

THORNY OYSTERS

Family: SPONDYLIDAE

Spondylus anacanthus Mawe, 1823
Spondylus gloriandus Melvill & Standen, 1907
Spondylus imperialis Chenu, 1844
Spondylus layardi Reeve, 1856
Spondylus sinensis Schreibers, 1793
Spondylus spinosus Schreibers, 1793
Spondylus squamosus Schreibers, 1793

Reported by other workers and not included in this catalogue





Spondylus nicobaricus Schreibers, 1793
Spondylus versicolor Schreibers, 1793
 - Kirtisinghe, 1978

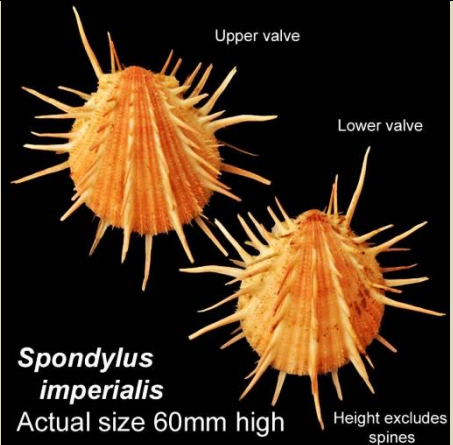
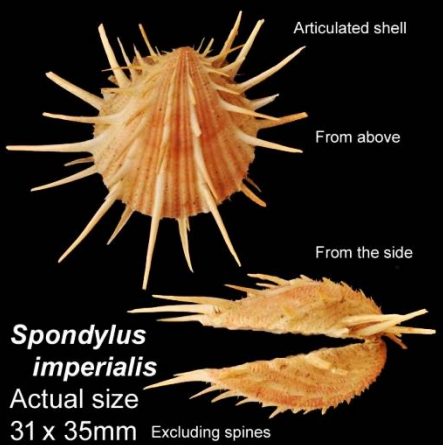
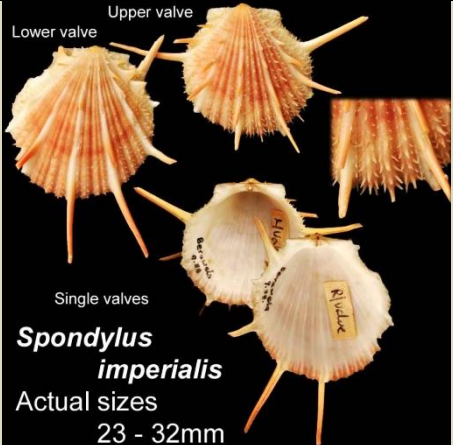

Shells thick with unequal valves. Usually attached by the right valve, which is cupped, to a hard substrate, the left valve flatter and fitting over the lower. The dorsal margin is straight with two small auricles either side, the shell circular or oval, higher than long. The exterior usually beset with numerous radial threads or ribs which are spiny or scaly. The umbones are widely separated on top of a triangular cardinal area which is higher on the right (lower) valve. The ligament is mainly internal set in a deep median pit on the hinge plate. The hinge is *isodont*—consisting of two stout teeth and two pits in each valve symmetrically arranged on either side of the ligament. The interior of the shell is porcellaneous with a single rounded adductor muscle scar. The pallial line is without a sinus.


