A new *Fusinus* (Gastropoda: Fasciolariidae) from the Algarve, south coast of Portugal

Una nueva especie de *Fusinus* (Gastropoda: Fasciolariidae) del Algarve, costa sur de Portugal

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ABSTRACT

Fusinus albacarinoides sp. nov. is described from south Portugal, off the Algarve coast, in 14-22 m depth. It is characterized by having a small red-brown to dark brown shell ornamented with a conspicuous white band at the periphery, with a rough shell surface, an elongate slender spire and a short siphonal canal. The new species is distinguished by its shell morphology and the soft parts from all other eastern Atlantic and Mediterranean *Fusinus* and is compared to a few of them.

RESUMEN

Se describe *Fusinus albacarinoides* sp. nov. del sur de Portugal, frente a la costa del Algarve, a 14-22 m de profundidad. Se caracteriza por una concha pequeña, pardo rojiza a pardo oscura, con una conspicua banda blanca en el borde, superficie rugosa, espira delgada y alargada y canal sifonal corto. Se distingue de otras especies de *Fusinus* del Atlántico este y Mediterráneo por la morfología de la concha y sus partes blandas. La especie es comparada con otras del género.

INTRODUCTION

Marine diversity is currently one of the most studied topics in ecology, especially within the framework of global and regional changes due to environmental and human impacts. The importance of well known benthic faunas for specific study areas or geographical regions is the first and most important step towards proper characterization and management. Within the Algarve region in south Portugal, very few studies dealing with marine molluscs associated with permanently submerged rocky ecosystems have been carried out up until now. To fulfill this gap and contribute to the mapping of marine biotopes a baseline study was carried out (RENSUB II project) by the Centre of Marine Sciences of the Algarve (GONÇALVES *ET AL.*, 2007).

Between May 2003 and April 2006 more then 90 different stations in the Central Algarve region were studied seasonally. With the use of scuba diving gear mollusc samples were recovered from these stations and after proper observation we found a well-defined

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Fusinus species which does not match the description of any other known *Fusinus* species reported for the Atlantic and Mediterranean Sea.

Details of shell and radular morphology as well as animal soft parts are presented and the new species is compared to related known *taxa*.

Abbreviations

ANSP: Academy of Natural Sciences of Philadelphia, Pennsylvania, USA
CCMLA: Collection Carlos M. L. Afonso, Faro, Portugal
CER: Collection Emilio Rolán, Vigo, Spain
CRH: Collection Roland Hadorn, Röthenbach, Switzerland
IPM: Instituto Português de Malacologia, Zoomarine, Guia, Portugal
lv: live collected
MNCN: Museo Nacional de Ciencias Naturales de Madrid, Spain
MNHN: Muséum National d'Histoire Naturelle, Paris, France

