

Margarites, Gibbulas, Button tops & Top Shells

List of species

Family: Chilodontaidae Wenz, 1938

1. *Euchelus asper* (Gmelin, 1791)
2. *Euchelus asper* (f) *quadricarinatus* (Holten, 1802)! Synonymised
3. *Euchelus tricarinata* (Lamarck)! Synonymised

Family: Trochidae Rafinesque, 1815

Subfamily: Trochinae

1. *Clanculus samoensis* (Hombron & Jacquinot, 1848)
2. *Trochus histrio* Reeve, 1848
3. *Trochus maculatus* Linnaeus, 1758
4. *Trochus radiatus* Gmelin, 1791

Subfamily: Umboniinae

5. *Monilea callifera* (Lamarck, 1822)
6. *Umbonium vestiarium* (Linnaeus, 1758)

List of species continued

Family: Tegulidae Kuroda, Habe & Oyama, 1971

1. *Tectus cf. fenestratus* (Gmelin, 1791)
2. *Tectus pyramis* (Born, 1778)
3. *Tectus tentorium* (Gmelin 1791)
4. *Tectus virgatus* (Gmelin, 1791)

Family: 6. Calliostomatidae Thiele, 1924 (1847)

1. *Calliostoma cf. houarti* Vilvens, 2000
2. *Calliostoma* sp. 2

Other species reported from Sri Lanka

- Euchelus atratus* (Gmelin, 1791)
Trochus gibberulus Adams (?)
 - Kirtisinghe, 1978; name unverified
Clanculus ceylonicus G. & H. Nevill, 1869
 - MolluscaBase eds. (2020)

This page deals with four families of more or less cone-shaped—or top-shaped—shells that have wide, flat bases and pointed apices, the apertures being underneath. The exceptions are the button tops that have rounded upper and lower surfaces. They all possess thin, circular or fan-shaped opercula.

Shells are robust, pyramidal in shape, being conical (*Calliostoma*, *Trochus*, *Tectus*, top-shaped with straight sides) to globose (*Clanculus*, *Euchelus*, with rounded sides); some (*Umbonium*) are flattened and lens-shaped. Body whorl moderately large, angular or rounded, often with a flattened base. Aperture rounded to squarish without a siphonal canal. The columella is either smooth (*Umbonium*) toothed or twisted (*Trochus* & *Tectus*). The operculum is thin, translucent and circular (Trochidae) or fan-shaped (Chilodontaidae). Umbilicus present in many genera, being widely open and pit-like (absent in *Umbonium*). Outer surface smooth and glossy or sculptured axially and spirally with granules, nodules and tubercles. They vary widely in size, from a few millimetres to 125 mm.

This is a large and varied group distributed worldwide with many genera and species placed in two Orders and two Superfamilies. Mostly littoral and shallow sublittoral, found usually on hard substrates like rocks and coral reefs, but some species on sand bottoms. They are slow moving animals browsing on detritus and algae, the genus *Umbonium*, a sand dweller, being a filter feeder.

(Poutiers, 1998; de Bruyne, 2003)





Left - circular operculum of Trochus, Tegulidae and Calliostomatidae.

Right - fan-shaped operculum of Chilodontaidae.



