

NEW RECORDS OF ECHINODERMATA FROM
ANDAMAN AND NICOBAR ISLANDS

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ABSTRACT

A total of 18 species of echinoderms other than holothurians from Andaman and Nicobar Islands have been dealt with. Of these *Comatella maculata*, *Ophiothrix vigelandi* and *Phyllacanthus imperialis* are new to Andamans, *Dactylosaster cylindricus* is new to Andaman and Nicobar Islands and *Himerometra magnipinna* *Mespilia globulus* and *Heterocentrotus trigonarius* are new to India. The others are new to either or both of the Mahatma Gandhi Marine National Park, South Andaman and Rani Jhansi Marine National Park, Ritchie's Archipelago.

The echinoderm fauna of Andaman and Nicobar Islands was studied by several earlier workers (see Anon, 1995). The echinoderm fauna of Mahatma Gandhi Marine National Park (MGMNP), South Andaman has been dealt with by James (1991) and Sastry (1996). However there is no report on the echinoderms of the recently declared Rani Jhansi Marine National Park (RJMNP), Ritchie's Archipelago. Intensive explorations by the author brought to light some more species which are new to these islands as well as Indian coast. These are hereunder dealt with briefly since they have been keyed with detailed distribution and most of them figured by Clark and Rowe (1971) and Rowe *et al.*, (1986).

SYSTEMATIC ACCOUNT

Phylum : Echinodermata
Class : Crinoidea
Order : Comatulida
Family : Comasteridae

1. *Capillaster multiradiatus* (Linnaeus)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2 1996.

Description : Centrodorsal rounded, projecting from surface. I Br with 2 and II Br with 4 ossicles. P₁ from the first brachial; first syzygy at brachials 2+3. Cirri XVIII with up to 20 segments. Arms 17.

Remarks : The species is newly recorded from the MGMNP

2. *Comanthina nobilis* (P.H. Carpenter)

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Material : One specimen. Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996.

Description : Most external III Br with 2 and internal III Br with 4 ossicless. P_1 on 2 nd brachial; first syzygy at 3+4. Cirri absent.

Remarks : The species is newly recorded from the MGMNP.

3. *Comatella maculata* (P.H. Carpenter)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 4.2.1996.

Description : I Br and II Br of 2 ossicless, 19 arms. P_1 on 2 nd brachial; first syzygy at 1+2 or 3+4. Cirri XX with 20 segments, distal segments with dorsal tubercles.

Remarks : The species is new to MGMNP and Andamans. It was earlier reported from Trinket I., Nicobar (Clark, 1932).

Family : *Himerometridae*

4. *Himerometra magnipinna* (A.H. Clark)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 2.2.1996.

Description : The specimen is yellow in colour. Proximal pinnules prismatic and stiff, distal pinnules flexible, pinnules on division series longest, very stout, segments about 35, not longer than broad. P_1 , P_2 and P_3 progressively decreasing in size.

Remarks : The species is hitherto recorded from South Pacific Islands to East Indies. The present record is new to India and extends the range westwards into Bay of Bengal.

Class : *Asteroidea*

Order : *Valvatida*

Family : *Ophidiasteridae*

5. *Dactylosaster cylindricus* (Lamarck)

Material : One specimen, Outram Island, RJMNP, D.V. Rao, 3.3.1994; One specimen, Galathea Bay, Great Nicobar, D.V. Rao, 12.2.1994.

Description : Arms five cylindrical. Abctinal plates on arms in regular longitudinal series, covered by a thin skin exposing when dried a cluster of coarse granules at the centre of the plate and glossy tubercles all around. Papular areas in eight series extending between the inferomarginals and actinals. Furrow spines long and narrow, subambulacral spines stout and larger, fine granulation in the space between furrow and subambulacral series.

Remarks : The species is new to Andaman and Nicobar Islands and also to Bay of Bengal area.

6. *Linckia guildingi* Gray

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996.

