

FROG SHELLS

List of species

1. *Bufonaria crumena* (Lamarck, 1816)
2. *Bufonaria echinata* (Link, 1807)
3. *Bursa bufonia* (Gmelin, 1791)
4. *Bursa granularis* (Röding, 1798)
5. *Tutufa bubo* (Linnaeus, 1758)
6. *Tutufa bufo* (Röding, 1798)
7. *Tutufa rubeta* (Linnaeus, 1758)

Other species reported from Sri Lanka

Bufonaria rana (Linnaeus, 1758)
 - Kirtisinghe, 1978

Bursina nobilis (Reeve, 1844)
 - Perera & Weerakkody (2004)

BURSIDAE Thiele, 1925

Frog shells

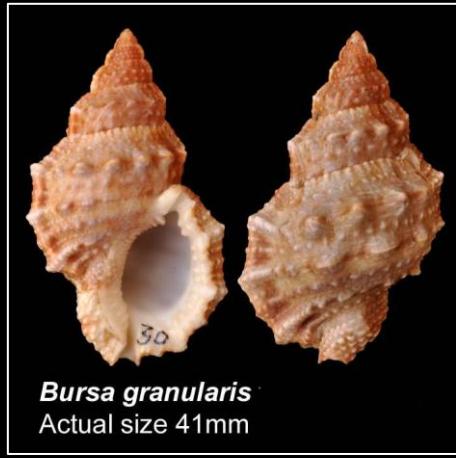
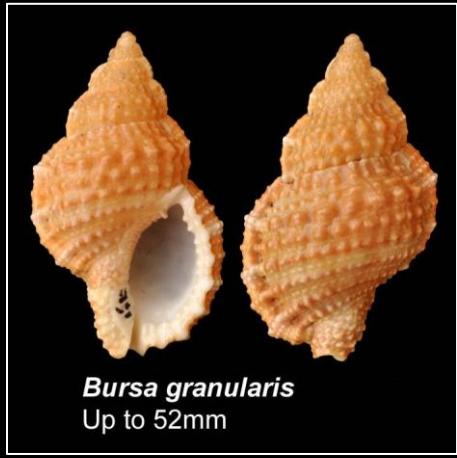
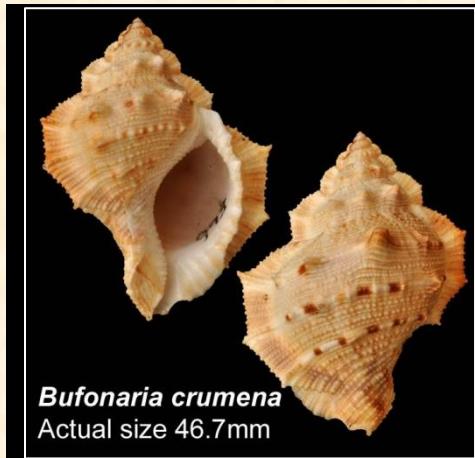
Shells thick, coarsely ornamented to finely beaded, ovate to slightly elongate, often dorso-ventrally compressed. Two strong axial varices per whorl, frequently aligned 180° apart along two sides of the spire. Periostracum usually absent, if present not hairy or shaggy. Aperture with a short anterior siphonal canal and a distinct posterior (anal) canal. The outer lip thick with teeth along the inside, the inner lip more or less calloused, with transverse ridges or granules (rarely smooth). The operculum is horny.

Frog shells are active predators feeding mainly on sedentary polychaete worms. The prey is anaesthetised with an acidic secretion, removed from their tubes and swallowed whole. They are distributed throughout tropical waters, on shallow water coral reefs and in deeper water on sand and mud bottoms. It is a fairly small family with few genera.

The shells of BURSIDAE are similar to those of RANELLIDAE (=CYMATIIDAE) but differ in the absence of a hairy periostracum and presence of a distinct posterior canal.

(Poutiers, 1998; de Bruyne, 2003)





1. *Bufonaria crumena* (Lamarck, 1816) Purse frog shell
 [*Ranella crumena* Lamarck, 1816; *Bufonaria crumenoides* (Blainville in Valenciennes, 1832),
Bursa crumena (Lamarck, 1816)]

Rotund, dorso-ventrally compressed shell with short spire and pointed apex. Aperture oval, anterior canal recurved, posterior canal deep. Lip thickened, toothed. Columella plicate, thin parietal callus extending on to body whorl. Varices compressed and fin-like on either side of the shell 180° apart. Ornament consists of closely placed thick and thin granular spiral cords with three much wider cords equally spaced, one at the shoulder and two below reducing in thickness. The cords tubercular, those on the shoulder raised into pointed spines. On the lip and varices these three cords project as small triangular spines. Amber, irregularly blotched with cream, the variceal spines white, the three cords spotted with cinnamon in between the tubercles, the lip and edge of the parietal callus orange, columella and interior white.
 68 x 50 mm (ht x w).