SYSTEMATICS

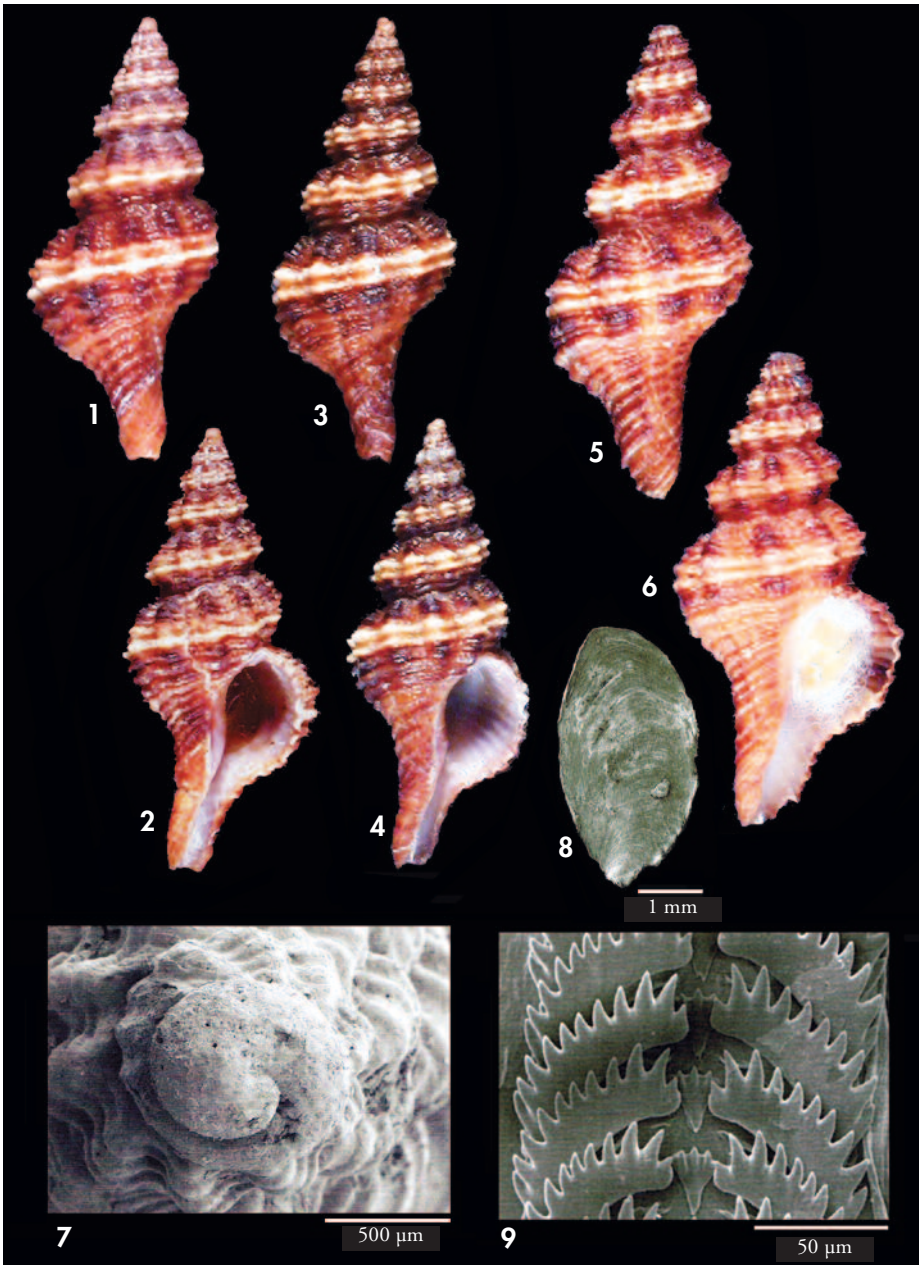
Family FASCIOLARIIDAE Gray, 1853
Genus *Fusinus* Rafinesque, 1815

Fusinus Rafinesque, 1815: 145. Substitute name for '*Fusus* Lamarck 1799' [=*Fusus* Bruguière, 1789], non *Fusus* Helbling, 1779.
Type species: *Murex colus* Linnaeus, 1758, by typification of replaced name.

Fusinus albacarinoides sp. nov. (Figs. 1-12)