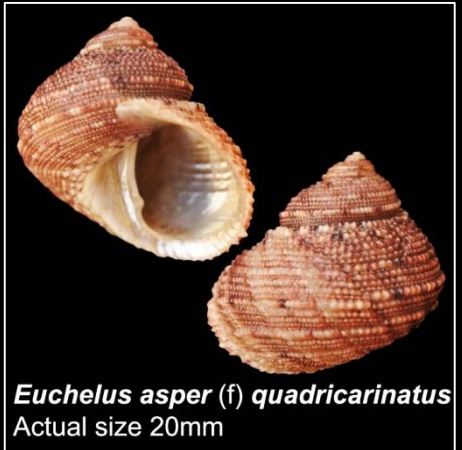
Chilodontaidae



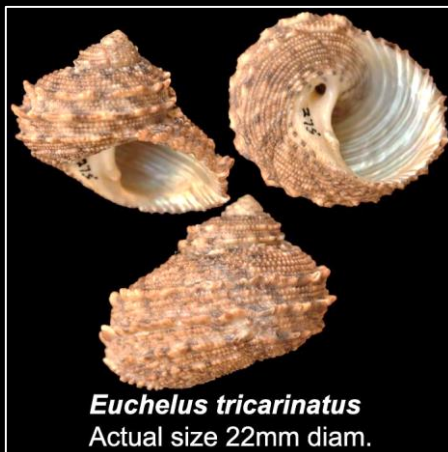
Euchelus asper
Up to 11.3mm high



Euchelus asper
Colour variations



Euchelus asper* (f) *quadricarinatus
Actual size 20mm



Euchelus tricarinatus
Actual size 22mm diam.

E. asper (f) *quadricarinatus* and *E. tricarinatus* have been reduced to synonyms of *Euchelus asper*. The synonymised names have been retained in this catalogue as the shells are quite distinctive and the descriptions would be of help to collectors.

Trochidae



Clanculus atropurpureus
Actual size 10mm high



Trochus histrio
Actual size 29mm diam.

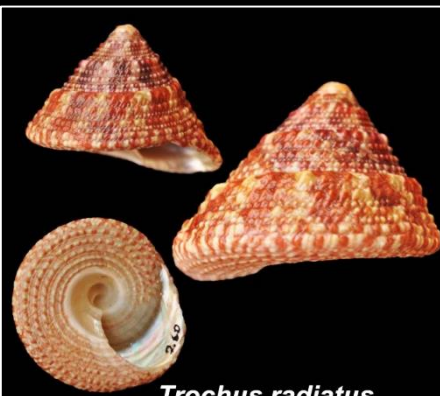


Trochus maculatus
Actual size 30mm

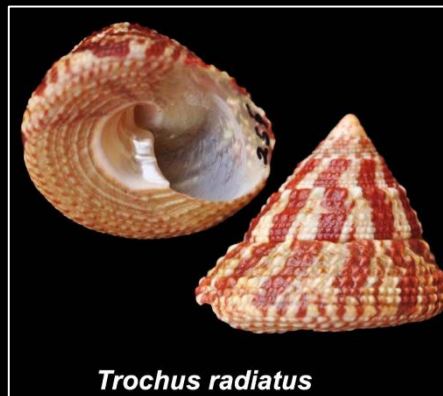
C. atropurpureus reduced to a synonym of *Clanculus samoensis*



Trochus maculatus
Actual size 19x25mm



Trochus radiatus
Actual size 24mm diam.



Trochus radiatus
Actual size 21mm diam.



Monilea callifera
Actual size 6.4mm high

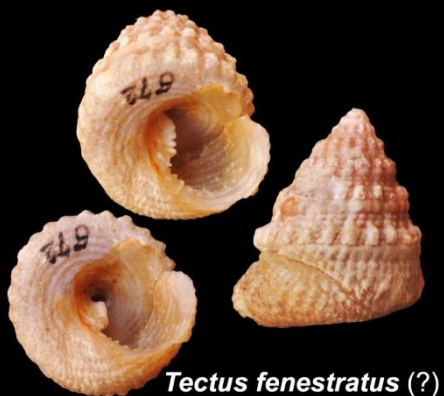


Umbonium vestiarium
Up to 12mm diam.



Umbonium vestiarium
Up to 12mm diam.

