Bivalve Family Identifier

BIVALVE FAMILIES IN SRI LANKA

Thirty-nine families of bivalves have been recorded from marine and brackish-water habitats. Representative shells from each of the families are illustrated with brief notes in the following pages. The notes relate to characteristic features that would enable determination of the family. Technical terms used are illustrated in other pages of this section. Representatives of all the families in the list below have been collected by the author, barring a few of which only photographs are available. Images of all the species are reproduced in the Plates (Pl.) numbered 1 to 28. The families are listed alphabetically below.

List of Sri Lankan Bivalve Families in the Malik Fernando Collection

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(Families with few species in Sri Lanka are placed in Plate 15)

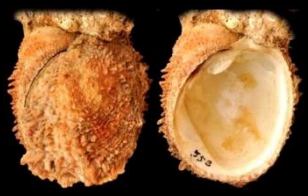
Representative examples with brief notes

1. ANOMIIDAE:
Very compressed, edentulous, small internal ligament. Lower valve perforated. Attached to hard substrates in life, the byssus passing through the perforation in the lower valve.

2. ARCIDAE:
Shape varies - boat-shaped, oval. Umbones widely separated usually, prominent. Straight hinge line, teeth numerous, small, ligament a flat external sheet, its filaments diagonal, forming a diamond shape.

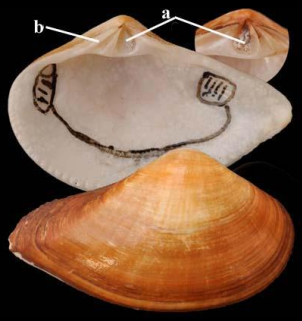
3. CARDIIDAE:
Inflated, shells thick or thin. Sculpture strong or weak. Arched hinge plate with strong cardinal and lateral teeth. Free living on soft substrates. Many highly coloured. Some with hairy periostracum.

4. CARDITIDAE:
Strong shells, inflated, obliquely rounded or rectangular with strong radial sculpture. Ligament external, only a long posterior lateral tooth in each valve.

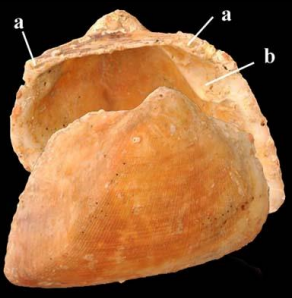


5. CHAMIDAE:
Shells very strong, cemented to hard substrates by the lower valve which is deeply cupped. The upper valve smaller and flattish. Teeth sausage-shaped, parallel to the dorsal margin.

6. CORBULIDAE:
Only a single valve collected. The posterior drawn out spout-like, umbo central, a single peg-like cardinal tooth. Concentric sculpture. Shell weathered, polished and porcelain-like.



7. CRASSATELLIDAE:
A small family, three species collected. Shape trigonal or rounded, sculpture absent or radial. Internal ligament in a depression (a), cardinal teeth (b). No pallial sinus.



8. CUCULLAEIDAE:
An uncommon family that resembles ARCIDAE. The taxodont hinge has small central teeth and horizontal lateral teeth (a). A posterior flange (b) is present for muscle attachment.

9. CYRENIDAE:
Brackish water bivalves. Two genera - *Geloina* (illus.) inflated, heavy, smoothly white under the thick, blackish periostracum. Common in mangrove waterways. *Corbicula solida* uncommon, type loc. Sri Lanka. Trigonal, light weight, resembling *M. casta*.

10. DONACIDAE:
Small shells often found on beaches. Trigonal with pointed umbo, compressed. External ligament, small teeth, large pallial sinus. Fine concentric sculpture, often rough along the posterior margin. Colourful with radially striped contrasting colours.

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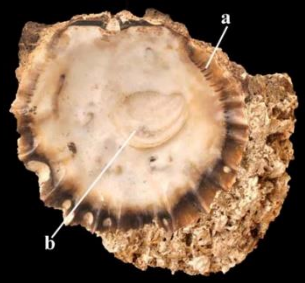
11. GASTROCHAENIDAE:
A family of coral borers occupying bottle-shaped burrows. Thin inflated shells, edentulous, weak ligament, concentric sculpture. Valves widely gaping ventrally exposing the soft tissues. Found by cracking open coral rubble.

12. GLYCYMERIDIDAE:
Strong, inflated shells. Arched hinge plate with taxodont teeth. Radial sculpture. Single valves not uncommonly seen washed up on beaches. Free living on soft substrates.



Alveolar (spongy) structure, hence 'honey-comb'.

13. GRYPHAEIDAE:
Honey-comb oysters. Large, thick, heavy and inflated or small, thin-shelled and compressed. Attached to hard substrates by the lower valve. Straight hinge with external ligament, no teeth. Branching linear chomata (a). Single muscle scar (b).

