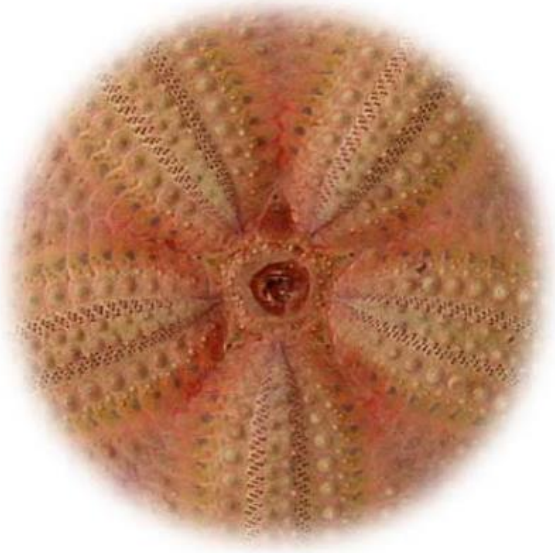
Some
Sea Urchins of Sri Lanka
in Colour

Irregular Sea Urchins - Flattened



Malik Fernando

Colombo 2020

LIST OF SPECIES

IRREGULAR SEA URCHINS - FLATTENED

ASTRICLYPEIDAE

***Echinodiscus bisperforatus* Leske, 1778**

Two-slit biscuit urchin


1


2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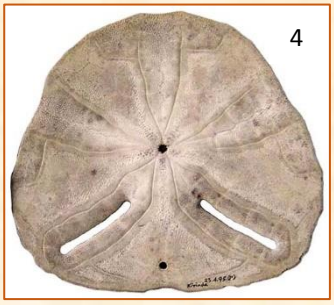
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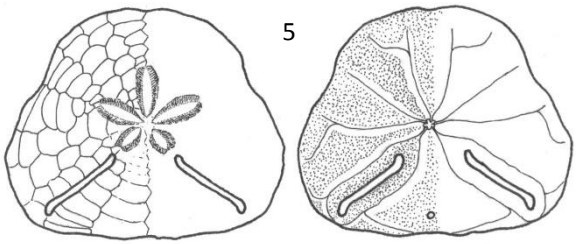
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1 & 2: Dorsal and ventral views of dried test with spines.
3 & 4: Dorsal and ventral views of denuded tests.
5: Drawing of denuded test showing details of plates and petals.
1975 - Mount Lavinia Hotel Bay, 3 m, by diving. 62 mm.
15.4.1994 - Amaduwa, beached test, 82 mm.
18.2.1996 - Mount Lavinia, reef area, test, 60 mm.
23.4.1995 - Kirinda, purchased, dried tests with spines, 94, 93, 88, 82 mm (images 1 & 2).
31.1.2010 - Kalpitiya, live collected in waist deep water, buried 1-2 cm in muddy sand, abundant.

Test very flat, edges thin, sub-circular in shape, the transverse diameter of the posterior part greater than that of the anterior. Posterior margin more or less straight, between the posterior ends of the lunules. Paired ambulacra forming petals on the dorsal surface. Two long slits (lunules) in the posterior part, closed at the lower end. Colour of the dead animal dark green, spines yellowish. Denuded test dark in colour with a mauve tint.

Up to 100 mm diameter.

In older literature such as Clark & Rowe, 1977 the genus *Echinodiscus* is placed in the family Scutellidae.

See next page for larger images.

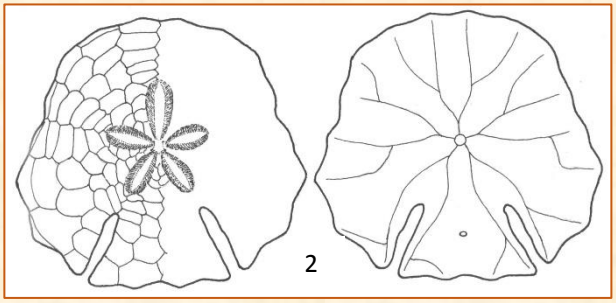
Echinodiscus bisperforatus: Live collections from shallow water in Kalpitiya, buried a few centimetres deep in muddy sand, freshly dried, showing dark green upper surface and maroon and cream undersurface. 100 mm diameter.

Sculpsitechinus auritus: Live collected from Mount Lavinia, Hotel Bay, just under the sand in water 3 m deep, freshly dried, showing the deep pink colour of the spines.