Tegulidae



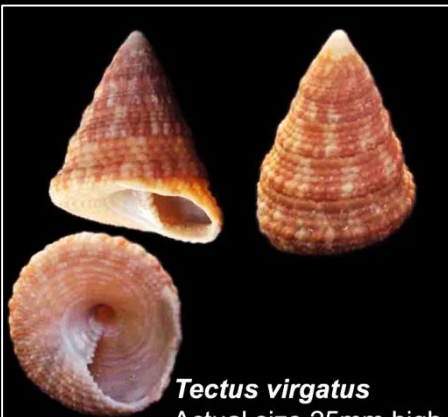
***Tectus fenestratus* (?)**
Actual size 22mm



Tectus pyramis
Actual size 74mm



Tectus tentorium
Actual size 29mm



Tectus virgatus
Actual size 25mm high



Tectus virgatus
Actual size 18+ x 18 mm

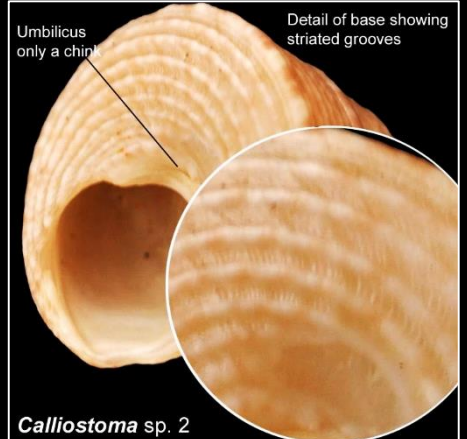
Calliostomatidae



Calliostoma cf. houarti
Actual size 8mm



***Calliostoma* sp. 2**
Actual size 11.65 x 8.72 mm



***Calliostoma* sp. 2**

Umbilicus only a chink
Detail of base showing striated grooves

CHILODONTAIDAE Wenz, 1938 (= Chilodontidae)**Margarites**

Shells with globular body whorls and short pointed spires.

1. *Euchelus asper* (Gmelin, 1791)**Multicoloured margarite**

[*Trochus asper* Gmelin, 1791; *Euchelus quadricarinatus* (Holten, 1802); *Trochus tricarinatus* Lamarck, 1818]

Shell turbate, body whorl swollen, spire low, apex acute. Sides convex, suture channelled. Aperture oblique, large, occupying half of the base. Umbilicus circular, deep, ending in a groove bounded by the columella that is straightish ending in a low tooth. Outer lip thin, no teeth. Exterior encircled by thick, hollow, concentric ridges with erect rounded margins crossed by axial ribs, alternating with rows of granules. The base has the same sculpture but finer and closely spaced. Interior nacreous, the external sculpture of hollow ridges showing as a series of grooves. Colour various: 3 specimens are pale-pink/dark-pink; white/purplish-black; concolor pink-orange, the darker colour arranged in irregular oblique axial streaks. Columella, umbilicus white. Operculum thin, translucent, fan-shaped with one end narrowly rounded and the other broadly rounded, nucleus central, differing from the circular operculum of Trochidae.

11.3 x 14; 8.8 x 11; 7.3 x 8.15 mm (ht x w), Opercula: 6, 5, 4 mm.

Galle Harbour, "Pipe Wreck" site, 7 m, inside 18th century Dutch artefact. By diving, live collected.

2. *Euchelus asper* (f) *quadricarinatus* (Holten, 1802)**Four-keeled Margarite**

Shell turbate, body whorl swollen, spire low, apex acute. About 3 whorls. Sides gently convex, suture channelled. Aperture oblique, large, occupying half of the base. Umbilicus filled in with callus leaving a shallow groove bounded by the columella that is straightish ending in a low tooth. Outer lip thin, no teeth. Exterior encircled by concentric rows of strong, erect and cylindrical granules alternating with rows of small granules. Four rows are enlarged and give rise to the name: one subsutural, one at widest diameter and two below. The base has the same sculpture but finer and closely spaced. Interior nacreous, the external concentric sculpture showing as a series of grooves. Colour purplish-brown with pinkish tints. Columella, umbilicus white.

Differs from the typical in being heavier, more rounded, with solid sculpture that is closely packed and with four distinctive "keels". All specimens found empty no opercula seen.

24 x 21; 19 x 20; 18 x 20 mm (ht x w).

Euchelus quadricarinatus Holten, 1802 (Abbott, 1991) is accepted in MolluscaBase/WoRMS as a synonym of *E. asper*. The form name follows the usage in Hardy's Catalogue. This shell is quite distinct from the previous one. The image and description in Apte, 1998 under the name *E. asper* is undoubtedly this form.

