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EDWARDSIA JONESII n. sp. (ACTINIARIA. EDWARDSIIDAE) FROM PORTO NOVO, S. INDIA

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IN 1954 there was found in the soft mud along the north shore of the Vellar River estuary in front of the Porto Novo Marine Biological Station a 12-tentacled species of *Edwardsia*. Repeated collecting in the area revealed this small burrowing sea anemone to be abundant at all seasons of the year.

Previous to the discovery of the 12-tentacled *Edwardsia* at Porto Novo, only 2 species belonging to this genus had been reported from the shores of India. In 1915 N. Annandale described *Edwardsia tinctrix* from Chilka Lake. This species was known only from the Chilka Lake area until 1957 when M. J. Dave reported (in thesis) the species from Cuffe Parade, Bombay. *Edwardsia pudica* Klunzinger, the giant of the genus, was reported by K. R. Menon, 1927 from Kutikal Point opposite Krusadai Island.

Of the approximately 25 warm water species of *Edwardsia*, only 4 have been reported to possess less than 16 tentacles. Comparison of the Porto Novo species with the descriptions of those of *Edwardsia* having less than 16 tentacles shows few anatomical or histological similarities. When the great differences in localities of the species are also considered, the evidence is sufficient to consider the Porto Novo species new.

The species of *Edwardsia* described in this paper is named *Edwardsia jonesii*.

Edwardsia jonesii n. sp.

Type material. Holotype, Marine Biological Station, Porto Novo. From north shore of Vellar River estuary in front of the Porto Novo Marine Biological Station. Collected by R. V. Seshaiya (1962). In fine mud covered by 0.5 m. of water at low tide. Paratypes, all collected by R. V. Seshaiya from the same locality. Porto Novo Marine Biological Station Museum, six specimens, collected (October 10, 1963). U.S.N.M. 52491, 5 specimens, collected March 5, 1963. Holotype will be deposited in the Indian Museum.

DIAGNOSIS

Edwardsia with 12 tentacles. Nemathybomes very small, of about equal size, with relatively few nematocysts, in 8 rows which tend to become double rows in the mid scapus region. Nematocysts of the nemathybomes 48-72×4.5-5.5 μ. Retractor muscles with 25-30 muscle plaits of folds some of which branch.

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Description

General features. *Edwardsia jonesii* is a medium-sized species. It is worm-like and lives buried to a depth of about 20 cm. in soft, fine mud in the intertidal region. Body distinctly divided into a capitulum, scapulus, scapus and inflatable physa. Tentacles colourless, unmarked and almost transparent except for slightly frosty white tips. Capitulum and scapulus colourless and almost transparent. Scapus dirty white, covered over except for the nemathybomes with a thick, shaggy ochre to rust red cuticle which is sometimes black near the scapulus. Physa colourless and transparent.

Size. Of the largest, well expanded preserved specimen, in millimetres. Total length 80.0, greatest and least diameter of scapus 3.0 and 2.0, combined length of capitulum and scapulus 3.0, diameter of capitulum 2.5, diameter of expanded crown 12.0, length and diameter of longest tentacle 5.5 and 0.70, length and diameter of physa 3.0 and 2.0.

Tentacles. Twelve, smooth, evenly tapered, acuminate, all approximately the same size, arranged in what appear to be 2 cycles of 6 each.

Oral disc. About as broad as capitulum, concave, with tentacles at periphery. Mouth relatively large, protruding.

Capitulum. Thin-walled, almost transparent, smooth, cuticle free. Juncture with scapulus indistinct.

Scapulus. Approximately as long as capitulum, no nemathybomes, with traces of cuticle. Thickness of wall intermediate between that of capitulum and scapus.

Scapus. Thick-walled but translucent, with insertions of mesenteries visible, covered with thick shaggy cuticle except for nemathybomes. Nemathybomes of approximately equal size, small, inconspicuous, with few nematocysts, arranged in 8 longitudinal rows which begin at the scapulus, have a tendency to become double rows at mid scapus and terminate at physa. The three layers of wall approximately equal in thickness. Mesoderm fibrous, without cells.

Physa. Inflatable, without nemathybomes, thin-walled, transparent, mesenterial insertions showing through, without cuticle, smooth.

Actinopharynx. With 8 longitudinal ridges, Siphonoglyph indistinct.

Mesenteries. Microcnems 4, very weak, confined to region of capitulum (fig. 1). Macrocnems 8, with strong reniform retractors (fig. 2). Retractors with about 25-30 muscle plaits, some of which branch. Gonads begin immediately below the actinopharynx and end about mid scapus. Filaments much coiled for short distance below gonads but become straight bands in proximal third coelenteron. Parietal muscles strong, heart-shaped, with about 8 muscle plaits (fig. 2). Species dioecious.

Cnidom. Spirocysts : of tentacles and oral disc, 18-22$\times$2.5 μ, very numerous. Microbasic b-mastigophores ; of tentacles and oral disc, 24-27$\times$2.2-2.5 μ, numerous ; of capitulum, 8-12$\times$2 μ, common : of nemathybomes, 48-27$\times$4.5-5.5 μ, each with about 20-30 nematocysts ; of physa, 12$\times$2 μ, common ; of actinopharynx, 28-31 $\times$ 2.5-3 μ, numerous ; of filaments, 24-33$\times$4.5 μ, (with thick shaft) numerous. Micro-

Edwardsia jonesii

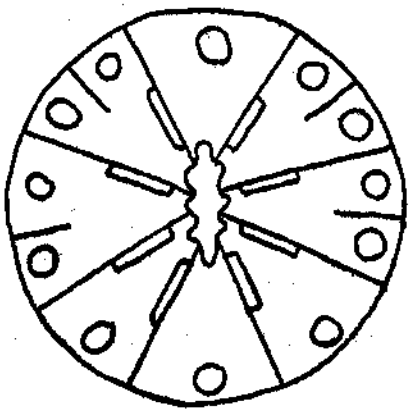

FIG. 1. Relationship of mesenteries to tentacles. Single siphonoglyph at top.