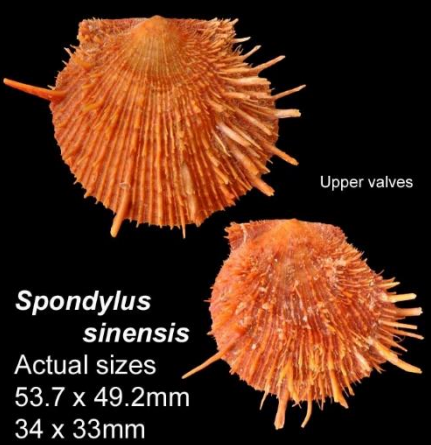


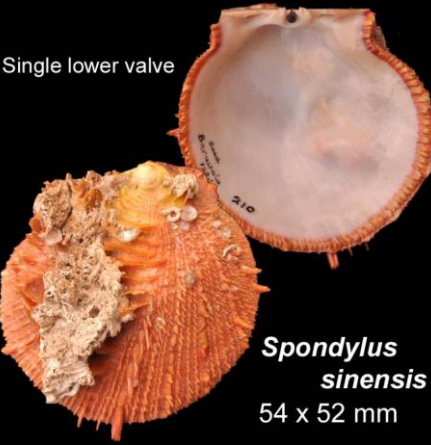

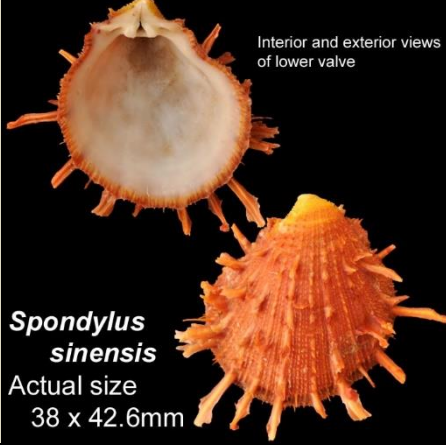

These are sedentary animals living in relatively shallow waters of coralline areas, usually firmly cemented to the rocky bottom by their right valves. Some (*Spondylus imperialis*) are free-living on sandy bottoms.

A gaping articulated
Spondylus shell showing the
isodont hinge consisting of
two stout teeth and sockets
on either side of an internal
ligament.



<i>Spondylus anacanthus</i>		
 <p><i>Spondylus anacanthus</i> Actual sizes 29 & 35mm (dorso-ventral axis)</p>	<p><i>Spondylus anacanthus</i> Checklist 2012 as <i>Spondylus</i> sp.</p> <p>The shell is small and oddly shaped. The sloping, convex upper valve is fan-shaped with small ears, bearing numerous fine radial striae with 8 - 12 thicker ones bearing fine, erect spines, widely spaced and irregularly scattered. The lower valve is thin and flat underneath, cemented to the substrate by its entire underside. The ventral margin is thin, appressed to the substrate, the hinge area is high, the narrowly triangular ligament area sloping down, the anterior and posterior margins forming two vertically erect triangular sides.</p> <p>Note: Two shells attached to a valve of a very large <i>Pteria penguin</i> are in the collection. Characteristic features are the fan shape, the fine radial ribs with very small spines and the prominent long, narrowly triangular ligament area of the lower valve. There are many images with these features on-line, including images of type material. However, there are also a number of images of shells with strong, flattened spines that are also named <i>S. anacanthus</i>.</p> <p>Photographed on attachment to shell of <i>Pteria penguin</i>. 35 x 29 mm, 29 x 25 mm.</p> <p>- NMR picture pages</p>	
MF006: Trincomalee harbour, off Elephant Island, 23mm, by diving. Two shells attached to a 200 mm long <i>Pteria penguin</i> growing on a shipwreck. Coll. L. Ginige.		
<i>Spondylus gloriandus</i>		
 <p><i>Spondylus gloriandus</i> Actual size 43mm</p>	 <p><i>Spondylus gloriandus</i> Actual size 36 x 36mm</p>	 <p><i>Spondylus gloriandus</i> Actual size 44 x 41mm</p> <p>Interior and exterior of upper valve</p>
MF011: Hikkaduwa, empty on sand bottom, by diving. 43 x 39 x 25 mm	MF552: Maggona, Thudawa SBFH, fishing trash, upper valve only.	MF462: Maggona, Thudawa SBFH, fishing trash, upper valve only.
<p><i>Spondylus gloriandus</i> Checklist 2012 as <i>Spondylus</i> sp.</p> <p>Shell obliquely ovate, light and thin, inflated. Sculpture of circa 25 fine radial ribs bearing close-set, needle-like erect spines which become longer marginally and posteriorly. Intervenant radial rows of minute scales present. Colour white with pink-orange or pink-purple marginally; one mottled throughout with pink-purple. Interior white with a coloured, crenulated margin.</p> <p>Type locality Karachi. Some images show long marginal spines.</p> <p>- Lamprell, 1998 p. 56 (description and images); WMSD and Femorale.com websites.</p>		

