

**A New Species of
Laevistrombus (Gastropoda: Strombidae)
from the Gulf of Thailand, Northern Borneo and
Southern Philippines**

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ABSTRACT A new species of genus *Laevistrombus* (Family Strombidae) is described from the northeastern Gulf of Thailand, northern Borneo and southern Philippines. *Laevistrombus maxwelli* sp. nov. is conchologically differentiated from other species in the Genus *Laevistrombus* and its complex.

KEY WORDS *Gastropoda*, *Strombidae*, *Laevistrombus maxwelli*, Thailand, Borneo, Philippines

INTRODUCTION

Laevistrombus Abbott, 1960 is distributed throughout the tropical western Pacific to eastern Indian Ocean. Dekkers *et al.* (2021) have subdivided *Laevistrombus* in to two subgenera, namely *Laevistrombus* (s. str.) and *Gonggongus* based on morphology: *Laevistrombus* (s. str.) includes the species with chevrons in the design and mostly no varices on the later spire, while *Gonggongus* is devoid of chevrons and the shell typically bears varices on later whorls. (Dekkers, *et al.*, 2021 p.5).

Some species of *Laevistrombus* are very common but some are very rare and endemic such as *L. guidoi* Man in't Veld & De Turck, 1998 endemic to New Caledonian areas, *L. vanikorensis* (Quoy & Gaimard, 1834) endemic to north eastern Australia, and Vanuatu – Espirito Santo, Efate, Malakula (Maxwell *et al.* 2019), Port Vila (Man in 't Veld & De Turck, 1998), Villa Bay (Cernohorsky 1972). *Laevistrombus* (*Gonggongus*) *taeniatus* (Quoy & Gaimard, 1834) around Indonesia - Ambon (Maxwell *et al.* 2019), Australia – Murray Island (Melvill & Standen 1899) Papua New Guinea – Porebada (Hinton 1972), Hula (Hinton, 1972), Hula Village (Maxwell *et al.* 2019),

Manus Island, Admiralty group (Hinton 1972), Loyalty Island (Man in 't Veld & De Turck 1998), Solomon Islands (Maxwell *et al.* 2019) Boli Passage (Maxwell *et al.* 2019).

Abbreviations.

CGSC = Chorchat Gra-tes Shell Collection

G. = *Gonggongus*

L = length (protoconch to tip of anterior canal)

L. = *Laevistrombus*

mm. = millimeter

Para. = Paratype

Spm. = Specimen number

W = width

W/L = Ratio between Width and Length. If over 0.5 the shell is broad, if less than 0.5 the shell is slender.

ZRCBUU = Zoological Research Collection of Burapha University, Chonburi, Thailand.

MATERIAL AND METHODS

The description of shell characters and morphological analyses were obtained from dry empty shells. Specimens of *L. canarium* (Linnaeus, 1758), *L. (Gonggongus) turturella* (Röding, 1798), *L. (Gonggongus) turturella* (Röding, 1798) (Synonym *L. (Gonggongus)*

isabella Lamarck, 1822), *L. vanikorensis* (Quoy & Gaimard, 1834) and *L. guidoi* Man in't Veld & De Turck, 1998 are in Chorchat Gra-tes Shells Collection and are used for comparison with new taxa.

SYSTEMATIC PART

Family Strombidae Rafinesque, 1815

Genus *Laevistrombus* Abbott, 1960

Laevistrombus maxwelli Gra-tes, new species
(Plate 6, Figures 1-8)

Description. *Laevistrombus maxwelli*, sp. nov. is smooth and solid. The surface is slightly glossy. The shell is triangulated ovate and heavy in comparison to its size. The body is very broad in comparison to its length. Aperture is wide posteriorly, narrower anteriorly. Outer lip is much thickened. Columella is much thickened from its center to its anterior. The outer lip at the posterior canal is curved up toward the second suture. Between the posterior canal and outer lip is curved with thin thicken lip. The inside of columella and aperture is white. Teleoconch shape is moderately high, triangulate and broad, with up to nine whorls and no varices on the later spire that match the description of *Laevistrombus* (Deckkers *et al.* 2021). From the lip, the margin curves concavely downward (deviation downward from axis) and expanded out from the axis. This made the shell very broad. The stromboid notch is moderate. The color of *L. maxwelli*, sp. nov. is solid white and light tan with a pattern of light tan longitudinal lines. On the last body whorl, the tan color of the shell is lighter toward the inner lip, darker on the body whorl and solid white toward the outer lip. The inner lip and aperture is white with white to light grey columella. Periostracum: is light brown, thin to very thin.