3. *Euchelus tricarinata* (Lamarck)**Three-keeled Margarite**

Shell turbate, body whorl swollen and rather flattened, spire low, apex acute. Sides convex, the body whorl markedly so, suture channelled. Aperture oblique, large, occupying half of the base. Umbilicus circular, deep, ending in a groove bounded by the columella that is straightish ending in a low tooth. Outer lip thin, no teeth. Exterior encircled by compact rows of granules, more or less the same size, except for three rows: one at the widest part of body and two below, where the granules are coalesced to form fin-like ridges with scattered triangular projections. The base has similar granular sculpture but finer and closely spaced. Colour purplish brown with darker oblique streaks, some pink-white on the ridges. Columella, umbilicus white, interior nacreous, the external sculpture of ridges showing as a series of grooves. Operculum thin, fan-shaped, central nucleus. Generally encrusted with soft growths, especially a red sponge.

16 x 22 mm (ht x w).

Dehiwela, off Auburnside, 2-3 m, in rock crevices; Mount Lavinia, reef crevices and on *Pinctada radiata*; Galle Harbour, 'Pipe Wreck' site, 6 m, empty on sand bottom.

This is a distinctive shell that is not listed in MolluscaBase/WoRMS (June, 2019). Hardy lists it without an image quoting Apte, 1998 (page 14, #5 *Euchelus tricarinata*). MolluscaBase (2020) lists *Trochus tricarinatus* Lamarck, 1818 as a synonym of *Euchelus asper*.



TROCHIDAE Rafinesque, 1815

Clanculus, Tops, Gibbulas & Button tops

Shells turbate with rounded whorls, top-shaped with straight sides, or flattened and button-shaped. Mostly with open umbilicus.

Subfamily Trochinae

1. *Clanculus samoensis* (Hombron & Jacquinot, 1848) Purple Clanculus[*Trochus samoensis* Hombron & Jacquinot, 1848; *Clanculus atropurpureus* (Gould, 1849)]

Shell small, turbate with swollen body whorl and low spire, apex acute, about 4 whorls. Suture simple, body whorl convex with rather flattened subsutural area giving rise to stepped whorls. Aperture oblique, occupying much less than half area of base (cp. *Euchelus*). Umbilicus open, deep, guarded by one large and 3-4 small triangular teeth that are continued on to the inner lip. Outer lip thin, bevelled, interior lirate. Columella straightish with blunt teeth at upper and lower ends. Exterior encircled by rows of granular ridges separated by flat bands of fine oblique striae. The base covered with similar sculpture. Operculum thin, translucent, circular, central nucleus, spiral growth bands narrow. Glossy, chocolate-brown with pinkish-tan radial bands. (Images in Abbott, 1994 and web pages show concolor greyish-purple shells.)

10 x 12.74 mm (ht x w).

Wellawatte, Kinross First reef, 3 m, in rock hollow; Mount Lavinia, Bellangala rocky islet, 5 m, under small rocks.

Apte, 1998, p.14 #6: *Clanculus ceylonicus* Nevill with poor image. This species is accepted in MolluscaBase (2019). MolluscaBase. *Clanculus ceylonicus* G. & H. Nevill, 1869. Accessed through: World Register of Marine Species at: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=594188> on 2019-06-11. Type location Sri Lanka EEZ. The image on Google images is taken from Hardy's Guide and shows a shell with a tall spire, more open aperture and without the teeth surrounding the umbilicus. Apte description does not refer to these teeth. Hardy distribution includes Sri Lanka.

2. *Trochus histrio* Reeve, 1848

Actor top shell

[*Trochus sacellus* Philippi, R.A., 1854; *Trochus calcaratus* Sowerbie, S.M., 1875]

Shell top-shaped, much shorter than base diameter. Straight sides, pointed apex, base sharply angulated. Umbilicus funnel-shaped, shallow, columella with fine, low, rounded teeth. Whorls encircled by 5 rows of small rounded granules, the lowermost two rows interrupted by spaced, conical, projecting tubercles. Rose red with dirty white and brownish patches. Base pinkish white with short concentric, brownish streaks. Columella and umbilicus creamy white.