<i>Spondylus imperialis</i>		
 <p>Upper valve</p> <p>Lower valve</p> <p><i>Spondylus imperialis</i></p> <p>Actual size 60mm high</p> <p>Height excludes spines</p>	 <p>Articulated shell</p> <p>From above</p> <p>From the side</p> <p><i>Spondylus imperialis</i></p> <p>Actual size 31 x 35mm</p> <p>Excluding spines</p>	 <p>Upper valve</p> <p>Lower valve</p> <p>Single valves</p> <p><i>Spondylus imperialis</i></p> <p>Actual sizes 23 - 32mm</p>
MF003: Purchased from a shell vendor at Hikkaduwa. Free living on sand hence no attachment.	MF452: Maggona, Thudawa SBFH, fishing trash.	MF004: Beruwela, harbour beach, fishing trash, single valves.
<p><i>Spondylus imperialis</i> Imperial Thorny Oyster</p> <p>Shell is pear-shaped, higher than long, with short straight hinge margin, two small ears and small umbones, moderately inflated, upper and lower valves equal, and with no attachment scar. Sculpture consists of radiating ribs: strong ones with long spines separated by a number of minor ribs. There are 6 major ribs on the upper and 7 on the lower bearing long, strong, pointed semi-erect spines; the minor ribs number 3 to 4 between each pair of major ribs, bearing multiple rows of tiny, erect spines. External colour pink, the main ribs white with pink-tipped spines. Interior white.</p> <p>This species probably lies buried in sand, as none of the shells found show any encrustations.</p> <p>- Eisenberg, 1981 (1989 ed.) p. 163; Kirtisinghe, 1978 p. 24.</p>		
<i>Spondylus layardi</i>		
 <p>From above</p> <p>From below</p> <p>From the side</p> <p><i>Spondylus layardi</i></p> <p>Actual size 53 x 62 x 41mm</p>	<p><i>Spondylus layardi</i> Layard's thorny oyster</p> <p>Shell fan-shaped, inflated. Lower valve deeply concave, prolonged cardinal area with a narrow umbonal cavity; umbonal attachment. Upper valve convex, bulbous umbo. Upper valve sculpture consists of groups of radial threads separated by 8-9 low radial ribs 5-7 mm apart bearing strong erect spathulate spines set rather far apart. Lower valve has numerous low wide ribs with strong spathulate spines.</p> <p>Yellow-orange, paler over umbo, spines darker.</p> <p>Type locality Sri Lankan Exclusive Economic Zone. WoRMS, Lamprell, 1998.</p> <p>MF209: Purchased from itinerant shell vendor at Mount Lavinia.</p>	

<i>Spondylus sinensis</i>		
 <p><i>Spondylus sinensis</i> 70 x 57 x 38 mm excluding spines</p>	 <p>Upper valves</p> <p><i>Spondylus sinensis</i> Actual sizes 53.7 x 49.2mm 34 x 33mm</p>	 <p>Oblique dorsal view showing the ligament area</p> <p>From the side</p> <p><i>Spondylus sinensis</i> Actual size 49 x 52.5 x 29mm</p>
MF826: Maggona, Thudawa Bay, trash.	MF454: Maggona, Thudawa Bay, trash.	MF720: Maggona, Thudawa Bay, trash.
 <p>Interior upper valve</p> <p>From above</p> <p>Interior lower valve</p> <p>Attachment lower valve</p> <p><i>Spondylus sinensis</i> Actual size 20 x 23 x 11mm</p>	 <p>Single lower valve</p> <p><i>Spondylus sinensis</i> 54 x 52 mm</p>	 <p>From above</p> <p>From below</p> <p>Interior of lower valve</p> <p><i>Spondylus sinensis</i> Actual size 49 x 52.5mm</p>
MF455: Maggona, Thudawa Bay, trash	MF210: Beruwela, beached.	MF720: Maggona, Thudawa Bay, SBFH
 <p>Interior and exterior views of lower valve</p> <p><i>Spondylus sinensis</i> Actual size 38 x 42.6mm</p>	 <p>Interior and exterior of upper valve</p> <p><i>Spondylus sinensis</i> Actual size 71 x 72mm</p>	<p>All collected from Beruwela-Maggona.</p> <p>Valves sub-circular with drawn-out posterior margin, both cupped, small umbonal cavity.</p> <p>Small triangular cardinal area on <u>lower valve only</u>, mostly at an angle to commissural plane, some at 90°.</p> <p>Attachment umbonal, or small area anteriorly.</p> <p>About 6 rows of thick ribs with strong open spines; many rows of fine ribs with needle-like spines in interspaces, both valves.</p>
MF746: Maggona, Thudawa Bay, trash.	MF720: Maggona, Thudawa Bay, SBFH.	