Description : Arms five, cylindrical with blunt rounded tip. $R/r = 130/16$ mm, $br = 18$ mm. Abactinal plates fully covered by granulation, not in regular longitudinal series. Subambulacral spines in two series aligned obliquely and close to the adambulacral series, no actinal granulation between adambulacral or subambulacral spines. Madreporite single.

Remarks : The species is newly recorded from MGMNP.

7. *Linckia multifora* (Lamarck)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 2.2.1996.

Description : Arms five, cylindrical, tapering to a pointed tip. Subambulacrals spaced from the adambulacrals and the actinal granulation extending in between. Single madreporite.

Remarks: Because of pointed arm tips and variegated colouration when live the specimen is identified with *L. multifora*. The species is new to MGMNP.

Family : Asterinidae

8. *Asterina sarasini* (de Loriol) (Fig. 1)

Material: Two specimens, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 2.2.1996.

Description : Body markedly flattened, almost pentagonal, interradial arcs slightly curved. $R/r = 19/13$ and $15/10$ mm. Abactinal plates crescent shaped, imbricating, with minute hyaline spinelets. Papulae absent in the median interradial disc area. Actinal spines up to

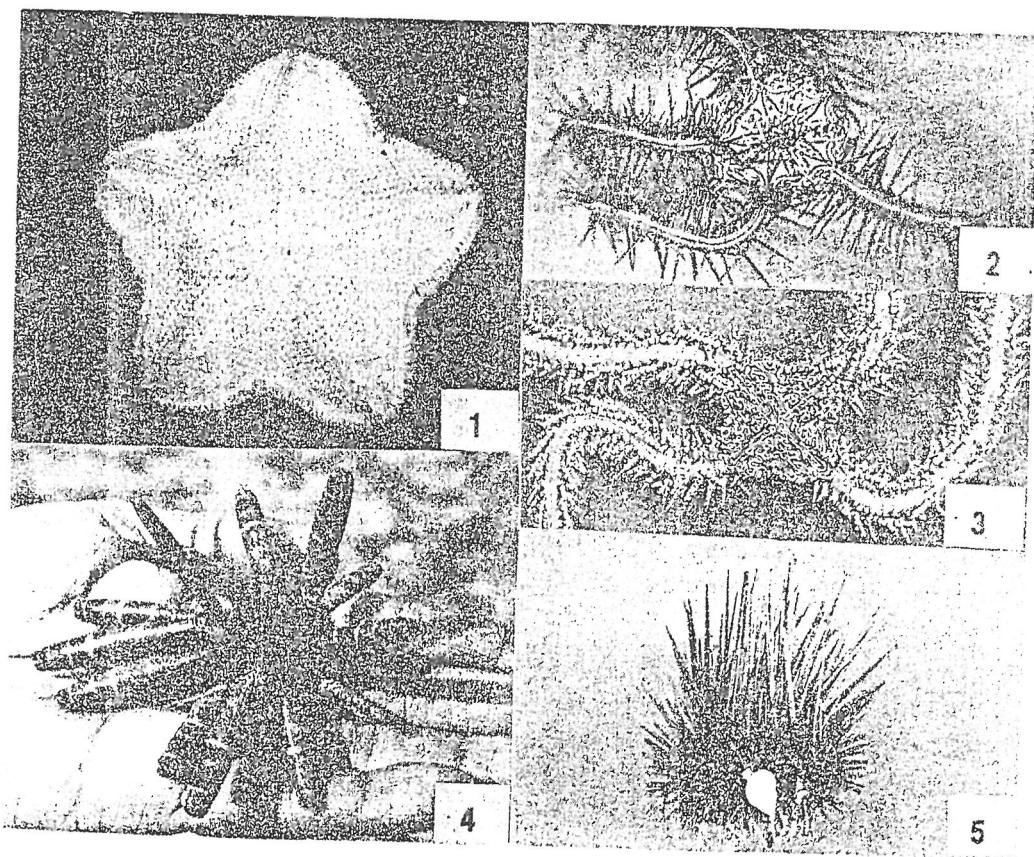


Fig. 1: *Asterina sarasini*; Fig. 2: *Ophiothrix* (*Acanthophiothrix*) *purpurea*; Fig. 3: *Ophiarthrum pictum*; Fig. 4: *Phyllacanthus imperialis*; Fig. 5: *Echinostrephus molaris* with stiliferid ecto parasites.;

six, fine and pointed.