Type material: Holotype (18.5 x 8.1 mm, lv) MNHN 21130, south Portugal, Algarve, Baía de Pêra, 2 km offshore Armação de Pêra, 37º 04' 47.1 N, 8º 21' 41.8 W, 17-20 m deep, collected by Carlos M. L. Afonso in March 2006. Paratype 1 (20.6 x 8.2 mm, lv) IPM.014T, same data; paratype 2 (18.5 x 7.6 mm, lv) MNCN 15.05/47.562, same data; paratype 3 (19.2 x 7.5 mm, lv) ANSP, same data; paratype 4 (21.1 x 8.2 mm, lv) CCMLA, same data; paratype 5 (17.9 x 7.2 mm, lv) CCMLA, same data; paratype 6 (21.3 x 9.3 mm, lv) CRH, same data; paratype 7 (20.7 x 8.0 mm, lv) CRH, same data; paratype 8 (17.3 x 6.8 mm, lv) CER, same data.
Other material examined: 5 additional specimens collected from the type locality. Numerous live taken specimens from following stations: Pedra do Alto, 2.7 km off Oura (37º 03' 29.2 N, 8º 12' 34.7 W); Galé Alta, 2.3 km off Galé (37º 04' 09.3 N, 8º 19' 52.1 W), 17-19 m deep; Pedra Perdida, 2.4 km offshore between Galé and Armação de Pêra (37º 03' 26.2 N, 8º 19' 35.1 W), 20 m deep; Valados Este, 3.7 km offshore between Galé and Armação de Pêra (37º 02' 19.3 N, 8º 19' 18.3 W), 20-22 m deep; Estragad, 1.6 km offshore Galé (37º 03' 29.8 N, 8º 18' 14.6 W), 20-22 m deep; Pêra, 2.4 km offshore between Galé and Armação de Pêra (37º 04' 47.1 N, 8º 18' 14.6 W), 17-19 m deep; Lastro, 1.6 km offshore Marinha (37º 04' 37.2 N, 8º 24' 27.9 W), 14-16 m deep.
Type locality: Baía de Pêra, 2 km offshore Armação de Pêra (37º 04' 47.1 N, 8º 21' 41.8 W), Algarve, south Portugal.
Etymology: *Fusinus albacarinoides* sp. nov. is derived from *albus* (Latin, adj.) meaning "white" in combination with *carina* (Latin, noun, fem.), a keel. The white peripherical band along the shell recalls the white foaming water of the wake behind a moving ship.

Description: Shell small for genus (up to 22 mm in length), fusiform, thin, lightweight, with long pointed spire and short siphonal canal, consisting of 8 strongly convex whorls (including protoconch). Surface of the shell roughened by numerous thin growth striae making the spiral cords nearly granular, often forming fine scales or lamellae crossing the spiral sculpture between interspaces of axial ribs on latter whorls. Suture constricted, slightly wavy according to the axial sculpture. Below suture often with a conspicuous band of well-visible scales formed by growth striae. Shell red-brown to dark brown with a conspicuous broad



Figures 1-9. *Fusinus albacarinoides* spec. nov., south Portugal, Algarve coast, off Armação de Pêra, about 3 miles offshore. 1, 2: holotype MNHN 21130, 18.5 mm; 3, 4: paratype 2 MNCN 15.05/47.562, 18.5 mm; 5, 6: shell, CCMLA, colour variant, 21.3 mm; 7: protoconch (slightly eroded); 8: operculum; 9: radula (7-9 from a specimen of 19.4 mm).

Figuras 1-9. Fusinus albacarinoides *spec. nov., sur de Portugal, costa del Algarve, cerca de 3 millas frente a Armação de Pêra. 1, 2: holotipo MNHN 21130, 18.5 mm; 3, 4: paratipo 2 MNCN 15.05/47.562, 18,5 mm; 5, 6: concha, CCMLA, variante de color, 21,3 mm; 7: protoconcha (algo erosionada); 8: opérculo; 9: rádula (7-9 de un ejemplar de 19,4 mm).*

white or yellowish band at periphery and usually with an indistinct second white or light brown band on parietal wall which is only visible on body whorl.

Protoconch paucispiral, bulbous, light brown, consisting of 1 ¼ smooth glossy whorls, final part with 1-2 fine axial riblets reaching from suture to suture, transition to teleoconch abrupt, marked by a varix. Diameter 0.8-0.9 mm.

Axial sculpture consisting of broad, rather weak axial ribs reaching from suture to suture on all postnuclear whorls. Interspaces between axial ribs rather broad, only slightly impressed. 8 or 9 axial ribs on upper whorls, 8-10 on antepenultimate, 8-11 on penultimate and 8-13 on body whorl.

