

Conus variegatus Kiener, 1845

Original description

228. CONE MOUCHETÉ. *Conus variegatus*, Noms. (Collect. de M. Largilliert.)
PL CVI, fig. 1.

G. testa turbinatâ, supernè inflatâ, ad basim coarctatâ, transversim sulcatâ ;
t'uscâ vel luteâ , maculis albis minimis irregularibus sparsis , spirâ obtusâ , apice
mucronato.

Coquille turbinée, obtuse et renflée vers sa partie supérieure, atténuée et rétrécie à sa base. La spire est surbaissée, mucronée au sommet; l'angle spiral du dernier tour est arrondi et obtus, toute la surface de ce tour est couverte de sillons transverses ; ceux de la partie inférieure sont un peu plus espacés entre eux. La coquille est le plus souvent d'un brun foncé avec de petites taches ou des points blancs irrégulièrement épars ; d'autres fois elle est fauve avec des séries de petits points bruns correspondant aux sillons transverses; l'angle spiral est articulé de petites taches alternativement brunes et blanches.

Long. 25 millim. Habite

Petite espèce fort jolie, qui offre beaucoup d'analogie avec notre *Conus africanus*, mais qui en est distincte par sa forme plus atténuée vers sa base, et surtout par les sillons qui la traversent. Sa coloration est également très-différente ; les taches sont beaucoup moins grandes. La variété fig. B. est plus petite, et est remarquable par un fond de coloration d'un fauve clair ; les séries de points transverses y sont aussi plus marquées.

Translation

Shell turbate, obtuse and swollen towards shoulder, attenuated and narrowed at its base. The spire is low, mucronate at the top; the shoulder angle of the last whorl is rounded and obtuse, the entire surface of this whorl is covered with transverse furrows; those in the lower part are a little further apart.

The shell is usually dark brown with small spots or white dots irregularly scattered; at other times it is tawny with sets of small brown dots corresponding to the transverse furrows; the shoulder is articulated with small spots alternately brown and white. Length 25 mm.

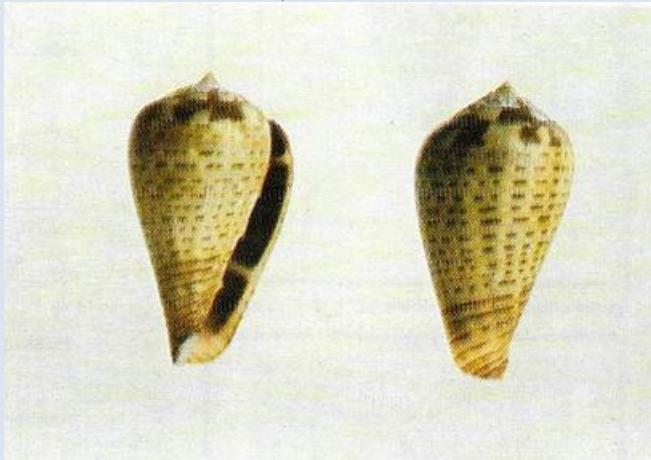
Small, very pretty species, which offers a lot of analogy with our *Conus africanus*, but which is distinct in its more attenuated form towards its base, and especially by the furrows that cross it. Its colour pattern is also very different; the spots are much smaller. The variety Fig. b is smaller, and is remarkable by a background of a light fawn; the series of transverse points are also more marked.



Kiener's plate shows figs 1 and 1a. There is no fig. b. The right picture above is Fig 1 which matches the description. The two figures on the left (fig 1a) are the variety as stated on the

plate; fig1 and fig1a are probably different species. To resolve this problem, Fernandes & Röckel 1982 designated fig1a (ie the variety) as the lectotype.

Fernandes & Röckel, 1983



Size of pictured specimens: left 19,3. right 19.4 mm.

3. *Conus variegatus* Kiener 1849 (Species Gén. d Icon. et Coqu. Viv., *Conus*, p. 261. p1. 196, f. 1.f.1a.).

Main characteristics: Small, pyriform, thin shell. Sides tapered to the base, then strongly convex. Shoulder rounded, spire moderately elevated, pointed apex. Surface smooth with light gloss and 6-8 spiral threads at the base. Colour greenish violet with dark brown base and blotches on spire whorls. Last whorl with spaced interrupted brown spiral lines. Inside deep violet with white bands at shoulder and center.

Habitat: Under rocks buried in sand at 2 - 3 in. depth. *Locality:* Limagens Bay, South Angola.

Remarks; Kiener pictured two specimens which possibly represent two distinct species. His fig.1a is here designated as lectotype of *C. variegatus*.

Rolán & Röckel 2000

Type locality: We herewith designate Santa Maria Bay, Angola, as the type locality

Shell description: Small to moderately small, moderately light. Last whorl broadly and ventricosely conical to broadly ovate, outline convex at adapical half almost straight to pyriform below. Aperture moderate. Shoulder rounded. Spire of low to moderate height, outline straight or sigmoid. Teleoconch sutural ramps straight to convex, with fine spiral striae, usually inconspicuous. Last whorl smooth and dull, with about 10 spiral grooves at base.

Ground colour white to bluish white, with variably spaced spiral rows of alternating white and brown dots or dashes from base to shoulder. Shoulder with irregular axial brown blotches, occasionally coalescing to a broad brown band. Aperture dark brown with a ground-colour band at centre and below shoulder.

Periostracum dark brown to orange, transparent

Shell morphometry:

L 18-26 mm

RD 0.60-0.72

RSH 0.08-0.17

RW 0.10 g/mm

PMD 0.70-0.76

Description of animal (Figs. 100-101): Dark siphon and rostrum, base of foot grey (observed in alcohol) .Operculum small (Fig. 102).



