Pakistani coast all of which are new records for Pakistan.

## MATERIALS AND METHODS

The greater part of the material for the present study was collected during 1982 and 1987 from the coast of Pakistan. The samples were directly preserved in 5 % formalin. The drawings of polyps, hydrothecae and other details were made with a camera lucida mounted on a compound microscope and some drawings were made through a stereomicroscope. Terminology and classification

used in the paper are derived from Millard (1975), Gibbons and Ryland (1989), Ryland and Gibbons (1991).

## TAXONOMIC ENUMERATION

Family BOUGAINVILLIIDAE  
Genus *HYDRACTINIA* Van Beneden, 1841

1. *Hydractinia epidocleensis* Leloup, 1931 (Fig. 1)

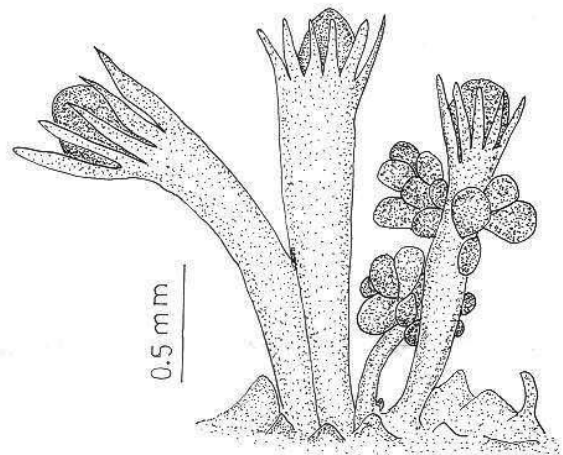


Fig. 1. *Hydractinia epidocleensis*, Colony showing gastrozooids and gonozooids.

## Synonymy

*Hydractinia epidocleensis* Leloup, 1931, p. 1, Figs. 1-5. Leloup, 1932. p. 135, Fig. 4-11, Pl. XVI, Fig. 5. Mammen, 1965a, p. 38, Fig. 5.

*Material examined*

Colonies attached to carapace of the crab *Doclea* collected from Pasni Bay in August, 1985 and from Clifton in April, 1987.

*Remarks*

The specimens collected from Pakistan agree with the descriptions given by Leloup (1931, 1932) and Mammen (1965a) for specimens collected from India. Gastrozooids were observed to have 5 to 15 tentacles arranged in a single row. This species is known from Neendakara, Alleppey, and Madras, India growing as epizoite on crabs of genera *Dorripe* and *Doclea* as well as on gastropods like *Murex* (Mammen, 1965a).

Family PENNARIIDAE  
Genus *PENNARIA* (Goldfuss, 1820)

2. *Pennaria disticha* Goldfuss, 1820  
(Fig. 2)

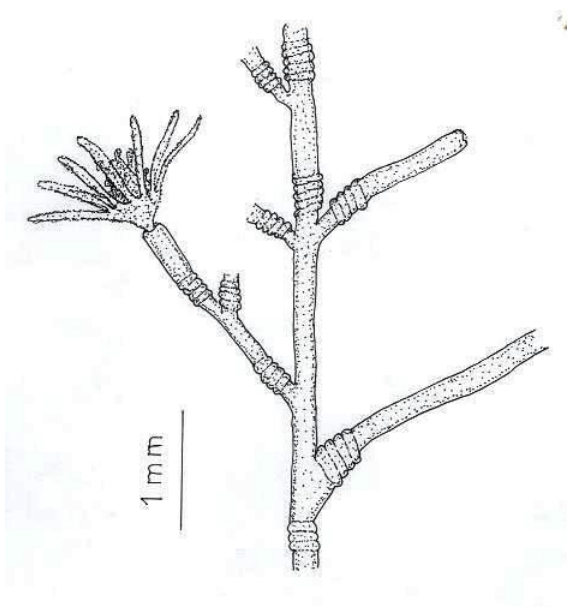


Fig. 2. *Pennaria disticha*. Part of the stem and hydrocladia.

*Synonymy*

See Gibbons and Ryland, 1989.

*Material examined*

Three colonies attached to boulders off Damb, Sonmiani in March 1983.

Four colonies attached to piers in Port Qasim, Karachi in April 1987.