Type Material. The Holotype is deposited in the Zoological Research Collection of Burapha University, Chonburi, Thailand. Holotype: ZRCBUU 0949, 54.1 mm. (ex. CGSC 6299-4039). The Holotype and paratypes of *L. maxwelli* sp. nov. were collected in the northern Gulf of Thailand. Paratype: 7 specimens CGSC 6299-4040 to CGSC 6299-4046 are in Chorchat Gra-tes Shells Collection.

Type Locality. Cholburi, northeast of the Gulf of Thailand. Holotype and paratypes were caught on sand surface and some buried in sand at low tide.

Distribution. *Laevistrombus maxwelli*, sp. nov. is found along the coast of Chonburi to Trad province, northeastern Gulf of Thailand. Specimens were collected on sand and in sand at low tide. The new species is also known from northern Borneo and southern Philippines.

Etymology. This species is named after Stephen J. Maxwell, Faculty of Science and Engineering, James Cook University, Cairns, Australia, who devoted time study and did a lot of research with outstanding outcome on the Family Strombidae.

DIFFERENTIAL DIAGNOSIS

By comparing a large number of specimens of each species, the morphological differences between species can be seen to be distinct. A summary of those morphological differences is below.

***Laevistrombus maxwelli*.** Upper body whorl is globose. Dorsal color is white. On the last body whorl, the tan color of the shell is lighter toward the inner lip, darker on the body whorl and solid white toward the outer lip. The shell is broad compare to its length. Spire high and wide as

compare to other *Laevistrombus* species. Forty-four specimens of *L. maxwelli* were used for comparison.

<i>Laevistrombus maxwelli</i>				
	W (mm)	L (mm)	W/L (mm)	Weight (gm)
Holotype	38.4	54.1	0.709	19
Para. 1	38.0	56.0	0.678	24
Para. 2	42.5	58.0	0.732	32
Para. 3	43.8	60.4	0.725	32
Para. 4	42.6	63.4	0.671	31
Para. 5	40.0	58.8	0.680	23
Para. 6	41.5	54.0	0.768	25
Para. 7	42.1	57.1	0.737	27
Average			0.713	

Table 1. Dimension and weight of *Laevistrombus maxwelli*.

Laevistrombus canarium (Linnaeus, 1758).

Upper body whorl is globose. Base dorsal color is white with brown or brown tan wavy line. Spire moderately low but wide as compare to other *Laevistrombus* species. The upper lip toward the posterior end is straight. 9 specimens were used for comparison.

<i>Laevistrombus canarium</i> (Linnaeus, 1758)				
	W (mm)	L (mm)	W/L (mm)	Weight (gm)
Spm. 1	47.0	60.4	0.778	47
Spm. 2	44.4	57.4	0.773	39
Spm. 3	42.6	56.8	0.750	42
Spm. 4	43.2	60.6	0.712	42
Spm. 5	40.5	56.4	0.718	31
Spm. 6	39.5	55.0	0.718	27
Spm. 7	38.7	56.0	0.691	34
Spm. 8	40.2	54.1	0.743	26
Average			0.735	

Table 2. Dimension and weight of *Laevistrombus canarium* (Linnaeus, 1758).

Laevistrombus guidoi Man in't Veld & De Turck, 1998.

Shell is white and fusiform. Upper outer lip pointed up. Spire moderately high and wide as compare to other *Laevistrombus* species. One specimen was used for comparison.

Laevistrombus liveranii Dekkers, Rymer & S. J. Maxwell, 2021.

Shell smooth, solid and heavy comparison to its size. Shell slender relatively low to high spire. The margin curve concavely upward and bends back in some specimens. In some specimens with some narrow varices on the whorl with up to 18 radial lines on the anterior portion of the body whorl (Dekker *et al.* 2021).