14. HIATELLIDAE:
Shells irregular in shape, more or less rectangular, twisted to varying degrees, gaping in front & behind. A single peg-like tooth in each valve, eroded in older shells. Irregular growth lines that give the surface a wrinkled appearance. Dirty white in colour.

15. LIMIDAE:
Dorso-ventrally elongated, oval or trigonal, thin shells, gaping anterior & posterior. Short straight edentulous hinge, the ligament external and internal. Radial sculpture. Free-living or nestling in mucous nests. Active swimmers by clapping valves when disturbed.

16. LUCINIDAE:
Thin-shelled, circular, very inflated or not. Weak hinge, cardinal and lateral teeth small or absent. Anterior muscle scar with inferior lobe detached from pallial line, no pallial sinus. Radial sculpture or fine growth lines only. Live buried in muddy, anoxic bottoms. The family members are chemo symbiotic.

17. MACTRIDAE:
Small to medium, thin-walled, trigonal. Hinge characteristic – internal ligament in a depression, cardinal teeth joined in 'V'-shape, long lateral ligaments. Pallial sinus present. Colourful, glossy exterior. Free-living burrowers.

18. MALLEIDAE:
Hammer oysters. Valves linear, dorso-ventrally elongated. Some with very long hinge line to either side (illus.) others with extension on one side or no extension. Small internal ligament, edentulous. Byssally attached on rocks or to buried pebbles in sand, only the linear portion exposed.

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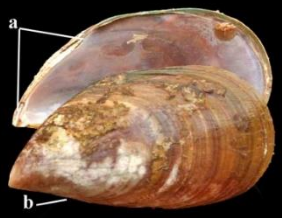
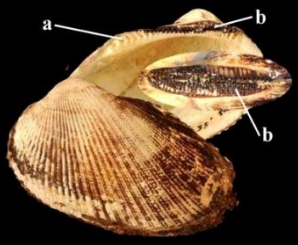
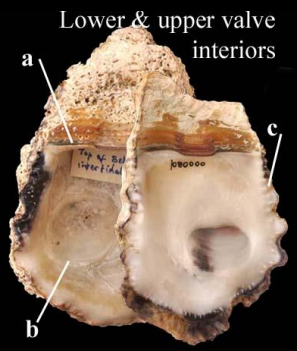


19. MYTILIDAE:
Mussels. Inflated, byssally attached to rocks exposed to waves. Teeth rudimentary, if any. Short ligament on antero-dorsal margin (a). Byssal gape antero-ventral (b).

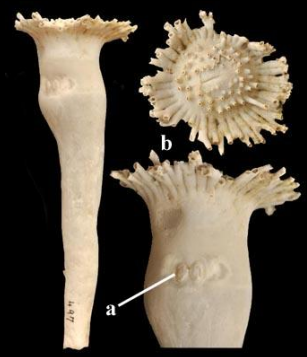


20. NOETIIDAE:
Resemble *Barbatia* in family Arcidae. Taxodont hinge (a), the family characterised by the transverse placing of the ligament fibres (b) [in Arcidae fibres form a diamond]. Strong radial sculpture. Attached by byssal fibres between ventral margins in rocky crevices.



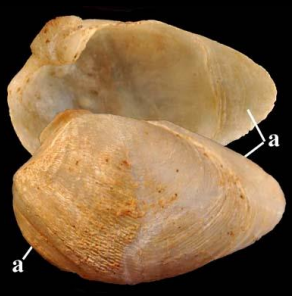
21. OSTREIDAE:
Thick-shelled, small to medium-sized, attached by cupped lower valve, upper valve flattish. Edentulous hinge with external ligament (a). Single muscle scar (b). Chomata along margins as small transverse bars upper valve, corresponding pits lower. Structure laminar. Exterior of upper valves usually eroded and encrusted.

22. PECTINIDAE:
Scallops in Sri Lanka are small. Free-living, some with distinctive cupped lower valve, flat upper, usually coloured differently. Others inflated upper & lower, same colour. Ears either side of umbo equal or not. Small internal ligament in pit. Radial sculpture often with scales.

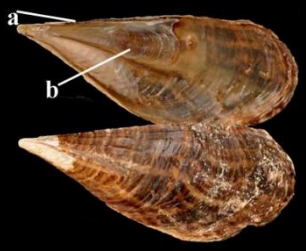


23. PENICILLIDAE:
A bivalve that stops enlargement of the valves at a juvenile stage (a) and continues growth as a cylinder. The flower-like portion (b) is buried in sand, the other end exposed. Water is drawn in through the little tubules and expelled through the other end. Very uncommon.

24. PHARIDAE:
Shells thin, compressed, longer than high. Resemble Solenidae but have the small external ligament (a) set back from the anterior end. This species has an internal rib (b). Burrowers in soft substrates.



25. PHOLADIDAE:
Burrowers in wood, soft rocks and shells. Hinge and teeth absent. Wide gape anterior and posterior partially closed by calum (a). Usually have accessory plates held in place by soft tissue. Oblique anterior sculpture rasp-like. Was boring into a large oyster shell.