*Remarks*

The specimens collected from Pakistan tally with the description given by Mammen (1965a) for the specimens collected from south India as *Halocordyle pennaria* var. *australis*. This species could be distinguished from other athecate hydroids in having pinnate stem with the aboral tentacles of the hydranth long, filiform and in one whorl. In addition, the oral tentacles are capitate and scattered. This species has a circumglobal distribution in tropical and subtropical waters (Millard, 1975; Gibbons and Ryland, 1989).

Family EUDENDRIIDAE  
Genus *EUDENDRIUM* Ehrenberg, 1834

3. *Eudendrium capillare* Alder, 1856  
(Fig. 3)

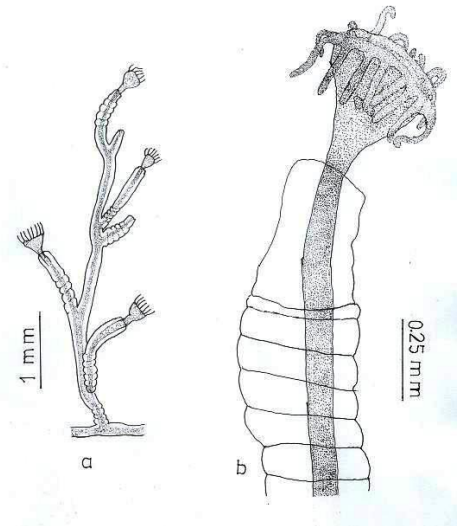


Fig. 3. *Eudendrium capillare*. a, stem; b, Hydranth.

*Synonym*

See Mammen (1963) and Millard (1975).

*Material examined*

Colonies attached to the hydroid *Macrorhynchia philippina* collected from Jiwani in April 1985.

*Remarks*

The specimens collected from Jiwani, Balochistan, conform with the description given by Mammen (1963) for the specimens collected from south India. This material could be distinguished from other species in having an unfascicled stem and by the presence of small microbasic euryteles. Fertile hydranths have not been observed in the present collection. This species has been reported from the North Atlantic and the Mediterranean Sea as well as from India and South Africa (Millard, 1975).

## Family CAMPANULARIIDAE

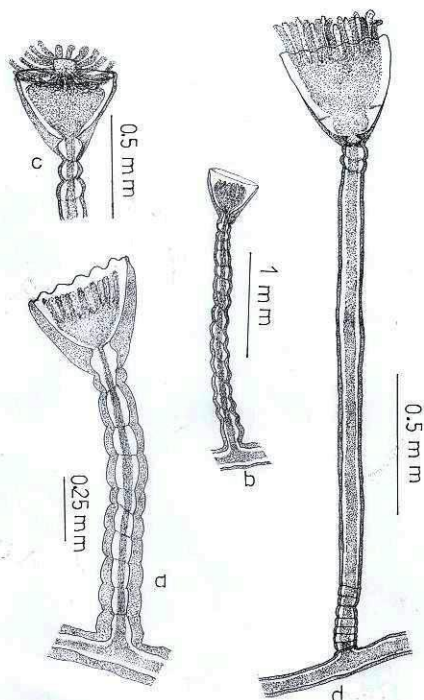
Genus *ORTHOPYXIS* A. Agassiz4. *Orthopyxis* cf. *crenata* (Hartlaub, 1901)  
(Fig. 4)

Fig. 4. *Orthopyxis* cf. *crenata* (Hartlaub, 1901). a, hydrotheca of material from Gwadar (Pedi Zur); b-c, hydrotheca of material from Cape Monz; d, *Clytia noliformis*, hydrotheca.

*Synonymy*

*Orthopyxis crenata* Cornelius, 1982: 58-60, Fig. 5.

*Material examined*

Three colonies growing as epiphyte on red algae *Coelarthrum muelleri* collected from Gwadar (Pedi Zur) in March 1983.

Two colonies growing as epiphyte on red algae *Gracilaria corticata* collected from Buleji, Karachi in March 1987.

Two small colonies growing as epiphyte on red algae *Gracilaria verrucosa* collected from Ormara in May 1985.

Four colonies growing as epiphyte on red algae *Spatoglossum variabile* collected from Cape Monz in March 1986.