Laevistrombus vanikorensis (Quoy & Gaimard, 1834).

Triangularly ovate, base dorsal color is white with brown purple or brown tan zigzag line. Spire is moderately high and moderately wide as compare to other *Laevistrombus* species. Four specimens were used for comparison.

Laevistrombus (Gonggongus) turturella (Röding, 1798) (from the Philippines).

Shell triangulary fusiform, dorsal color is brown tan to light tan spire narrow and high as compare to other *Laevistrombus* species. Upper outer lip is round. Apex is slender, pointed and become broader at the lower whorl. As compare to *L. (Gonggongus) turturella* (Roeding, 1798) (Synonym *L. isabella* Lamarck, 1822), the apex of *L. (Gonggongus) turturella* (Roeding, 1798) is narrow and high while *L. (Gonggongus) turturella* (Röding, 1798) (Synonym *L. isabella* Lamarck, 1822) is broader from protoconch down to the shoulder of last whorl. Ten specimens were used for comparison.

<i>Laevistrombus (Gonggongus) turturella</i> (Röding, 1798)				
	W (mm)	L (mm)	W/L (mm)	Weight (gm)
Spm. 1	61.5	103.0	0.597	67
Spm. 2	64.3	101.2	0.635	73
Spm. 3	64.9	99.6	0.651	62
Spm. 4	64.8	109.2	0.593	95
Spm. 5	64.5	104.8	0.615	80
Spm. 6	63.0	98.0	0.642	75
Average			0.622	

Table 3. Dimension and weight of *Laevistrombus (Gonggongus) turturella* (Röding, 1798).

Laevistrombus (Gonggongus) turturella (Röding, 1798) (Synonym *L. isabella* Lamarck, 1822) from southwest Thailand (Andaman Sea). Triangular fusiform, dorsal color is purplish brown to tan, spire broader and moderately high as compare to other *Laevistrombus* species. Upper outer lip is round. When compare to *L. (Gonggongus) turturella* (Röding, 1798) the spire of *L. isabella* Lamarck, 1822 (that was placed as a synonym of *L. (Gonggongus) turturella* (Röding, 1798)) is broader and medium high. The spire is not as high as *L. (Gonggongus) turturella* (Röding, 1798) and not as low as *L. canarium* (Linnaeus, 1758). Thirty-nine specimens were used for comparison.

<i>Laevistrombus (Gonggongus) turturella</i> (Röding, 1798) (Synonym <i>L. isabella</i> Lamarck, 1822)				
	W (mm)	L (mm)	W/L (mm)	Weight (gm)
Spm. 1	41.9	67.8	0.618	19
Spm. 2	40.6	63.8	0.636	20
Spm. 3	39.5	64.4	0.613	17
Spm. 4	44.8	68.8	0.651	23
Spm. 5	42.9	66.8	0.642	21

Spm. 6	41.9	66.8	0.627	19
Spm. 7	42.7	71.0	0.601	21
Spm. 8	39.5	61.0	0.647	20
Average			0.629	

Table 4. Dimension and weight of *Laevistrombus (Gonggongus) turturella* (Röding, 1798) (Synonym *L. isabella* Lamarck, 1822).

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Plate 1. Left to right, *L. canarium* (Linnaeus, 1758), *L.(Gonggongus) turturella* (Röding, 1798) (Synonym *L.(Gonggongus) isabella* Lamarck, 1822), *L. maxwelli* sp. nov., *L. vanikorensis* (Quoy & Gaimard, 1834), *L. guidoi* Man in't Veld & De Turck, 1998 and *L.(Gonggongus) turturella* (Röding, 1798). All specimens are from Chorchat Gra-tes Shell Collection.



Plate 2. Fig.1 - *L. canarium* (Linnaeus, 1758) (Keelamkarai, India, 57.4mm.), Fig. 2 - *L. (Gonggongus) turturella* (Röding, 1798) (Synonym *L. isabella* Lamarck, 1822) (extreme south Thailand, Andaman Sea, 67.8 mm.), Fig.3 - *L. maxwelli* sp. nov. (Chonburi, Thailand, 54.1 mm), Fig. 4 - *L. vanikorensis* (Quoy & Gaimard, 1834) (North Queensland, Australia, 37.6 mm.) Fig. 5 - *L. (Gonggongus) turturella* (Röding, 1798) (Philippines, 103.0 mm.) and Fig. 6 - *L. guidoi* Man in't Veld & De Turck, 1998 (New Caledonia, 52.7 mm). All specimens are from Chorchat Gra-tes Shell Collection.

