

ON THE OCCURRENCE OF THE BRITTLE STAR *OPHIOPHRIXUS CONFINIS* KOEHLER (ECHINODERMATA : OPHIUROIDEA) IN THE INDIAN OCEAN

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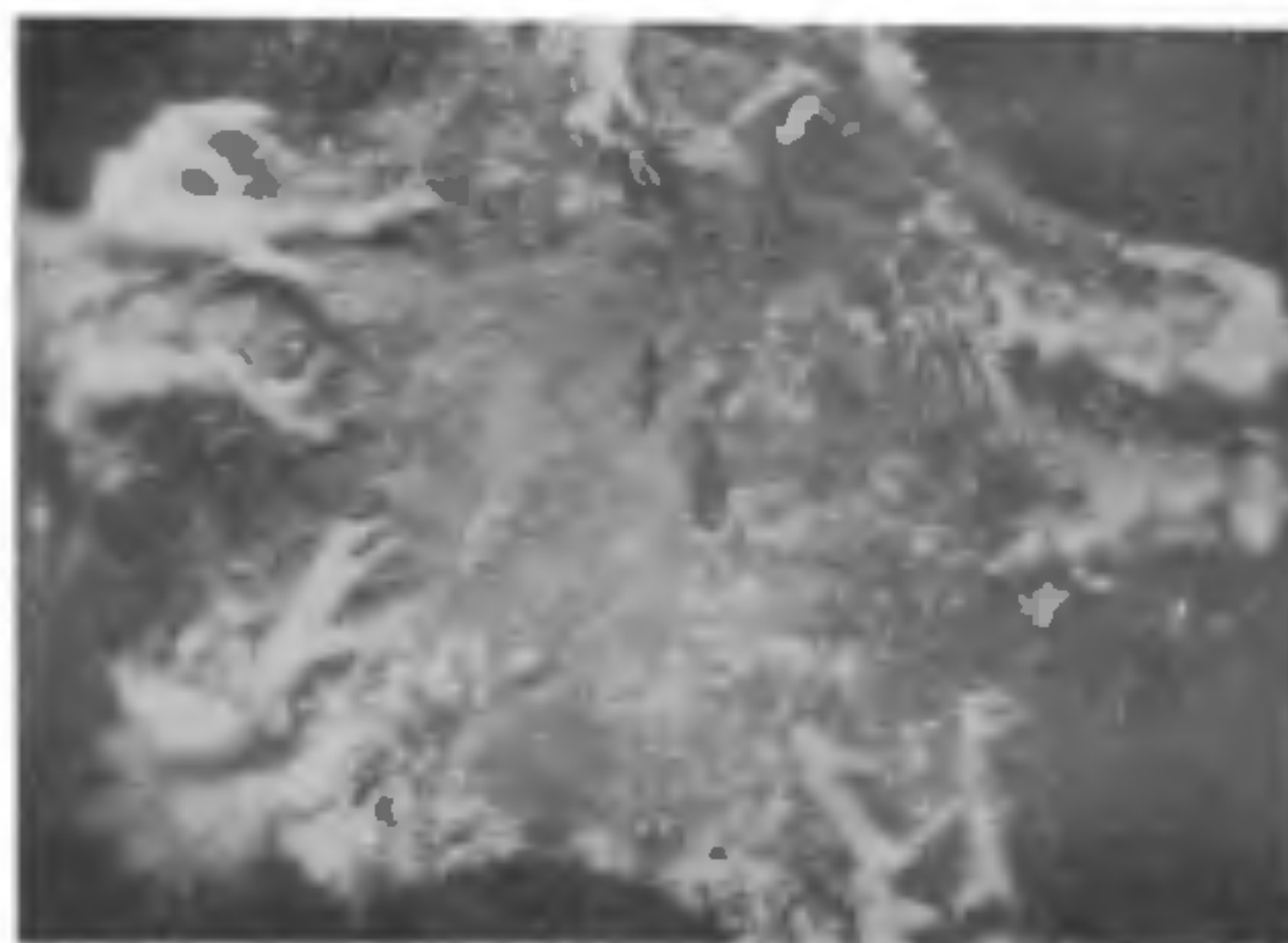
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THE present communication reports for the first time occurrence of the ophiuroid genus, *Ophiophrixus* Clark¹ (Ophiomyxidae : Ophiobyrinae) and the species, *O. confinis* Koehler² in the Indian Ocean. The single specimen of *O. confinis* present in the Zoological Survey of India, was collected by R.I.M.S. "Investigator" from "off the west coast of Andamans" in 402-439 m depth.* The genus, *Ophiophrixus*, characterised by elongate radial shields armed with a series of prominent spines; adoral plates lying proximal to the oral shields; and absence of dorsal arm plates³, is known by the type species, *O. acanthinus* Clark¹ and a second one, *O. confinis* Koehler², both so far reported only from the West Pacific^{2,3,4}.