Remarks : The specimens are pink in life. The species is new to MGMNP.

Class : Ophiuroidea

Order : Ophiurida

Family : Ophiothricidae

9. *Macrophiothrix propingua* (Linnaeus)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 2.2.1996.

Description : Disc 7 mm in diameter, arms 6 times the disc diameter in length. Radial shields large, broadest distally. Disc scales with scattered stumps. Dorsal arm plates broad, distal margin straight, lateral angles bent backwards, broadest region at about the middle of the plate. Distal margin of ventral arm plates straight. Arm spines as long as or slightly longer than breadth of the segment. Arms blue and white variegated.

Remarks : The species is new to MGMNP.

10. *Ophiothrix (Acanthophiothrix) purpurea* von Martens (Fig. 2)

Material : Three specimens, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996.

Description : Disc 7 mm in diameter, arms 5-6 times the disc diameter in length. Radial shields large, naked. Disc scales with scattered long needle like spines. Dorsal arm plates longer than broad, distal margin convex, a dark median longitudinal line bordered by red lines separated by pale lines on either side. Ventral arm plates with dark median longitudinal spots forming an

almost continuous line with pale lateral areas. Arm spines needle like, about 6-7 times the arm breadth in length, uppermost the longest.

Remarks : The species is new to MGMNP.

11. *Ophiothrix (Acanthophiothrix) vigelandi* A.M. Clark

Material : One specimen, Sta. 659. North of Rutland Island, coral and mud flats, Mar. Surv., 22.1.1924.

Description : Dorsal arm plates longer than broad, narrow fan shaped, distal margin convex, prominent and beak like, two longitudinal dark lines with a median pale line. Ventral arm plates with distal margin concave. Arm spines 7, pointed, needle like, 5 times the arm segment in length.

Remarks : The species is newly recorded from the Andaman Islands.

12. *Ophiothrix (Keystonea) nereidina* (Lamarck)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996.

Description : Disc 12 mm in diameter, arms 90 mm in length. Dorsal disc scales naked, stumps on marginal and ventral interradial disc plates. Dorsal arm plates twice as broad as long, a transverse median blue line bordered by white lines. Disc scales and radial shields blue with white border. Ventral arm plates with a median blue longitudinal line with lateral pale lines. Arm spines as long as the breadth of the segment, second or third from above the longest.

Remarks : The species is newly recorded from MGMNP.

Family : Ophiocomidae

13. *Ophiarthrum pictum* Mueller and Troschel (Fig. 3)

Material : One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996; Two specimens, New Wandoor, South Andaman, Dr. D.R.K. Sastry, 22.12.1995.

Description : Disc diameter 25 mm, arms 6 times the disc diameter in length. Disc covered with thick skin patterned with gray, yellow and white. Arms with dark longitudinal lines. Arm spines blunt, twice as long as the segment with dark rings or bands.

Remarks : The species was earlier reported from nancowry Island of Nicobar by James (1971). The species is newly recorded from MGMNP and Andamans.

Class : Echinoidea
Order : Cidaroida
Family : Cidaridae

14. *Phyllacanthus imperialis* (Lamarck) (Fig. 4)

Material : One specimen, Henry Lawrence Island, RJMNP, Dr. D.R.K. Sastry, 4.4.1996.

Description : The specimen measures 22 mm in ambital diameter and 17 mm in vertical diameter. Ambulacral pore pairs conjugate, peristomial pore pairs in two zig-zag series. Apical system co-covered by spinelets, all oculars exsert. Longest primary spines 40 mm long. Primary spines large, cylindrical, tapering

towards tip, surface smooth, ridges prominent near the tip which is flat, 4 white bands on pink. Lower spines uniformly oink, and ridged, secondary spines small, flat and uniformly dark violet.