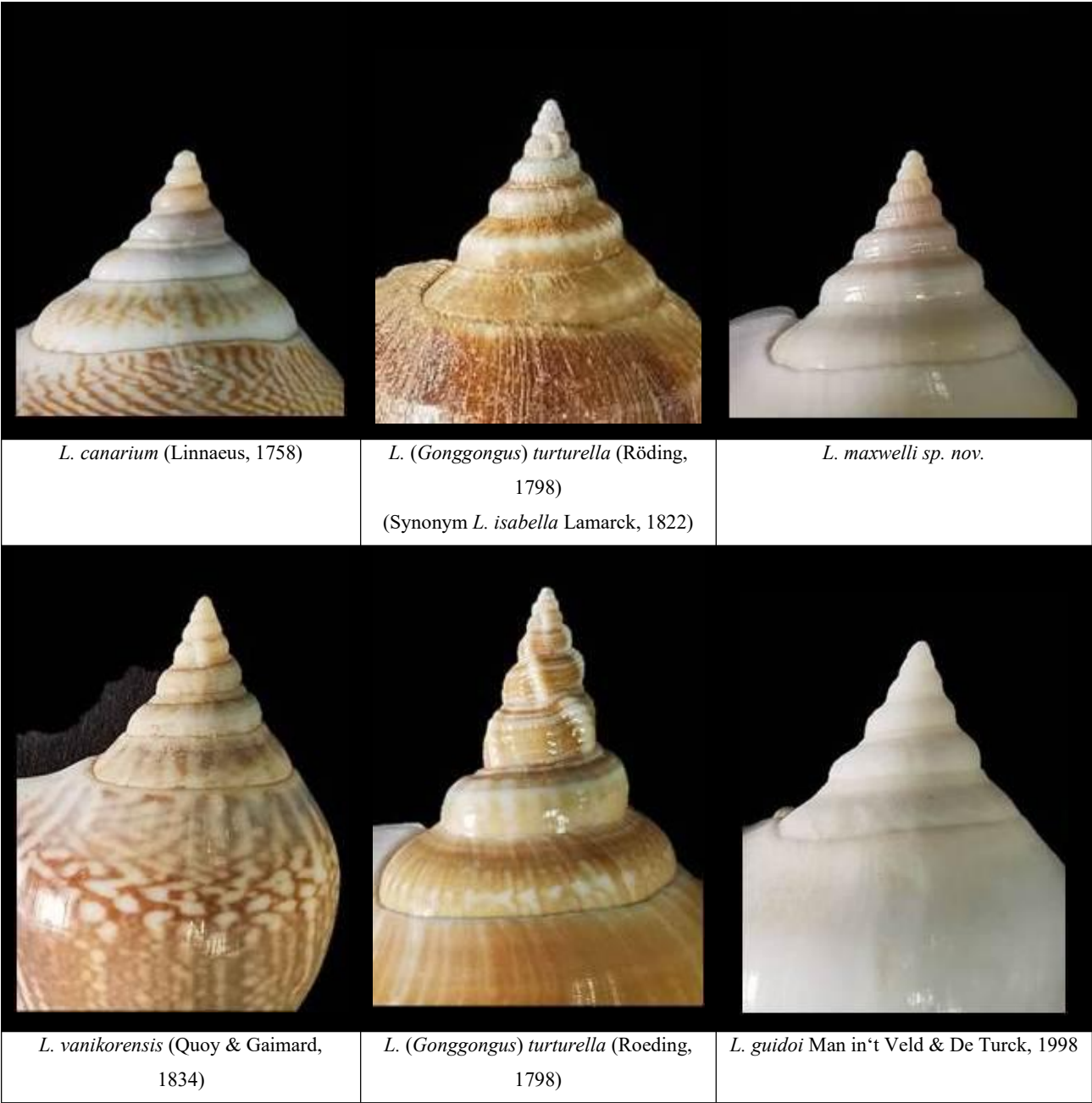


Plate 3. Comparison of apex in *Laevistrombus*.