19 x 29 mm (ht x w).

Collected by Srilal Perera; no find data.

This is probably the shell listed in Kirtisinghe, 1978 as *Trochus callicoccus* Reeve (p. 48 #8), a species not listed in WoRMS (July, 2020). The identification is based on images in Hardy's Guide. The drawing of *Trochus calcaratus* illustrating Sowerbie's original description was also referred (May 2019) to confirm the diagnosis. (Sowerbie & Montrouzier, 1874. *Journal de Conchyliologie*, 23: 33-44, 1874). The distribution is given as West & Central Pacific by Hardy and S-W Pacific by Abbott, 1994.

3. *Trochus maculatus* Linnaeus, 1758

Maculated top shell

"A solid, conical shell, up to 7cm, with almost flat sides, height and width approximately equal. Inner edge of aperture with 4-5 blunt nodules. Purple, white and deep pink radial bands; yellowish operculum. Habitat: among coral and rock in the lower eulittoral and sublittoral. Distribution: Indo-Pacific". (Richmond, 1997).

27 x 28, 19 x 25 mm (ht x base diam)

The species is listed in Kirtisinghe, 1978. The first image is of a shell collected by A. C. M. Niyas from Kalpitiya. It agrees with the description by Richmond. A weathered, beached specimen was purchased at Kirinda from a shell shop (MF1007)—second image; but this may possibly be *Trochus radiatus*. A shell in the MF collection with no collection data (MF1093) has been determined as this species, its somewhat bee-hive shape being similar to the Niyas collection.

4. *Trochus radiatus* Gmelin, 1791

Radiate top shell

Shell top-shaped, shorter than wide. Straight sides, pointed apex often eroded, basal edges rounded. Umbilicus funnel-shaped, shallow, columella not toothed. Whorls encircled by 5 rows of small rounded granules; the uppermost row enlarged resulting in a channelled suture. Base with fine, rough spiral striae. Deep red and dirty greenish white: unaligned oblique axial bands, mainly red with irregular white patches or in between patterns; base pinkish. Sand worn beach specimens invariably distinctly banded axially in bright red and white, being very striking and common.

20 x 29, 18 x 26, 17 x 21 mm (ht x w)

Mount Lavinia, beached, weathered shells, common; Mount Lavinia, First Reef, 2-3 m, inside sea urchin-excavated hollows, heavily encrusted with calcareous algae; Mount Lavinia, Bellangala, inshore rocks, Maggona, Thudawa Bay, rocky shore, subtidal, heavily encrusted with algae and calcareous plaques, eroded, misshapen. Trincomalee, 3 m, on rocks.

Live collected shells usually much encrusted with calcareous deposits and green algae, depending on the depth.

- Kirtisinghe, 1978 p. 48

Subfamily Umboniinae

5. *Monilea callifera* (Lamarck, 1822)

Beauty Gibbula; Belcher's Top Shell

[*Trochus calliferus* Lamarck, 1822]

Small conical, rounded shell with swollen body whorl and small spire. Apex acute, 3-4 whorls. Suture channelled; whorls convex. Aperture on underside, oblique, occupying almost half the base. Umbilicus open, deep, columella straightish, smooth. Outer lip thin, smooth. Exterior encircled by granular ridges, four strong: one below a subsutural row of granules, two at mid-body and one below. In between each pair are two rows of weak granular ridges. The granules of each row are joined to the granules above and below by axial bars, giving a cancellate appearance. Light pinkish-grey with irregular dark brown spots and streaks. Umbilicus and columella white, interior nacreous. Operculum not available but field note records "horny, thin, circular".

6.38 x 7.74 mm (ht x w).

Wellawatte, Kinross First reef, 3 m, in rock hollow. Collected together with *Clanculus samoensis* from the same habitat.Shell very similar to *Euchelus asper* in its shape but differs in the sculpture.