Wellawatte, Kinross beach, presumed habitat muddy sand beyond Palagala (reef), bottom-set crab net trash; Paiyagala beach, fishing trash; Beruwela, beach, fishing trash; Kalkudah, beach, fishing trash.

2. *Bufonaria echinata* (Link, 1807) Spiny frog shell
 [*Gyrineum echinatum* Link, 1807; *Bursa echinata* (Link, 1807); *Bursa spinosa* (Schumacher, 1817)]

Shell rather light, with inflated body whorl, pointed spire, dorso-ventrally compressed. Aperture oval, moderate anterior canal, distinct posterior canal, lip thickened, toothed, columella not callus, lirate (external ornament is continued within). Two rows of varices are arranged on either side, 180° apart. Ornament consists of closely placed granular spiral threads over entire surface with three equally spaced thicker cords: the upper one at the shoulder bears fairly long spinous nodules, the middle cord has fewer and shorter spines and the lowest cord has the occasional spine. The shoulder row alone is visible on the spire whorls. The outer lip and varices have 3 to 4 strong spines, the uppermost one on the lip forming the lateral border of the posterior canal. White with patchy amber staining. Lip, columella and interior white.
 68 x 43 mm (ht x w).

Wellawatte, Kinross beach, fishing trash; Paiyagala beach, P/North railway station, fishing trash; Nilaveli? purchased from vendor.

3. *Bursa bufonia* (Gmelin, 1791) Warty frog shell
 [*Murex bufonia* Gmelin, 1791]

Shell rotund with short spire, dorso-ventrally compressed. Aperture a wide oval, anterior siphonal canal narrow, deep, curved; posterior canal closed, long and straight, spout-like. Outer lip thickened, toothed, columella strongly lirate, the lirae extending on to the parietal callus that spreads on to the body whorl. Lip and varices are aligned along either side of the shell 180° apart, the posterior canals protruding prominently. Ornament consists of coarse spiral cords with granules and nodules raised into a series of tubercles at the shoulder and along the lip. Off-white to light brown, the lip, columella and interior clear white. The oval operculum has the node at the anterior end.
 34 x 29 mm (ht x w).

Mount Lavinia, Bellangala, 5 m, on rock and 3 m, in seaweed bed; Dehiwela, Palagala (reef), 13.6 m, empty. All by diving.

4. *Bursa granularis* (Röding, 1798) Granulate frog shell
 [*Tritonum granulare* Röding, 1798; *Bursa affinis granularis* (Röding, 1798); *Bursa granularis granularis* (Röding, 1798); *Colubrellina granularis* (Röding, 1798)]

Shell slender and shapely with rounded whorls. Dorso-ventrally compressed, moderate tapering spire. Aperture oval, outer lip thickened, toothed, columella plicate, thin callus extending on to the body whorl also plicate, anterior siphonal canal short, posterior siphonal canal wide open, short, bordered on the parietal side by a thin rib. Varices aligned along either side 180° apart, low and rounded. Ornament consists of well-spaced granular or nodular spiral cords: those on the shoulder and a row or two below nodular, others granular. The shoulder row or the third row bears the strongest nodules. On any one row granules or nodules are uniform. Honey coloured, some with darker or lighter banding. Lip, columella and interior white with some brown spreading on to the upper part of the columella between the plications.
 51 x 29 mm (ht x w).

Mount Lavinia, Bellangala channel, 7 m, under worm tube clump; Mount Lavinia Hotel Bay, 5 m, under rock; Colombo, No data; Kirinda, purchased from vendor.

OR

Shell knobby, the whorls angular, on account of two rows of strong, pointed tubercles across the middle of the body whorl with a row of fine granules in between. Deep reddish brown with bluish tints. The form of the lips, columella and siphonal canals as in the 'typical' form, including the spread of the body colour onto the upper part of the columella between the plications. Operculum oval.
 41 x 24 mm (ht x w).

Mount Lavinia, Bellangala, on rocks to east, west and south: 5 m, under rock, reef summit, 7 m, under worm tube clump, 7 m, rock crevice, 5 m, under sponge. All collected alive, by diving.