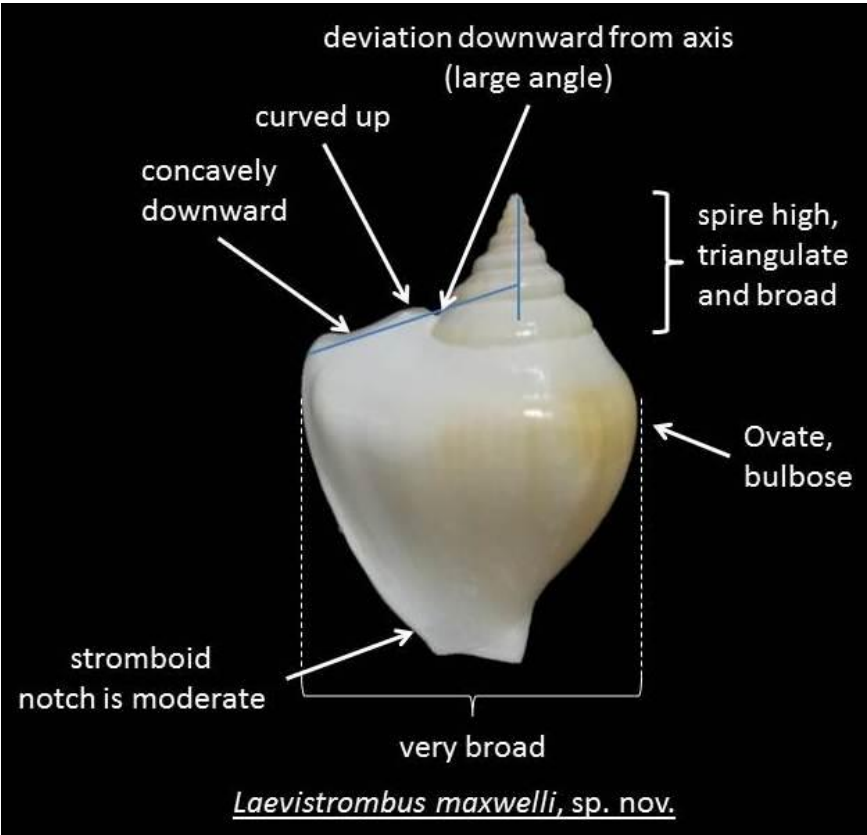


Plate 4. *Laevistrombus maxwelli*, sp. nov.



Plate 5. *Laevistrombus vanikorensis* (Quoy & Gaimard, 1834) Dingo Beach, North Queensland, Australia. 37.7 mm., 39.5 mm. and 40.1 mm.