Spiral sculpture usually darker than the background colour, consisting of broad coarse spiral cords with rough surface caused by numerous thin growth striae. Teleoconch beginning with 3 or 4 primary spiral cords, 4 on second whorl, 5 on third whorl, 6 on fourth, and 7 on latter whorls. Spiral cords 3 and 4, counted from the lower suture, are always the strongest and white coloured (occasionally yellowish or light brown). Secondary spiral cords appear between the primary cords from third or fourth whorl on, at the beginning fine and inconspicuous but occasionally becoming nearly as strong as the primary cords on body whorl. About 20-22 strong spiral cords behind the outer lip, becoming weaker towards the tip of the siphonal canal.

Aperture ovate, rounded above, slightly constricted below, posterior canal inconspicuous. Juvenile or subadult specimens with a thin transparent body whorl showing colouration of the outer side of the shell. Adult specimens white inside aperture, ornamented with 8-10 sharp but fine folds forming tiny usually white teeth on outer lip. Outer lip convex, edge finely crenulated. Parietal callus thin, white or transparent, glossy, adherent, not detached from the parietal wall. Underlying spiral sculpture sometimes still visible. No columellar folds.

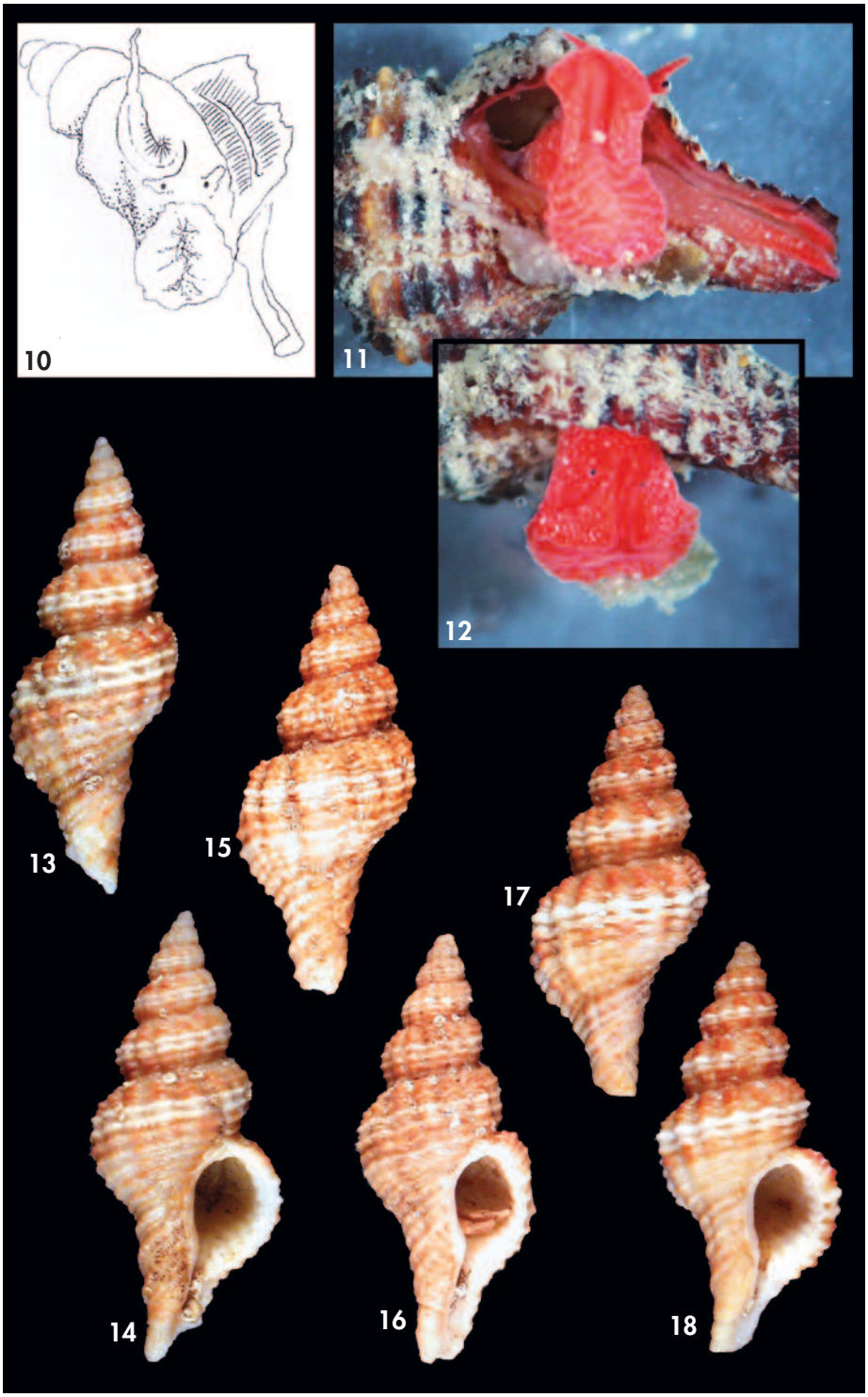
Siphonal canal usually slightly shorter than aperture length, straight or slightly curved, widely open.