Remarks : As per the key to species by Mortensen (1928, p. 503) the spines rarely surpass the horizontal diameter (h.d.) and exceptionally as much as 1.25 h.d. (p. 506). But the measurements on p. 505 show the spine length of 1.53 h.d. in a specimen of 36 mm h.d. The present specimen is 20 mm h.d. and has spines which are twice the h.d. indicating progressive reduction of spine length in proportion to the increasing h.d. The specimen agrees with the in Plate 54, fig. 4 and the forma typicus (p. 508).

The species is new to MGMNP and Andaman.

15. *Prionocidaris verticillata* (Lamarck)

Material : Three specimens, Pongubalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996; One specimen, Henry Lawrence Island, RJMNP, Dr. D.R.K. Sastry, 4.4.1996.

Description : The species is easily recognisable by the verticillate primary spines with 3 or 4 thorny whorls and green mottled appearance.

Remarks : The species is newly recorded from both MGMNP and RJMNP.

Order : Echinoida
Family : Echinometridae

17. *Echinostrephus molaris* (de Blainville) (Fig. 5)

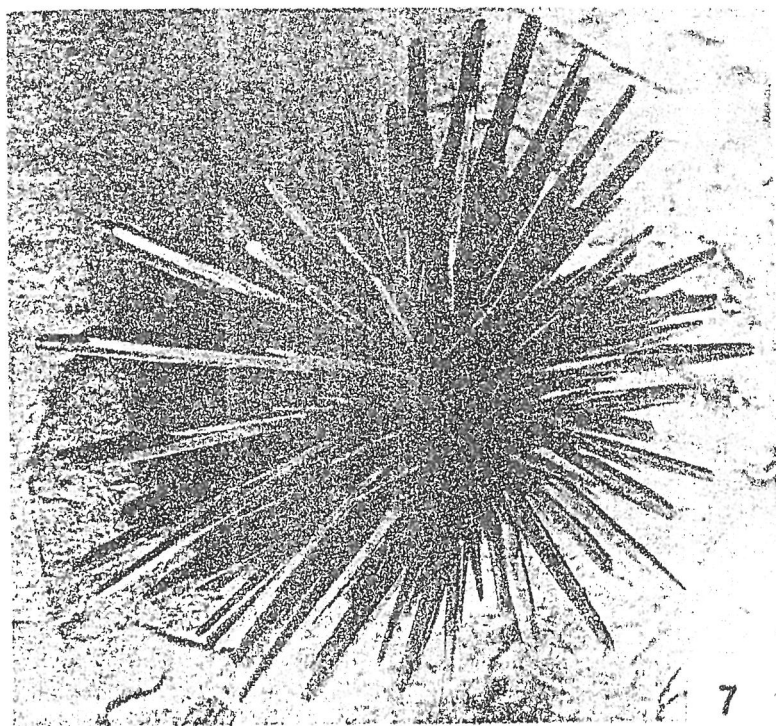
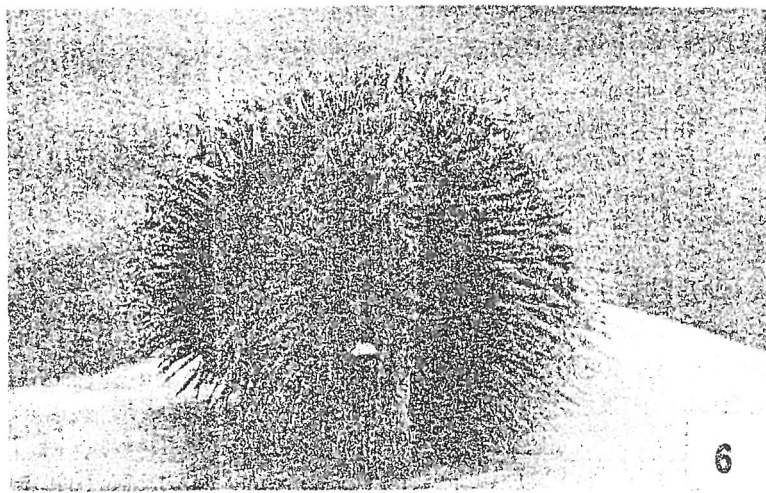


Fig 6: *Mespilia globulus*; Fig. 7: *Heterocentrotus trigonarius*.