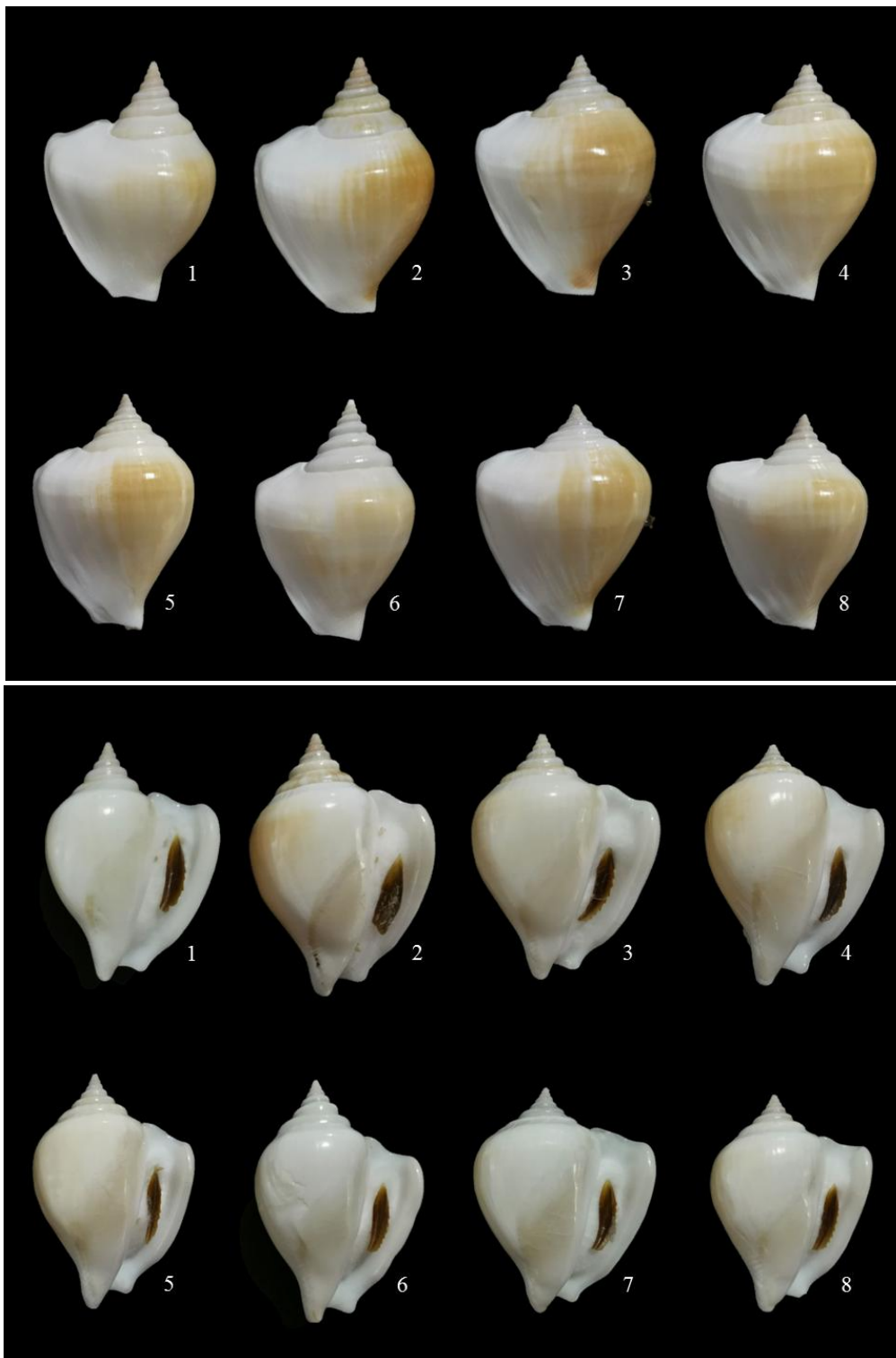


Plate 6. *Laevistrombus maxwelli*, sp. nov. (Chonburi, Thailand). Holotype (Fig. 1) and 7 Paratypes (Fig. 2 – Fig. 8). Size from Fig. 1 to Fig. 8 are 54.1 mm., 56.0 mm., 58.0 mm, 60.4 mm, 63.4 mm., 58.8 mm, 54.0 mm and 57.1 mm respectively. Holotype is in ZRCBUU collection. All Paratype specimens are from Chorchat Gra-tes Shell Collections.



Plate 7. *Laevistrombus canarium* (Linnaeus, 1758) (Keelamkarai, India). All 8 specimens are from Chorchat Gra-tes Shell Collections. Size from Fig. 1 to Fig. 8 are 60.4 mm, 47.4 mm, 56.8 mm, 60.6 mm, 56.4 mm, 55.0 mm, 56.0 mm and 54.1 mm respectively.