*Remarks*

The specimens from Gwadar (Pedi Zur) and Buleji have similar characters as those described by Mammen (1965a) from Thankassery and Pamban in south India as *Orthopyxis clytioides* except that the hydrotheca is less deep. These materials have slightly thickened and edentate hydrothecae whereas the specimens from Ormara and Cape Monz have considerably thickened hydrothecae with margins cut into a number of rounded teeth. It resembles material reported from India by Gravely (1927) and Mammen (1965a) as *Orthopyxis intermedia* (Stechow, 1919).

*Orthopyxis clytioides* (Lamouroux, 1824) and *Orthopyxis intermedia* (Stechow, 1919) are both doubtful species (cf. Cornelius, 1982) that can not be recognized from the original descriptions though the names have repeatedly been used since the original descriptions.

Genus *CLYTIA* Lamouroux, 18125. *Clytia noliformis* McCrady, 1857  
(Fig. 4)*Synonymy*

See Vervoort (1968), Mammen (1965a), and Lindner and Migotto (2002).

*Material examined*

Three sterile colonies growing as epiphyte on red algae *Gracilaria corticata* collected from Gwadar (Demi Zur) in April 1983.

Two colonies with gonotheca growing as epiphyte on brown algae *Sargassum ilicifolium* collected from Sur in July 1984.

Two colonies growing as epiphyte on brown algae *Sargassum swartzii*, collected from Sandspit, Karachi in January 1987.

*Remarks*

The specimens from Pakistan coast agree with the description given by Mammen (1965a) for specimens from Kovilam and Thankassery in south India. This species can be distinguished from other species in having hydrothecal margins with rounded teeth and rounded interspaces and by the presence of roughly oval gonothecae with a distinct neck but lacking annulations. This species has been reported from the tropical and subtropical Atlantic, the eastern tropical Pacific, Bay of Bengal and south India (Mammen, 1965a; Millard, 1975; Vervoort, 1968; Lidner and Migotto, 2002).

6. *Clytia hummelincki* (Leloup, 1935)  
(Fig. 5)

*Synonymy*

See Millard (1975).

*Material examined*

Three colonies growing as epiphyte on red algae *Cryptonemia undulata* collected from Jiwani in December 1983.

Four colonies growing as epiphyte on brown algae *Stoechospermum marginatum* collected from Gaddani in March 1984.

*Remarks*

The specimens are in agreement with the description given by Millard (1975) for South Africa except that the gonotheca has bulging walls and has more than two (about 7) medusa buds. The species is known from the West Indies, South Africa.

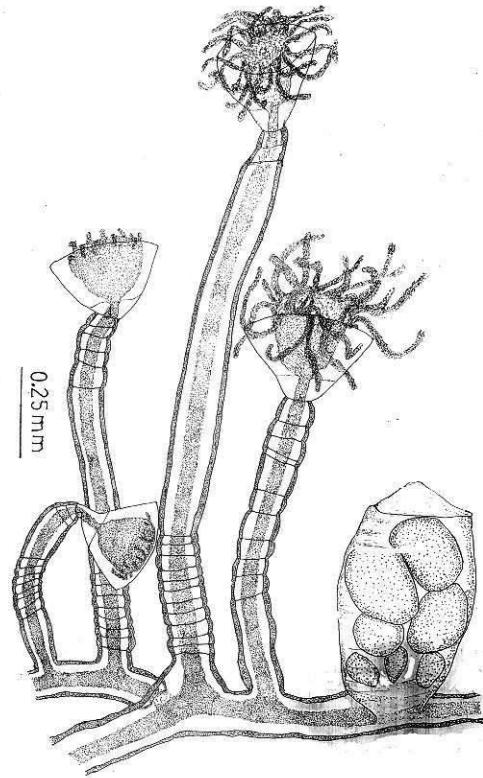


Fig. 5 *Clytia hummelincki*. Colony with gonotheca

## Family SERTULARIDAE

Genus *DYNAMENA* Lamouroux, 1812

7. *Dynamena crisioides* Lamouroux, 1824  
(Fig. 6a-b)

*Synonymy*

See Mammen (1965a) and Millard (1975)

*Material examined*

Four colonies attached to the underside of rocks in Gwadar (Demi Zur) collected in April 1983.