Material : Two specimens, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 3.2.1996.

Description : The species is characterised by flat aboral side with a tuft of erect long primary aboral spines. Test is round, ambulacral plates with 3 pore pairs per arc.

Remarks : One of the specimens is infested by a pair of stiliferid molluscan ectoparasites. The species habitually occupies deep rounded vertical burrows in dead coral rocks. It is newly recorded from MGMNP.

Order : *Temnopleuroida*
Family : *Temnopleuridae*

17. *Mespilia globulus* (Linnaeus) (Fig. 6)

Material : One specimen, Chhota Ainak, Camorta Island, Nicobar, Dr. B.K. Tikader, 24.3.1970; One specimen, Aberdeen Jetty, Port Blair, South Andaman, Dr. G.C. Rao, 25.3.1974; One specimen, Pongibalu, MGMNP, Dr. D.R.K. Sastry, 2.2.1996; One specimen, Henry Lawrence Island, RJMNP, Dr. D.R.K. Sastry, 4.4.1996.

Description : The species is easily recognised by 10 vertical areas devoid of spines and covered with a thick carpet of globiferous pedicellariae, very short fine

spines and light radiating striations on the test plates.

Remarks : The species newly recorded from MGMNP and RJMNP is new to the fauna of Andaman and Nicobar Islands as well as India.

18. *Heterocentrotus trigonarius* (Lamarck) Fig. 7

Material : Two specimens, Hinraha, Nancowry Island, Nicobar, Dr. D.R.K. Sastry, 17.12.1996.

Description : Test oval, long axis through amb. III and in interamb. 4. Ambulacral plates with more than 13 pore pairs per arc. Primary spines long, triangular in cross section, and tapering to a flat tip. The length of the primary spines decreases gradually from ambitus to apical region.

Remarks : The species from Nicobar is new to India and Bay of Bengal.

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REFERENCES

- Anon, 1995. *Bibliography on Zoology of Andaman and Nicobar Islands (1845-1993)*. Occasional Paper No. 158. Zoological Survey of India, Calcutta. 284 pp.
- Clark, A.H. 1932. On a collection of crinoids from the Indian Ocean and Bay of Bengal. *Rec. Indian Mus.* 34 : 551-566
- Clark, A.M. and Rowe, F.W.E. 1971. *Mono-graph of shallow - water Indo - West Pacific echinoderms*. Brit. Mus.

- (N.H.), London. 238 pp.
- James, D.B. 1971. Studies on Indian echinoderms - 3. *Ophiarthrum pictum* (Mueller and Troschel) (Ophiuroidea : Ophiocomidae) a new record from the Indian Ocean with additional notes on the species. *J. mar. biol. Asso. India*, **12** : 136-138 (1970)
- James, D.B. 1991. Echinoderms of the Marine National Park, South Andaman. *J. Andaman Sci. Assoc.* **7**(2) : 19-25.
- Mortensen, T. 1928. *A Monograph of Echinoidea I. Cidaroida*. Vol. I. Reitzel, Copenhagen. 551 pp.
- Rowe, F.W.E., Hoggett, A.K., Birtles, R.A. and Vail, L.L., 1986. Revision of some comasterid genera from australia (Echinodermata : Crinoidea) with description of two new general and nine new species. *Zool. J. Linn. Soc.* **86** : 197-277
- Sastry, D.R.K. 1996. Some echinoderms new to Mahatma Gandhi Marine National Park with two new records for India. *National Symp. Island Ecosystem and Sustainable Development*, Feb. 8-9, 1996, Port Blair. Abstract No. 54, p. 40