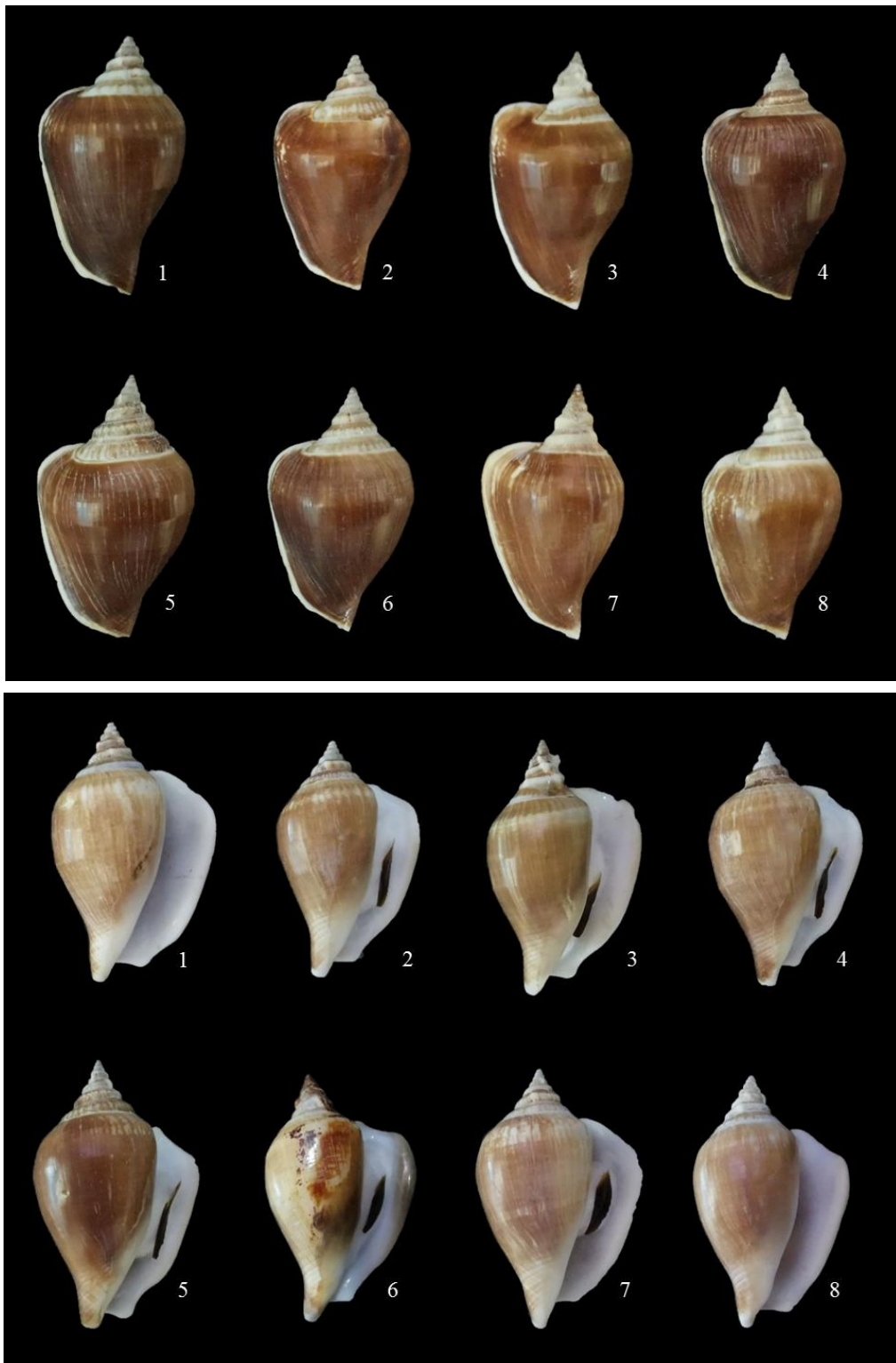


Plate 8. *Laevistrombus (Gongongus) turturella* (Röding, 1798) (Synonym *L. isabella* Lamarck, 1822) (extreme south Thailand, Andaman Sea). All 8 specimens are from Chorchat Gra-tes Shell Collections. Size from Fig. 1 to Fig. 8 are 67.8 mm, 63.8 mm, 64.4 mm, 68.8 mm, 66.8 mm, 66.8 mm, 71.0 mm and 70.8 mm respectively.



Plate 9. *Laevistrombus (Gongongus) turturella* (Röding, 1798) (Philippines). All 6 specimens are from Chorchat Gra-tes Shell Collections. Size from Fig. 1 to Fig. 6 are 103.0 mm, 101.2 mm, 99.6 mm, 109.2 mm, 104.8 mm and 98.0mm respectively.