***Sculpsitechinus auritus* Leske, 1778**

Open-slit biscuit urchin


1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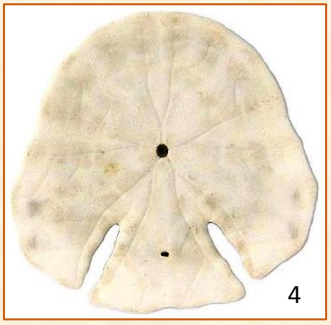
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Test very flat edges thin, sub-circular in shape, the transverse diameter of the posterior part greater than that of the anterior. Two long slits (lunules) in the posterior part, open at the lower end. Posterior margin rounded, cleft by the two lunules. Paired ambulacra forming petals on the dorsal surface.

In life, the upper surface light purple/pink, the underside yellowish cream. Denuded test purplish above, white below.

1: Dorsal view of freshly denuded test showing colour.
2: Drawing of denuded test showing detail of plates and petals.
3 & 4: Denuded test, dorsal and ventral views.

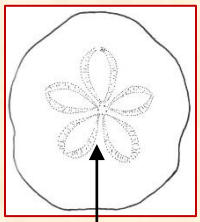
c. 1973 - Mount Lavinia Hotel Bay, 3-4 m, live collection. 79 mm.
5.4.1992 - Mount Lavinia, 15 m, by diving. 28 mm. Image on previous page.
19.12.1994 - Wellawatte, Kinross, damaged test. 80+ mm.
18.11.2001 - Wellawatte, Kinross, damaged test. 40 mm.

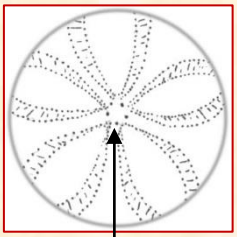
CLYPEASTERIDAE

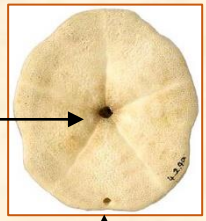
Genus *Clypeaster*

Flattened, bilaterally symmetrical. Mouth central with lantern and teeth, anus posterior on the oral (under) side. The ambulacral system expanded to form five petals confined to the aboral (upper) surface. Five genital pores, no grooves within the apical system. Periproct (the anal opening) small and close to the edge of the test.

Test length < 100 mm: *rarispinus, fervens, reticulatus*
> 100 mm: *humilis*







***Clypeaster humilis* (Leske, 1778)**

Test strong, distinctly pentagonal. Posterior edge of test rounded or straight, rarely bulging in the middle. Marginal area of test sloping evenly to a rounded edge, rising a little more abruptly towards the centre. Oral side flat. Petaloid area not large: ratio of test length to petaloid area length usually c. 2.0 : 1, sometimes 1.6 : 1 in very large (>80 mm) specimens. Frontal petal open. Maximum length known: 163 mm.

4.2.1990 - Hikkaduwa, Rocky islets, 63 x 55 mm. 28.3.93 - Negombo, sand, 15 m, damaged, 73 x 66 mm.
9.1.94 - Palagala, 14 m, damaged, 84 mm. 11.3.99 - Panadura, 18 m, missing oral surface, 79 x 67 mm.

Clypeaster rarispinus de Meijere, 1903

Test delicate, pentagonal or oval, hardly longer than broad. Petals fairly narrow, angular terminally. Margin of test sometimes abruptly thickened. Posterior edge of test sometimes with a slight bulge opposite the periproct. Sutures of the aboral plates often showing up as a dark reticulum.

9.9.99 - Trincomalee, Clappenberg Bay, beached, 8.6 x 4.5 mm.

Clypeaster reticulatus (Linnaeus, 1758)

Test strong, usually oval, sometimes tending to be pentagonal. Posterior edge of the test rounded or straight, rarely bulging in the middle. edge very thick and rounded, the centre elevated and projecting or surrounded by a deep groove. Oral side moderately and evenly concave. Petals broad, blunt terminally. Maximum length known: 75 mm.

1.3.1991 - Bar reef, Kalpitiya, 48.6 x 37.6 mm. 15.4.93 - Tangalle, 42 x 35.7 mm. 15.4.94 - Kirinda, Great Basses Ridge, base of light house, 7 specimens, 49 x 40 mm (largest). 5.4.98 - Negombo, 'Fossil reef', 14 m, sand amongst rocks, 42 x 33 mm. 9.9.99 - Trincomalee, Clappenberg Bay, beached, 16 x 13 mm.

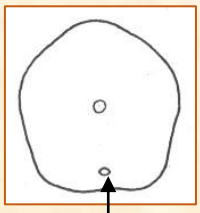
LAGANIDAE

Sand dollars

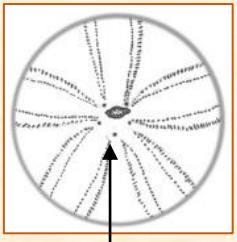
Adult test length 30 - 50 mm, markedly flattened, sometimes angular, petals well-developed.