This species occurs in two forms—honey coloured with fine granules, or coloured in deep reddish shades with bluish tints with two rows of tubercles. The latter form has been collected **only** from around the rocky islet Bellangala at Mount Lavinia, while the former from elsewhere, only one specimen from Bellangala. The largest (51 mm) was purchased at Kirinda and appears to be a beached shell. Kirtisinghe, 1978, Eisenberg, 1989, Oliver, 1989 and Abbott, 1994 illustrate the granular form. de Bruyne, 2003 illustrates the tuberculated form. Both forms are illustrated in MolluscaBase(2019)/WoRMS pages and appear to have an Indo-Pacific distribution. Subspecies of *B. granularis* from other oceans and seas have been raised to specific rank.

5. *Tutufa bubo* (Linnaeus, 1758)

Lamp Shell or Giant Frog Shell

[*Murex rana* var. *bubo* Linnaeus, 1758; *Tutufa (Tutufa) bubo* (Linnaeus, 1758) - accepted, alt;
Bursa lampas, *Bursa bubo* Linnaeus]

Shell large, thick and heavy. Aperture round with flaring lips, spire tapering and pointed with angular shoulders to the whorls. Strong varices 240° apart. Outer lip with numerous elongated teeth, columella corrugated, inner lip expanded and smooth. Anterior canal deep and narrow, posterior canal wide, defined by two teeth either side. Ornament consists of numerous spiral cords of varying widths, the finer ones granular, the wider ones nodular, those on the shoulders of the spire being raised into blunt tubercles. Creamy-white with amber and brown patches, the nodules whitish, some interrupted spirals of cinnamon, the varices heavily stained with cinnamon. The lips and interior cream to peach. Remnants of heavy encrustation.

200 x 135 mm; 235 x 150 mm.

Said to be collected from Kirinda, uncommon. Two purchased: Rs 200/-, heavily encrusted, Naotunne shell shop Rs 5,000/-, in very good condition, well coloured, some damage to a portion of the inner lip.

6. *Tutufa bufo* (Röding, 1798)

Toad frog shell, red-mouth frog shell

[*Tritonium bufo* Röding, 1798; *Tutufa (Tutufa) bufo* (Röding, 1798) accepted, alt.]

Shell thick and warty with a short spire, large specimens heavily encrusted. Aperture obliquely oval, anterior siphonal canal deep and almost closed, posterior canal long almost closed, spout-like. Lip thickened, toothed on the inside, columella weakly plicate, the parietal callus widely expanded on to the body whorl, quite smooth. Two varices per whorl, not aligned along the sides. Ornament consists of coarse granular spiral cords that are stronger in places with nodules. Over the shoulder is a row of strong tubercles, the granular cords passing over them. The lip and varices are strongly tuberculated. Creamy white to light brown often obscured by encrustations. Outer and inner lips rose-pink, or orange-red in large specimens, lips peach; columella and corresponding aperture margin on the outer side russet, small specimens lighter in colour.

90 x 55 mm; 97 x 58 mm (ht x w).

Chilaw, Udappuwa, fishing spoil, aperture peach/burnt orange, heavily encrusted; Dehiwela, East of Diyambingala, 13 m, sand bottom; Mount Lavinia, western edge of reef, 8 m, rock near sand; Kirinda, purchased from shell stall, aperture peach/burnt orange, hardly encrusted; Nilaveli, Pigeon Island (?), aperture peach/orange-red. 100 mm.

7. *Tutufa rubeta* (Linnaeus, 1758)

Ruddy frog shell

[*Murex rana* var. *rubeta* Linnaeus, 1758; *Bursa (Tutufa) rubeta* (Linnaeus, 1758);
Bursa rubeta (Linnaeus, 1758); *Tutufa (Tutufella) rubeta* (Linnaeus, 1758) accepted, alt.]

Large shell with tall, tapering spire. Two varices per whorl, not aligned along sides of shell. Aperture oval, outer lip with teeth, columella corrugated, parietal callus extending on to body whorl, also with corrugations. Ornament consists of granular spiral cords with coarse nodules arranged in axial rows. The varices are particularly thick and nodular. Amber, with lighter and darker bands and blotches. The lips, columella and interior orange-red, the teeth and columellar lirae whitish. Much encrusted, the ventral aspect relatively clean.

83 x 51 mm, 107 x 64 mm (ht x w)

Maggona, Thudawa Bay, Small Boat Fishery Harbour, fishing trash, lightly encrusted, highly coloured; Trincomalee, Nilaveli, Pigeon Islands, off the southern beach, 4-5 m, amongst sand, rubble and coral, much encrusted.

Note: *Tutufa bufo* and *Tutufa rubeta* are somewhat similar shells, both having highly coloured apertures. They can be differentiated by the spires (short in *bufo* and tall in *rubeta*) and by the columella (smooth in *bufo* and corrugated (plicate) in *rubeta*.

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