Type figure and specimens RR2000.

Note: Monteiro et al 2014 suggest that the above 4 specimens 23-26 are the obtusus form of *C. variegatus* and not the typical shell.



Obtusus type figure. See *C. obtusus* file

Monteiro et al 2014

C. variegatus

Despite having considered the synonymy of the two *taxa*, it would appear that Rolán & Röckel (2000), did not have at hand any specimens perfectly matching the lectotype of *Conus variegatus* Kiener, 1845, since the four specimens shown (figs. 23-26) all correspond to *V. variegatus* form *obtusus* (Kiener, 1845). Recently, however, a sample of 40 to 50 live specimens collected at Baía do Calongo, Cape Santa Marta, Namibe Province, has been found to correspond precisely to what Kiener illustrated as *Conus variegatus*. For this reason, we hereby present a redescription of this *taxon*, currently placed in the genus *Varioconus*

Redescription of the shell: Morphometric parameters: L = 18 – 26 mm; average L = 22 mm; RD = 0.60 – 0.72; RSH = 0.08 – 0.17; PMD = 0.70 – 0.76.

Shell moderately solid, last whorl ventricosely conical, slightly elongated. Profile more or less straight, rounded shoulder. Spire moderately high, slightly convex, teleoconch whorls with extremely fine spiral sulci; protoconch and first whorls typically eroded. Last whorl

smooth, except for about four spiral grooves near the anterior tip. Ground color very light bluish grey. Last whorl with about 20 spiral rows of tiny light brown dots separated by almost white spaces. Light brownish shades, sometimes forming bands are visible, especially on the upper and lower portions of the last whorl which often presents 3 light brown bands: one close to the shoulder, the second one at about upper mid body whorl, and the third on the anterior tip of the shell. The spiral ramps present light brown axial streaks. The aperture is violet inside to dark violet in a zone parallel to the lip, with two narrow whitish spiral bands, one close to the shoulder and the other roughly at the centre of the aperture. The interior of the lip is white.

The same pattern of the shell can appear in a different lighter colour way, in which the light bluish grey tone is absent and replaced with a general yellowish tone; the dots along the spiral rows then become dark yellow to light orange. The violet hue inside the aperture is also replaced with a yellowish hue. There are almost patternless variants, in which the pattern of spiral rows with tiny light brown dots can be only appreciated with magnification, and specimens in which the multiple spiral rows of brown dots are reduced to just 5 or 6, widely spaced and separated by bands of bluish grey ground colour.

Forma *obtusus* is characterised by extended brown patches at the shoulder/spire area and the base.

The periostracum is translucent pale yellow to olive-green. The operculum is small, elongated, and typical of a *Varioconus*.

Most shells are incrustated with calcareous algae and often have *Crepidula* specimens attached. Scars and cracks made predator attacks are common in many specimens, and so are worm perforations, especially around the spire area.

The living animal is cream with salmon or pink shades and tinged with dark grey to black mainly along the foot margins and especially around the siphon.

Which specimen is the best match to the type figure of *C. variegatus*??



1, Type figure variegatus; 2. Fernandes 1982 19mm; 3. Monteiro 2014 27mm; 4. Equimina 20mm

The type figure seems to be a juvenile specimen circa 17-18mm. Most collectors adopt a wide definition of *C. variegatus* as illustrated in Monnier et al, 2018



DNA analysis

A number of the specimens tested are labelled as *C. variegatus*



MNCN KU892091 Inhamanago

This specimen is illustrated in Monteiro et al, 2014 as *C. aff. variegatus* being a form showing both typical features and also those of forma *obtusus*.

Other specimens.

Of the specimens tested so far, the above specimen(KU892091) seems the best available representative of *C. variegatus*.



31264 MNHN Equimina



31269 MNHN Equimina



31255 MNHN Santa Maria

Specimens 31264 and 31269 are similar to typical specimens of *C. equiminaensis*. 31269 is labelled as *C. micropunctatus*. Specimen 31255 shows some genetic difference from the others and may be best treated as *C. aff variegatus*.



31266 f. *obtusus*
Santa Maria



31268 *C. variegatus*
Santa Maria



31267 Santa Maria



31260 Santa Maria

Specimen 31266 has most characteristics of *C. obtusus*. Specimen 31268 seems to be a matching specimen. Specimen 31267 is labelled *C. neoguttatus* and 31260 as *C. lobitensis*. Both are from the same locality as 31266 and with almost identical DNA results.



31279 Lucira

Specimen 31279 is labelled *C. chytreus* in DNA data set. *C. chytreus* normally has a distinctive white aperture as stated in Monteiro et al, 2014 where a similar specimen is illustrated as *C. variegatus*. 31279 is also quite similar in shape and pattern to specimen(KU 892092 *C. chytreus* Lucira in the DNA data set;) which has a white aperture. This specimen should probably be labelled *C. aff. variegatus*.

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IM_2009-31268_Angola_Conus_obtusus
IM_2009-31279_Angola_Conus_aff.variegatus
IM_2009-31269_Angola_Conus_equiminaensis
KU892091.1_Conidae_Conus_variegatus
KU892090.1_Conidae_Conus_chytreus
KU892088.1_Conidae_Conus_trovaoui
KU892092.1_Conidae_Conus_micropunctatus

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The name *variegatus* may be easily justified. All specimens have a purple banded aperture. The specimens below from Limagens and Equimina are *aff. variegatus* with conspecificity becoming more dubious in the 3rd row