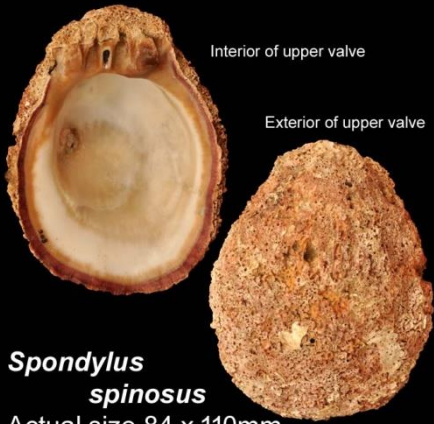
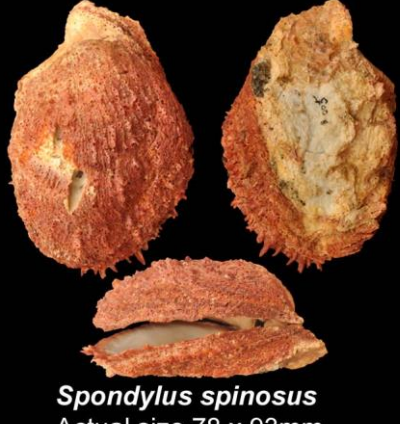

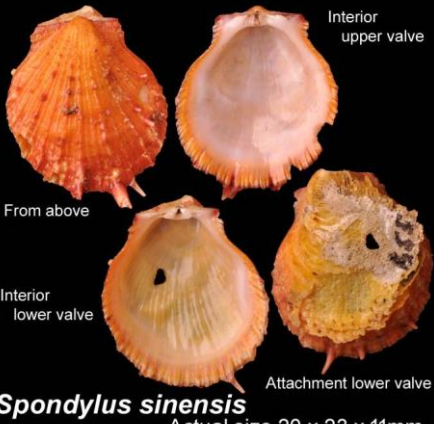
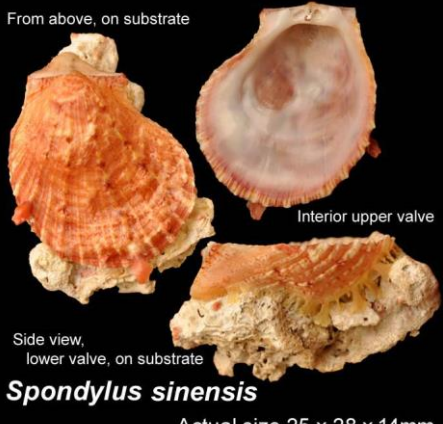
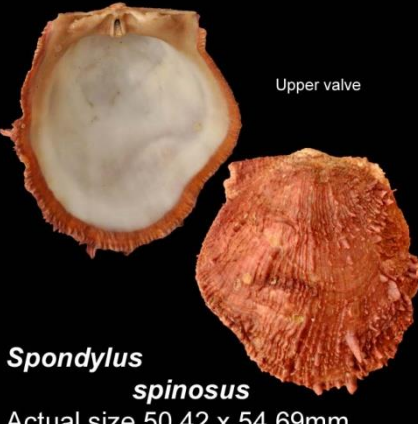

Spondylus sinensis Chinese or Bearded thorny oyster

Checklist 2012 as *Spondylus* sp. and *S. linguafelis* – mis-identification

Shells sub-circular, the posterior margin drawn out, hinge margin straight with two symmetrical ears. Both valves cupped. Umbones low, lower valve with a small umbonal cavity, cardinal area triangular, low, mostly at an angle to the commissural plane. Attachment umbonal or may include a small area of the anterior of the lower valve. Sculpture consists of 6 to 10 main radial ribs with 3 to 7 riblets in between each pair. The main ribs bear distantly spaced, stout semi-erect pointed spines, sometimes flattened; the riblets bear numerous fine, needle-like spines. The spines denser over the posterior one-third and many extend well beyond the shell margin. Exterior colour deep pink to maroon. Interior glossy, pinkish-white with a pink crenulated, marginal band.