The present specimen (Z.S.I. Reg. No. E. 1159/1) measures 10 mm in disc diameter. The disc is covered by thick skin bearing a few scattered spinules, with no disc plates except for two or three small plates at the periphery between the distal ends of the radial shields. The radial shields are about 3 mm long, narrow, widely separated, slightly diverging proximally and each carrying four or five long spines (Fig. 1). Ventral interbrachia are skin-covered with no disc plates. The oral shields are small and broader than long with crescent-shaped adoral plates lying proximal. The oral plates are long and narrow with spiniform teeth in two vertical columns and three terminal and two lateral oral papillae (Fig. 2). The arms are subequal, about eight times as long as disc diameter, skin-covered and with no dorsal arm plates. The ventral arm plates are as long as or slightly longer than broad with the distal border deeply notched. The side arm plates bear four slender serrated arm spines about as long as or slightly longer than two arm segments. Tentacle pores are large and without tentacle scales. There are two broad genital clefts in each interradius.

The present specimen, the smallest of the species so far known, the earlier ones measuring 23 and 12 mm in disc diameter^{2,4}, agrees well with the original descrip-

* The label does not show further details. Probably the locality corresponds to sta. 56 of the R.I.M.S. "Investigator" Station List which reads "Between N. and S. Sentinel Is., 220-240 fms., 24-25. iv. 1889".



FIGS. 1-2. *Ophiophrixus confinis*: Fig. 1. disc—dorsal view. Fig. 2. disc—ventral view.

tion and figures², except for fewer spines on the radial shields and fewer peripheral disc plates, which are only due to its smaller size.

The Japanese species, *O. acanthinus*, differs from the present species in having a few dorsal disc scales in the central region, shorter oral plates and no lateral oral papillae.

The NE Atlantic species, *Ophioscolex spinosa* Storm (incl. *Ophiobyrsa hystericis* Lyman) referred by Mortensen^{5,6} to *Ophiophrixus*, does not seem to belong to this genus in view of the different spination on the radial shields and presence of dorsal arm plates and ventral disc scales.

O. confinis has so far been reported from Mindoro, Philippine Is. (518 m)², Borneo (558 m)² and Kei Is (370-400 m)⁴ in the Western Pacific Ocean. The genus and species are here reported for the first time from the Indian Ocean.

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REPORT ON THE OCCURRENCE OF BIOLUMINESCENCE IN THE EARTHWORM, LAMPITO (= MEGASCOLEX) MAURITII.

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BIOLUMINESCENCE in earthworms has been reported in *Octochaetus*, *Eisenia*, *Diplocardia* (Cormier)¹; *Spenceriella*, *Fletcherodrilus*, *Pontodrilus* (Jamierson and Wampler)² and *Diplotrema* (Dyne)³. The present observation forms the first report of bioluminescence in the earthworm, *Lampito* (= *Megascolex*) *mauritii*. The greenish light exhibited by L. (= M.) *mauritii* is noticed in the coelomic fluid within a matter of seconds after discharge, on sufficient irritation by a 4 volt battery substitute. Addition of hydrogen peroxide (20 volumes) on the worm increases the light intensity manyfold. This luminescent system may be due to the luciferin-luciferase reaction as illustrated by Johnson *et al.*⁴.

December 4, 1980.

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INCREASED RATE OF MELANIZATION IN HAEMOLYMPH OF *DYSDERCUS CINGULATUS* F. AFTER TREATMENT WITH LEAF ALKALOID OF *CATHARANTHUS ROSEUS*

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It has been understood that haemolymph darkening in insects is due to the activity of tyrosinase initiated conversion of tyrosine to melanin^{1,2}. Pathological conditions³ and mechanical injury⁴ can also induce tyrosinase activity and cause haemolymph melanization. Huist⁵ reported increased haemolymph tyrosinase activity, as measured by *in vivo* melanization, in *Tenebrio molitor* and *Musca domestica* when treated with pyrethrins or DDT. Shorey⁶ found that a carbamate, Zectran caused darkening of cabbage loopers and beet army worms. Fisher and Brady⁷ observed that treatment of house crickets and American cockroaches with several insecticides increased the rate of melanization in haemolymph incubated with diphenol substrates. While studying the activity of *Catharanthus* alkaloids as insect sex sterilants, we also observed dark patches of pigmentation over the wings and body of the treated *D. cingulatus*. The present work was undertaken to see whether there is an enhanced rate in the melanization of insect haemolymph after treatment with leaf alkaloids of *Catharanthus roseus*.

The insects were reared in the insectary at a temperature of $27^{\circ} \pm 1^{\circ} \text{C}$. Cotton seeds, soaked the previous night, were provided as food. Freshly emerged adults were treated ventrally with leaf alkaloids. The total leaf-alkaloids were extracted from air-dried leaves with methane in a soxhlet apparatus, methanol removed and the residue treated with chloroform. The chloroform soluble portion was treated with 1% HCl and to the acid soluble portion 20% ammonia added (pH 9.0). The liberated total alkaloid was extracted with chloroform⁸. 182 g of leaf powder yielded 0.53 g of total leaf alkaloid. Topical applications