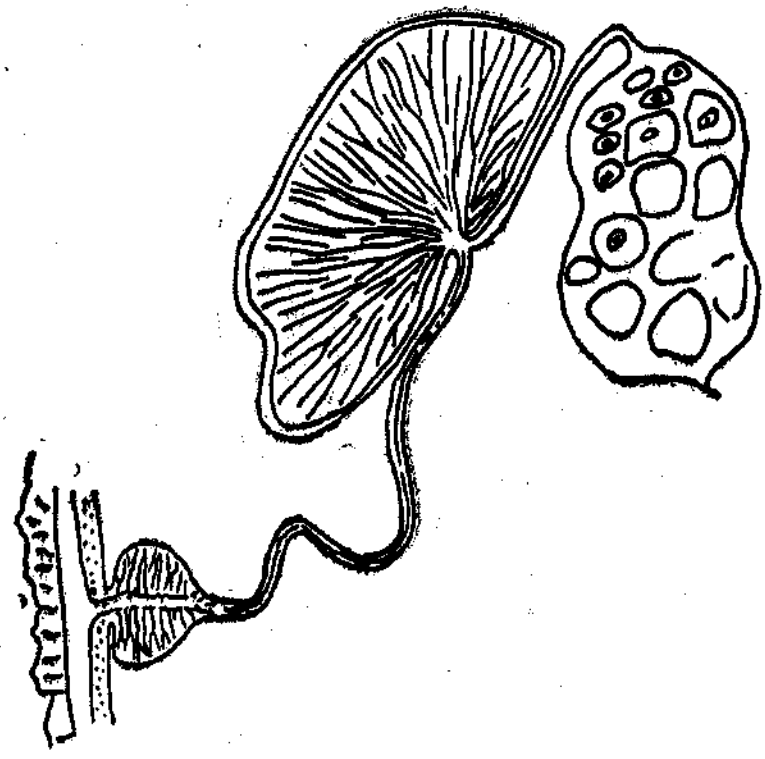

FIG. 2. A macrocnemic mesentery.

basis p-mastigophores : of actinopharynx, 20-24 × 4.5-5 μ, few ; of filaments, 22-25 × 5,5-6 μ, numerous.

Discussion : The four species of *Edwardsia* which enter into the question of species possibly conspecific with *E. jonesii* are *E. janthina* Andres, 1880 from the Mediterranean, *E. mamillata* Bourne 1916 from New Calendonia, *E. sanctaehelenae* Carlgren, 1941 from St. Helena and *E. duodecimtentaculata* Carlgren, 1931 from Fiji. Unfortunately no specimens of any of these species were available for study.

The 10 tentacles *E. mamillata* is reported to have, together with its large nemathybomes removes this species from further consideration. Although there is good agreement between the size of the nematocysts of the nemathybomes of *E. sanctaehelenae* and *E. jonesii*, the small size of the former species as well as its prominent nemathybomes and only 8-10 muscle plaits in the retractors are species specific characters which cannot be discounted. *E. duodecimtentaculata*, on the other hand, is approximately the same size as *E. jonesii*. Further, it has small nemathybomes and retractors which, in section, appear very similar to *E. jonesii*. The one discrepancy which rules out its being considered conspecific with *E. jonesii* is the small size of the nematocysts of its nemathybomes. The nematocysts of the nemathybomes of *E. duodecimtentaculata* are 34-48 × 2.5-3 μ while those of *E. jonesii* are 48-72 × 4.5-5.5 μ. Comparatively little is known about *E. janthina*. The species is well illustrated in Andres, 1883, plate 11, figure 5, but nothing is known about its anatomy or nematocysts. The comparison of *E. janthina* to *E. jonesii* is therefore made on the external appearances of the two forms. Judging from the description and illustrations of the species, *E. janthina* seems characteristically to have an attenuated pear shape and red tentacles, oral disc and capitulum. These features do not agree with those of the linear, worm-like, uncoloured *E. jonesii*.

Along with the morphological and histological considerations of *E. jonesii* the faunistic characteristics of its type locality might well be taken into account. The Vellar River estuary communicates, behind shoreline sand dunes, with the Coloroon River estuary about 20 km. to the south to form one of several extensive bodies of brackish water along the east coast of India. From the brackish waters N. Annandale and N. K. Panikkar have described 12 species of sea anemones of which 11 are known only from these areas. It is thus apparent that the brackish water sea anemone fauna of India is highly endemic and one would expect that occasional new species from this faunal area would more than likely also be endemic.

On the basis of its morphological and histological distinctness, and taking into account the high degree of endemicity of the Indian brackish water sea anemones, *E. jonesii* is considered a new species.

As a token of tribute to Dr. S. Jones for his distinguished services to Marine Biology, the species is named *Edwardsia jonesii*.

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