Ten colonies growing as epiphyte on brown algae *Sargassum tenerrimum* collected from Ras Juddi (Pasni) in May 1985.

Six colonies growing as epiphyte on brown algae *Padina pavonia* collected from Pasha Bundar in January 1987.

Five colonies growing underneath rocks

collected from Ras Malan (Bhatti Dab) collected in September 1984.

#### Remarks

This species bears hydrothecae on simple stems with the members of a pair never contiguous; the hydrothecae are long and tubular in shape. This wide-spread species is reported from tropical and subtropical waters of the Indian, Pacific and Atlantic Oceans (Millard, 1975). There are a number of forms in this species. It is not practicable to use names to indicate subspecies or varieties in this species because of the existence of intermediate forms (Millard, 1975). The pairs of hydrothecae are separated by a distance at least equal to the diameter of one of them. The gonothecae are irregularly ribbed and have a distinct neck. The specimens collected in September from Bhatti Dab have a larger number of gonothecae than those collected from the other localities.

8. *Dynamena quadridentata*  
(Ellis and Solander, 1786)  
(Fig. 6 c)

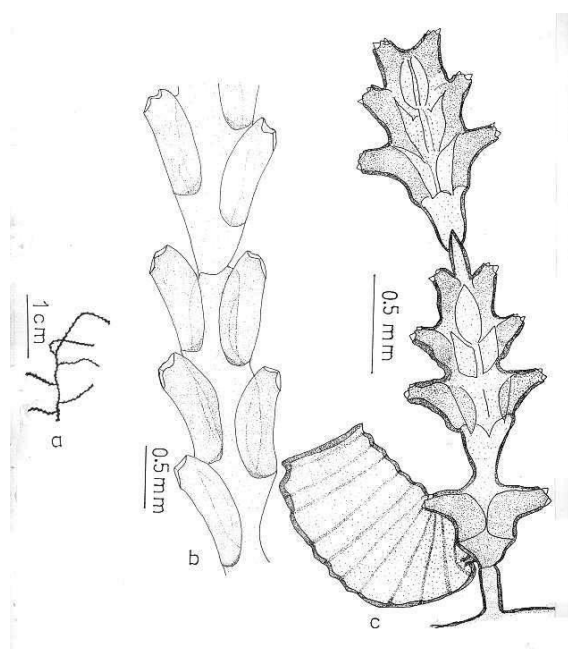


Fig. 6. *Dynamena crisioides*. a, stem; b, Hydrothecae; c, *Dynamena quadridentata* with hydrothecae and a gonotheca

#### Synonymy

See Millard (1975) and Vervoort (1968)

#### Material examined

Four colonies attached to the underside of rocks alongside *Perna viridis* in Gwadar (Demi Zur) collected in April 1983.

Three colonies attached to the underside of rocks at Hingol (near Agor) collected in April 1985.

Six colonies attached to the underside of rocks at Manora collected in January 1987.

#### Remarks

The specimens collected from the Pakistani coast agree with material described from South Africa by Millard (1975). Isolated pairs of hydrothecae are rare and found only in the proximal region of the stem. Hydrothecae are usually present in groups of three pairs. The species is reported from tropical and warm subtropical regions of the Indian, Pacific and Atlantic Oceans (Vervoort, 1968).

Genus *SERTULARIA* Linnaeus, 1758

9. *Sertularia distans* (Lamouroux, 1824)  
(Fig. 7a)

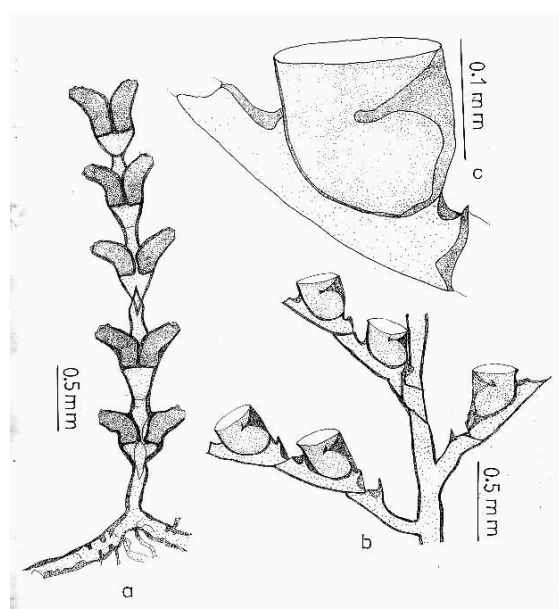


Fig. 7. a, *Sertularia distans* hydrotheca; b-c, *Pycnotheca mirabilis*; b, stem; c, Internode from hydrocladium.