Operculum (Fig. 8) corneous, thin, yellowish, shape and size corresponding to aperture, nucleus apical.

Radula (Fig. 9) with tricuspid, elongate, almost triangulate central tooth. Base rather narrow, top pointed, both sides slightly concave. Cusps rather small, pointed, slightly projecting below the base, central one slightly stronger and longer. Lateral teeth elongate, slightly curved, with 9-10 rather short pointed cusps with incurved tips. Two innermost cusps longest and most prominent. At inner end with a small denticle.

Anatomy: Animal (Figs. 11, 12) bright red and irregularly speckled with white spots of different sizes, scattered all over the body including tentacles. Siphon also spotted, paler in colour. Tentacles

(Right page) Figures 10-12. *Fusinus albacarinoides* spec. nov., south Portugal, Algarve coast, off Armação de Pêra, about 3 miles offshore. 10: animal (drawing by Emilio Rolán), 19.4 mm; 11: living animal; 12: detail of the tentacles (photographs by Carlos M. L. Afonso). Figures 13-18. *Fusinus cretellai* Buzzurro and Russo, 2008 (=*Fusus crassus* Pallary, 1901), North Morocco, Bay of Tangier. 13, 14: lectotype of *Fusus crassus* Pallary, 1901, MNHN Moll 6492, 28.1 mm; 15, 16: paralectotype of *Fusus crassus* Pallary, 1901, MNHN Moll 6490, 26.5 mm; 17, 18: paralectotype of *Fusus crassus* Pallary, 1901, MNHN Moll 6490, 25.0 mm.
(Página derecha) Figuras 10-12. Fusinus albacarinoides *spec. nov., sur de Portugal, costa del Algarve, cerca de 3 millas frente a Armação de Pêra*. 10: animal (dibujo de Emilio Rolán), 19,4 mm; 11: animal vivo; 12: detalle de los tentáculos (fotografías de Carlos M. L. Afonso). *Figuras 13-18.* Fusinus cretellai *Buzzurro and Russo, 2008 (*=Fusus crassus *Pallary, 1901), norte de Marruecos, bahía de Tánger. 13, 14: lectotipo de* Fusus crassus *Pallary, 1901, MNHN Moll 6492, 28,1 mm; 15, 16: paralectotipo de* Fusus crassus *Pallary, 1901, MNHN Moll 6490, 26,5 mm; 17, 18: paralectotipo de* Fusus crassus *Pallary, 1901, MNHN Moll 6490, 25,0 mm.*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long, broader at their base, tapering, each with a small black eye at end of broad part (after one third of length of tentacle). Extreme part of mantle has some angular brown lines which must correspond to the darker parts of the shell. Penis (Fig. 10) large, distinctive, rather slender and flat in the first half of its length and then, on the second half of its length, suddenly becoming conspicuously slender with a pointed tip, without a penial appendage.

Range and habitat: Known from southern Portugal, off the Algarve coast, between Oura (37º 03' 29.2 N, 8º 12' 34.7 W) and Marinha (37º 04' 37.2 N, 8º 24' 27.9 W) between 1.6 and 4.0 km offshore. Not found in shallow water, bathymetric range starts from 14-22 m down, mostly collected attached under rocks lying on rock platforms with fine sandy bottom. The new species is always associated with rocky bottoms.