26. PINNIDAE:
Pen shells are thin, elongated-trigonal with a long hinge and lig-ament (a), edentulous. The position of the single muscle scar (b) an important identification feature. Some with scaled radial ribs. Byssally attached to stones buried in sand.

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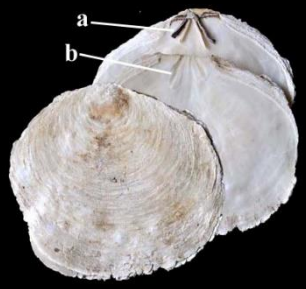
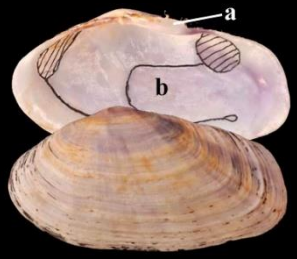
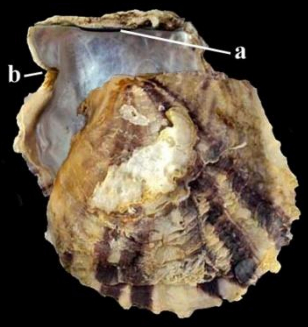


27. PLACUNIDAE:
Very compressed brackish lagoon dwellers on muddy bot-toms. Short edentulous hinge, two internal ligaments (a) attached to V-shaped ridges on lower valve and grooves on upper (b). Nacreous insides, concentric growth lines outside.

28. PLICATULIDAE:
Small, attached by cupped lower valve, upper flattish with radial folds. Isodont hinge with laminar teeth and small pit for ligament (compare Spondylidae).



29. PSAMMOBIIDAE:
Elongated oval with small umbones. A characteristic erect plate (=nymph) (a) supports a prominent external ligament. Small cardinal teeth, very large pallial sinus. Burrowers in soft substrates, including brackish lagoons. Growth lines only. *Asaphis* oval in shape, nymph not erect, radial ribs and concentric grooves.

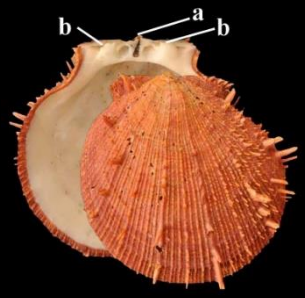


30. PTERIIDAE:
Family includes pearl oysters, wing oysters, tree oysters and sponge finger oyster. Edentulous hinge with internal ligament (a), that of tree oysters being multivincular. Byssally attached on rocks, gorgonian sea fans or buried within sponges. Byssal notch of pearl oyster (b).

31. SEMELIDAE:
Small, circular, mostly compressed. Hinge with internal ligament in an oblique groove. Cardinal and lateral teeth present. Very deep pallial sinus. Concentric sculpture, often frilled. Mostly white. One species with shell trapezoidal-oval collected.

32. SOLECURTIDAE:
Elongated, dorsal and ventral margins parallel, extremities round-ed, small umbones. Thin & translucent or thick. Weak hinge with external ligament, small teeth. Very deep pallial sinus. Concentric growth lines externally.

33. SOLENIDAE:
Antero-posteriorly elongated, inflated. Umbones at anterior extremity (a), small cardinal teeth, external ligament (b). Pallial sinus present. External growth lines only.



34. SPONDYLIDAE:
Medium-sized, cemented to substrate by lower valve. Thick-shelled. Isodont hinge with central ligament in pit (a) flanked by rounded teeth and sockets in each valve (b). Strong, spiny radial sculpture. Colourful.

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35. TELLINIDAE:
Strong or thin and translucent; sub-circular, trigon-ovate or elliptical. External ligament, teeth small and weak, large pallial sinus. Mostly glossy, some with only growth lines, others with concentric sculpture. White or pink.

36. TEREDINIDAE:
"Ship worms". Shells very small (circa 10 mm) covering the anterior of a long (circa 30 cm) worm-like body. Burrows in wood, the tunnels with calcareous lining.

37. TRAPEZIDAE:
Coral borers or nestlers. Sub-rectangular to oval, may be distorted due to confined space. External ligament, teeth may be reduced or laminar teeth only, pallial sinus absent or small.

39. UNGULINIDAE:
Uncommon, known from a single valve from Colombo and sub-fossils from Negombo. Inflated, circular, straight hinge margin, small teeth, no pallial sinus.

39. VENERIDAE: Family large, many genera, mostly trigono-ovate, some quad-rate or elliptical. External liga-ment, strong hinge with 2 to 3 cardinal teeth and lateral teeth. Pallial line with indented pallial sinus or small to large one. Sculpture radial or concentric. Some colour-ful. On soft bottoms, some nestling (*Irus*) or boring (see at right).

40. V/Petricolinae:
A Subfamily of Veneridae, rock or coral borers. Lateral teeth always absent, deep pallial sinus. Radial sculpture of fine ribs or wrinkled growth lines.