Laganum/Jacksonaster

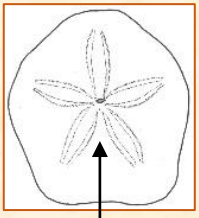
Periproct nearer the posterior margin than the mouth. Test pentagonal. Petaloid area longer than broad, more than half test length. Five genital pores. Madreporic pores in a pit or slit.



Periproct



Apical system with 5 genital pores and a pit in which the madreporic pores open.



Petals

Jacksonaster depressum (L. Agassiz, 1841)

[*Laganum depressum*]

Five subspecies.

Periproct closer to posterior margin. Petaloid area often exceeds 2/3 of the test length. Test very variable in shape, often elongate pentagonal, the margin more or less thickened, though other specimens are more elliptical in shape with lower margins.

Jacksonaster depressum from Colombo, Degal Meda (reef), 24 m on sand. Dried specimen with spines intact. 26 x 22 mm (above). Denuded test (right).

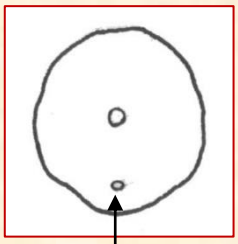
Continued next page

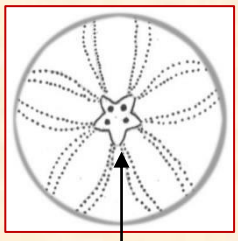
Jacksonaster depressum collections:
1973 - Pasikudah Bay, beached tests - 26 x 23.7 to 38.25 x 35 mm. 17.2.
1990 - Colombo, Degal Meda (reef), 23-24 m, empty tests on sand, abundant - 18.6 x 16.8 mm to 28.4 x 26 mm.
5.4.1992 - Colombo, Off Diyambin gala, sand, 15 m - numerous small tests, 16 mm with genital pores, 15.5 to 10.5 mm without, all with apical fissures.
5.2.1995 - Wellawatte, sewer pipe, 15 m - 14 x 13 & 23 x 21.25 mm.
26.2.2000 - Colombo, Palagala (reef), 14 m, seaward of reef, tests on sand - 20 x 18.5 to 30 x 27.6 mm.
13.3.2004 - Trincomalee, Clappenberg Bay, empty tests - 39 x 34, 36 x 30.5, 32 x 28 mm.

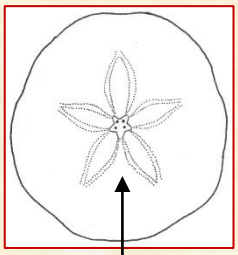
Note: The identification of this species is based on the key in Clark & Rowe, 1977. The family characters and the genus characters are as noted in that key, leading to *Laganum*. *L. depressum* is now accepted as *Jacksonaster depressum*, the genus *Laganum* being placed in the subfamily Laganinae (World Echinoidea Database). Arachchige et al, 2019 does not list *J. depressum*, but describes two *Jacksonaster* species that have not been identified to species level; including one that has also been collected off Colombo. The differences between these species appear to be minute. There is therefore doubt whether the animals described here are *J. depressum* or a subspecies. (See discussion in the Introduction on page 8)

Peronella

Tests broadly oval to sub-pentagonal, markedly flattened, petals well developed. Periproct on the oral side nearer the posterior margin than the mouth. Four genital pores, madreporic pores scattered.







***Peronella macroproctes* Koehler, 1922**

Margin of the test thin, no ring-shaped groove on aboral side.

Aboral (dorsal, left) and oral (ventral, right) views of tests of *Peronella macroproctes*. The four genital pores are clearly seen in the bleached test. These absent in juvenile shells.

17.2.1990 - Colombo, Degal Meda reef, 23-24 m, sand bottom, abundant - 15 x 14, 19 x 18, 24.5 x 22.75 mm, the largest with genital pores.
5.2.1995 - Wellawatte sewer pipe, 15 m on sand - 19 x 17.5 mm, no genital pores.
14.11.1997 - Colombo, Vatiya Parai (reef), 29 mm, sand, coll. Srilal Perera - 22 x 20.3 mm, genital pores present.

***Peronella oblonga* Mortensen, 1948**

A ring-shaped groove on the aboral side, edge of test thickened.

9.3.2018: Jaffna, Casuarina beach, damaged tests, abundant.

Not reported from the Ceylon area by Clark & Rowe, 1977 but reported by Arachchige et al, 2019 from Casuarina beach. Identification based on the latter paper and an opinion expressed by Gayashan Arachchige (pers. comm.).

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