- Kirtisinghe, 1978 p. 47; Hardy's Internet catalogue.

6. *Umbonium vestiarium* Linnaeus, 1758

Vesta's button top

Spire low, rounded, whorls inflated, lip thin. Base covered by thick, smoothly rounded callus of a contrasting colour that obscures the main colour and pattern except around the edges. Colour ranges from pink to blue-black through orange and brown, occasionally concolor white. Mostly patterned with radial streaks of darker contrasting colour, some with spiral banding. Operculum thin, round, multi-spiral. Extensive colour variation. Found alive once in Puttalam Lagoon at NARA Station, Kalpitiya, where most of the shells were of one colour and pattern—light brown with darker lines and pale or coloured under side.

7.6 x 11.5 mm (ht x w).

Mannar Island, north shore by the Old Dutch Tower, beached, empty, multicoloured; Kalpitiya, Puttalam lagoon western shore, beached, empty and alive in the sand at the water's edge, all of one light brown colour and pattern. This species is a sand dweller.

- Eisenberg, 1989 p. 40; Abbott, 1991 (1994) p. 20; Kirtisinghe, 1978 p. 47; Oliver, 1989 p. 34.



TEGULIDAE Kuroda, Habe & Oyama, 1971

Top shells

Shells top-shaped with straight sides, the columella twisted forward, toothed.

1. *Tectus cf. fenestratus* (Gmelin, 1791)[*Trochus fenestratus* Gmelin, 1791]

Shell a tall (22 mm) cone with narrow base (18 mm). Sides straight, basal angle rounded. Umbilicus open, deep, columella strongly toothed with a row of pointed teeth continuing along inner edge of aperture. Whorls encircled by 6 rows of small granules seen clearly in upper whorls; on later whorls the lowermost 3 rows develop progressively larger rounded protuberant tubercles that at length overhang the suture. At the same time the granules of the uppermost row on each whorl become progressively larger. The base is spirally striate. The shell is pinkish.

This is a faded, weathered beach specimen with calcareous concretions. Closest match is *T. fenestratus*. But my shell appears to have a narrower base and a toothed columella (similar to *virgatus*, *tentorium*).

22 x 18 mm (ht x w).

Jaffna, Analaitivu, beached, empty.

- idscaro.net

2. *Tectus pyramis* Born, 1778

Pyramid top

Shell large and heavy, top-shaped, basal width and height similar. Sides straight, apex pointed, base angulated. Suture impressed. Umbilicus absent, columella twisted forwards. Whorls encircled by 6-7 rows of tiny granules on a flat ground. Lowermost margin of upper whorls scalloped, overhanging the whorl below. Base smooth, devoid of granules, a few shallow grooves centrally.

74 x 74, 60 x 50 mm (ht x w).

Trincomalee, Dutch bay, empty, on sand near the shore, weathered and discoloured; purchased, no find data, in good condition. This species has also been seen on the Kalpitiya Bar Reef, on rock.

- Eisenberg, 1989 p. 40; Kirtisinghe, 1978 p. 94; Oliver, 1989 p. 30; Abbott, 1991 (1994) p. 20; idscaro.net

3. *Tectus tentorium* (Gmelin 1791)

Tented top

[*Trochus tentorium* Gmelin, 1791]

Shell top-shaped, sides straight, apex pointed. Basal edge sharply angled. Umbilicus funnel-shaped, deep and open, columella toothed, ridged, in larger shells a row of teeth along adjacent edge of lip. Whorls encircled by 7-8 rows of small granules; the uppermost row thicker. Individual granules enlarged to form discontinuous, oblique, axial ribs. Base spirally striate. Operculum circular with central nucleus, growth spiral in narrow bands. Brownish to brick-red, ribs dirty white.

29.46 x 28, 28 x 29.46, 24.03 x 23.66 mm (ht x w).