*Synonymy*

See Millard (1975)

*Material examined*

Two colonies attached to the shell of *Perna viridis* collected from Sur in December 1983.

Three colonies collected from mussel beds in Pasni bay (Shadi Khor mouth) in December 1983.

Three colonies collected from underneath rocks at Buleji, Karachi in January 1987.

*Remarks*

This species could be distinguished from congeners in having slender hydrothecae with more or less parallel walls narrowing slightly towards the margin. This species is known from tropical and temperate regions of Atlantic and Indian Oceans (Millard, 1975); it is also known from Japan. From the Arabian Sea it has been reported by Borradaile (1905), Leloup (1932) and Thornely (1916). A number of varieties of this species has been described but there is little justification for varietal distinction. Javed and Mustaqim (1995) reported *Sertularia turbinata* from Manora Channel, Karachi, growing on buoys. However, during the present studies this species was not encountered at that locality.

Family PLUMULARIIDAE  
Subfamily Kirchenpaueriinae  
Genus *PYCNOTHECA* Stechow, 1919

10. *Pycnotheca mirabilis* (Allman, 1883)  
(Fig. 7 b-c)

*Synonymy*

See Millard (1975)

*Material examined*

Four colonies attached on red algae *Cryptonema undulata* collected from Taq (Orrnara) in April 1985.

Two colonies growing as epiphyte on red algae *Botryocladia leptopoda* collected from Ras Zarrin (Pasni) in July 1984.

Three colonies epiphytic on red algae

*Cryptonema undulata* collected from Buleji, Karachi in March 1987.

*Remarks*

This species has 'cup-shaped' hydrothecae with a strongly developed abcauline intrathecal septum and smooth rim. A number of varieties and subspecies ('races') of this hydroid are known (Stechow, 1925; Totton, 1930), however, there is little justification for these subdivisions (Millard, 1975). The present specimens come close to the 'race' *travancorensis* described by Mammen (1965b) from south India. *Pycontheca mirabilis* is known from South Africa, southeast Madagascar, Australia, New Zealand, Japan, India, the Pacific coast of North America and the south Atlantic (Millard, 1975).

## Subfamily Aglaopheniinae

Genus *MACRORHYNCHIA* Kirchenpauer, 1872

11. *Macrorhynchia philippina* (Kirchenpauer, 1872)  
(Fig. 8)

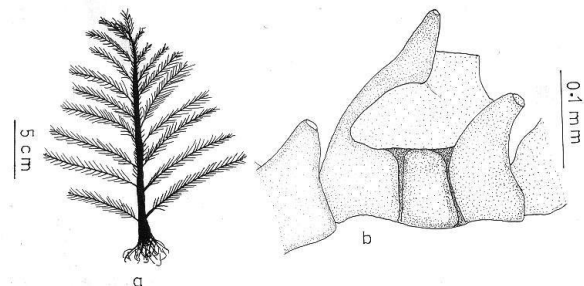


Fig. 8. *Macrorhynchia philippina*. a, stem; b, internode from hydrocladium.

*Synonymy*

See Millard (1975); Ryland and Gibbons (1991).

*Material examined*

Two colonies collected from margin of rock pools at Jiwani in July 1984.

One colony collected from margin of rock pool in Ormara (Pedi Zur) in May 1984.

Three colonies collected from margin of rock pool in Cape Monz in January 1987.

Six colonies collected from lower littoral zone attached to rock at Pasha Bundar, Karachi in March 1987.

#### Remarks

This species could be distinguished from the other members of the genus *Macrorhynchia* Kirchenpauer, 1872 in having the abcauline thecal tooth smaller than the lateral teeth and with the intrathecal septum reaching halfway across the hydrotheca. This species is known from tropical and subtropical waters worldwide (Vervoort, 1968). It is reported from Kathiwar in the Arabian Sea by Thornely (1916).

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