Up to 72 mm in height

- Eisenberg, 1981 p. 163

<i>Spondylus spinosus</i>		
 <p>Interior of upper valve</p> <p>Exterior of upper valve</p> <p><i>Spondylus spinosus</i> Actual size 84 x 110mm</p>	 <p><i>Spondylus spinosus</i> Actual size 78 x 93mm</p>	 <p><i>Spondylus spinosus</i> Apertural view showing the hinge</p>
MF208: Mount Lavinia, Bellangala, inshore, by diving.	MF005: Mount Lavinia, Bellangala, inshore, by diving. (Right) Detail of hinge.	
 <p>Interior upper valve</p> <p>From above</p> <p>Interior lower valve</p> <p>Attachment lower valve</p> <p><i>Spondylus sinensis</i> Actual size 20 x 23 x 11mm</p>	 <p>From above, on substrate</p> <p>Interior upper valve</p> <p>Side view, lower valve, on substrate</p> <p><i>Spondylus sinensis</i> Actual size 25 x 28 x 14mm</p>	 <p>Upper valve</p> <p><i>Spondylus spinosus</i> Actual size 50.42 x 54.69mm</p>
Left - MF455, Right - MF723: Maggona, Thudawa Bay, fishing trash.	MF722: Kalpitiya, beached.	
 <p>Upper valve</p> <p><i>Spondylus spinosus</i> Actual size 47.74 x 48.24mm</p>	<p>Collected from Mount Lavinia, Maggona and Kalpitiya.</p> <p>Valves pear-shaped or oval, higher than long, both cupped, the lower less so or flat, small umbonal cavity.</p> <p>Small triangular cardinal area on <u>lower valve only</u>, mostly at an angle to commissural plane.</p> <p>Attachment over the whole of the lower valve except up-turned marginal parts.</p> <p>Numerous rows of sub-equal ribs, a few thicker, with fine spines mostly damaged or eroded, a few spathulate marginal spines on both upper and lower valves.</p> <p>Deep red in colour, interior white with coloured margin.</p>	
MF012: Mount Lavinia, by diving.	<p><i>Spondylus spinosus</i> Red Sea thorny oyster</p> <p>Checklist 2012 as <i>Spondylus</i> cf. <i>marisrubri</i>. <i>Spondylus marisrubri</i> Röding, 1798 is a synonymised name. Distribution in the Red Sea and Indian Ocean.</p> <p>Shell large and heavy when fully grown, generally pear-shaped to oval, distinctly higher than long. Lower valve flat, cardinal area triangular and long, umbonal cavity small. Attachment by the whole of the underside, firmly cemented to the substrate; upper valve convex, umbo rounded, level with the hinge line, small ears present. Sculpture obliterated by erosion and encrustation in large shells. Small shells with numerous radial ribs, mostly narrow, a few enlarged, bearing spines of which few remain: the spines remaining mostly short and spathulate, including around the l/v margin. Deep red in colour. - Continued</p>	

Continued next page

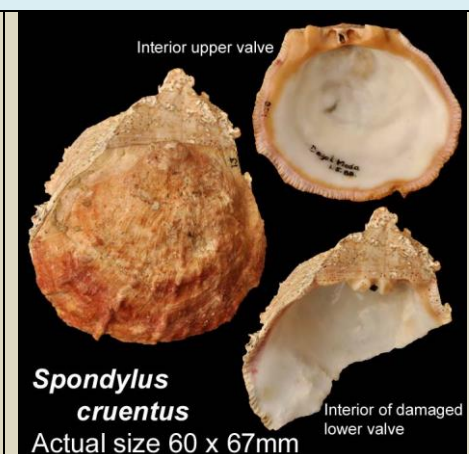
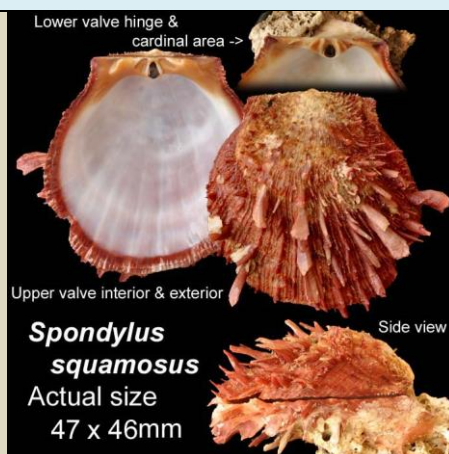
Spondylus spinosus continued

Common on the rocks inshore of the Bellangala rocky islet, in water a few metres deep. Many single lower valves were seen attached that defied collection, the upper valves lying on the seabed. Single, beached upper valves collected from Kalpitiya and Trincomalee, Erakkandy lagoon mouth. Small paired shells collected from Maggona fishing trash.