Kalpitiya, Bar Reef, 3-4 m, entrance to octopus lair, empty, by diving; Tangalle, no find data; Kayankerni, Thennadi Bay, beached; Trincomalee, Dutch Bay, 1-2 m, on algae covered rocks, live collected, by diving.

- Kirtisinghe, 1978 p. 49

4. *Tectus virgatus* (Gmelin, 1791)

Flamed top

[*Trochus virgatus* Gmelin, 1791]

Shell taller than wide, sides straight, basal angle rounded, whorls flat, encircled by 5 rows of small, rounded, closely packed, even-sized granules. Base with similar rows of granules decreasing in size inwards. Umbilicus open, deep in centre of funnel-shaped depression; columella lirate with ~5 blunt teeth; 4 weak teeth outer lip adjacent to columella. Clouded with red and greenish-blue patches. Columella white, interior lirate, opalescent.

18+ x 18 mm (ht x w). Upper whorls missing, estimated height 24 mm. A shell in the A.C.M. Niyas collection measures 25 mm high.

Kalpitiya, Bar reef, 2 m, empty, at entrance to octopus lair. Undamaged shell photograph of specimen in A.C.M. Niyas collection.

- Eisenberg, 1989 p. 39; idscaro.net



CALLIOSTOMATIDAE Thiele, 1924 (1847)

Jewel Tops

This is a large family of small, top-shaped shells, many highly coloured. The species are distributed in four sub-families and numerous genera. The Natural History Museum Rotterdam (NMR) picture pages feature 141 species. One species (*C. hourti*) illustrated in another website available through Google Images was the only one resembling one of the Sri Lankan species in the collection.

1. *Calliostoma* cf. *houarti* Vilvens, 2000

Shell top-shaped, sides straight, apex pointed, taller than wide. Suture simple. Base angulated, flat. Aperture squarish, no umbilicus. Outer lip thin, no teeth. Columella straight, smooth, a low rounded tooth at lower end.

Exterior encircled by 5-6 rows of granulated striae separated by narrow grooves. The granules small, even, closely packed, the lowermost row in each whorl smaller than others resulting in a gap separating the whorls. Seven rows of narrow granular striae on base.

Pale pinkish-orange shading to dusky blue-purple in the upper whorls, lowermost striae of each whorl with bluish tints, more intense in upper whorls. Interior white. Operculum thin, translucent, circular with central nucleus typical of Trochidae.

8 x 7.5 mm (ht x w).

Mount Lavinia, Bellangala eastern edge, 5 m, under small rock. By diving.

2. *Calliostoma* sp. 2

Shell top-shaped, sides straight, apex pointed, taller than wide. Suture simple. Base rounded. Umbilicus present, partially obscured by columellar callus. Outer lip thin, no teeth. Columella arched, smooth, a low rounded tooth at lower end, columellar callus extending on to body whorl. Seven whorls. Exterior encircled by 7 rows of low cords on each whorl, the lowermost stronger, separated by narrow interspaces striated by oblique axial lines. These more clearly seen on the body whorl and especially the base where the interspaces are wider, the sculpture continuing from the body whorl on to the base. Base colour whitish overlaid with irregular pink oblique axial stripes, the pattern blurred in the upper whorls. The base more uniformly coloured with radial stripes of pink on a white or cream ground, the interspaces brownish. Columella and interior white.

12 x 8.75; 11.68 x 8.6; 11.4 x 8.5; 11.4 x 8.9; 11.45 x 9.1; 8.5 x 7.1; mm (ht x w)

Kalpitiya, beached shells collected by A. C. M. Niyas.

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[Original description & plate of *Trochus (Polydonta) calcaratus* Souverbie, 1875: pp. 41-42, pl. 4 fig. 7]

Images of Tegulidae: http://idscaro.net/sci/01_coll/plates/gastro/pl_tegulidae_1.htm

Images of Trochidae, including a number of images of *Trochus radiatus* from Sri Lanka:

<http://www.femorale.com/shellphotos/thumbpage.asp?family=trochidae&cod=1013&nav=5&prov=>

11.6.2019; 24.7.2020 - reviewed and updated.