Images on the internet show shells with many long, spathulate spines, often of a different colour.

- Eisenberg, 1981 p. 163 as *S. marisrubri*

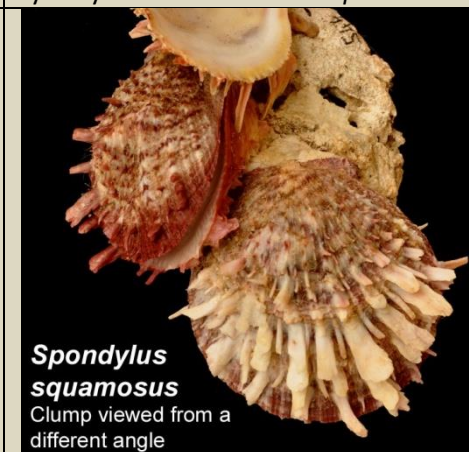
Spondylus squamosus



MF207: Purchased from shell vendor at Trincomalee, Nilaveli. Shell is glossy, probably as a result of acid treatment.

MF543: Jaffna, Mandaitivu, fishing trash, alive when collected.

MF013: Colombo, Degal Meda (reef), 22m, by diving. *S. cruentus* is a synonymised name for *S. squamosus*.



MF544: Jaffna, Mandaitivu, fishing trash. 41 x 43; 35 x 36; 31 x 38.5 mm (l x ht). The three shells attached to a piece of dead coral are of three different colours.

Spondylus squamosus

Checklist 2012 as *Spondylus* cf. *cruentus*; and *S.* cf. *barbatus* – both names being synonyms (WoRMS)

Shells sub-circular with drawing out of postero-ventral angle, both valves cupped, umbonal cavity present in l/v, ligament area triangular, at an angle to commissural plane. Inner margins of both valves crenulated. Attachment umbonal but also involving the whole of the lower valve at times.

Sculpture: Upper and lower valves closely covered by spiny riblets of varying width bearing long, semi-erect needle-like spines and strong, spathulate spines up to 3-4 mm wide; these in a few radial rows or many covering the entire surface. The lower valve spathulate spines can coalesce at the margin to form concentric fringes, usually used for attachment.

Colour: Variable. Generally solid crimson or with dirty white patches, the spines white, pink or crimson. Interior silvery white with marginal band of external colour. Upper valve may be darker with the external colour showing through.

- Poutiers, 1998 p. 214

BIBLIOGRAPHY

Citation: Bouchet, P. (2012). Spondylidae Gray, 1826. In: MolluscaBase (2016). Accessed through: World Register of Marine Species at <http://www.marinespecies.org/aphia.php?p=taxdetails&id=23121> on 2016-08-24.

Eisenberg, J. M., 1981. *A collector's guide to seashells of the World*, 1989 edition, Crescent books, New York.

Kirtisinghe, Parakrama (1978). *Sea shells of Sri Lanka*, Tuttle, Tokyo.

Poutiers, J. M. 1998. *The Living Marine Resources of the Western Central Pacific*. Bivalves (Acephala, Lamellibranchia, Pelecypoda). In: Carpenter, K. E. and Niem, V. H. (eds.), *FAO Species Identification Guide for Fishery Purposes*, Vol. 1. pp.124-362. (Internet edition)

Lamprell, Kevin L. 1998. Recent Spondylus species from the Middle East and adjacent regions,

with the description of two new species, *Vita Marina* 45(1-2): 44,59 available at:-

http://www.strandvondsten.nl/bibliotheek/vita_marina_magazine/Vita_Marina_41-47/vita_marina_45-01-02.pdf#page=43.

.....

World Marine Species Database - <https://www.bagniliggia.it/WMSD/HtmSpecies/5480004521.htm>

Natural History Museum Rotterdam (NMR) available at:- <http://www.nmr-pics.nl/>

MF: 31.8.2016; 29.6.2020- reviewed and updated.