Discussion: Only few other *Fusinus* species are reported from the infralittoral zone of southern Portugal, Algarve coast: *F. pulchellus* (Philippi, 1844), *F. rostratus* (Olivi, 1792) and *F. syracusanus* (Linnaeus, 1758). However, the occurrence of *F. syracusanus* in the Atlantic cannot be confirmed despite intensive research along the Algarve coast.

Some other *Fusinus* species from the eastern Atlantic and the Canary Islands are similar in shape and sculpture and therefore also compared to *F. albacarinoides* sp. nov..

Hadorn and Rolán (1999) redescribed *Fusinus crassus* (Pallary, 1901) and selected a lectotype, among several syntype lots housed in MNHN, originating from Tangier, on the Atlantic coast of north Morocco. Buzzurro and Russo (2007: 184-186) described and well figured *F. crassus* (Pallary, 1901) from a population from the Mediterranean, southern Spain, and noticed that the name established by Pallary is a primary homonym and could not be used. Therefore *F. cretellai* Buzzurro and Russo, 2008 was established for this species as a replacement name for *Fusus crassus* Pallary, 1901, which is a junior homonym of *Fusus crassus* Brown, 1827 (a recent Turrid from Scotland).

F. cretellai is most similar to *F. albacarinoides* sp. nov.. *F. cretellai* is known from two populations (Table I): originally described from the Atlantic coast of North Morocco, Tangier (type locality), and the other one from southern Spain (from the Mediterranean, from Fuengirola, Algeciras and Getares and from the Atlantic coast from Cape Trafalgar). *F. cretellai* from north Morocco (Figs. 13-18) differs from specimens from southern Spain (Figs. 19-22) by the somewhat larger shell size (Morocco: up to 28.0 mm

(Right page) Figures 19-22. *Fusinus cretellai* Buzzurro and Russo, 2008. 19, 20: shell, CRH, south Spain, Mediterranean Sea, Getares, 23.4 mm; 21, 22: shell, CRH, south Spain, off Cape Trafalgar, Cadiz, 19.3 mm. Figures 23, 24. *Fusinus tenerifensis* Hadorn and Rolán, 1999; paratype 5 CRH, Canary Islands, Tenerife, 21.7 mm. Figures 25-28. *Fusinus pulchellus* (Philippi, 1844). 25, 26: shell, CRH, southern France, Côte d Azur, Saint-Raphaël Le Dramont, 15.0 mm; 27, 28: shell, CCMLA, morphotype "quandumpulchellus", south Portugal, Algarve, Lagos, off Ponta da Piedade, 40-55 m deep, 28.9 mm. Figures 29, 30. *Fusinus rostratus* (Olivi, 1792), shell, CCMLA, south Portugal, Algarve, Lagos, off Ponta da Piedade, 40-55 m deep, 34.6 mm.
(Página derecha) Figuras 19-22. Fusinus cretellai *Buzzurro and Russo, 2008. 19, 20: concha, CRH, sur de España, Mediterráneo, Getares, 23,4 mm; 21, 22: concha, CRH, sur de España, frente al cabo de Trafalgar, Cádiz, 19,3 mm. Figuras 23, 24.* Fusinus tenerifensis *Hadorn and Rolán, 1999; paratipo 5 CRH, Islas Canarias, Tenerife, 21,7 mm. Figuras 25-28.* Fusinus pulchellus *(Philippi, 1844). 25, 26: concha, CRH, sur de Francia, Côte d Azur, Saint-Raphaël Le Dramont, 15,0 mm; 27, 28: concha, CCMLA, morfotipo "quandumpulchellus", sur de Portugal, Algarve, Lagos, frente a Ponta da Piedade, profundidad 40-55 m, 28,9 mm. Figuras 29, 30.* Fusinus rostratus *(Olivi, 1792), concha, CCMLA, sur de Portugal, Algarve, Lagos, frente a Ponta da Piedade, profundidad 40-55 m, 34,6 mm.*

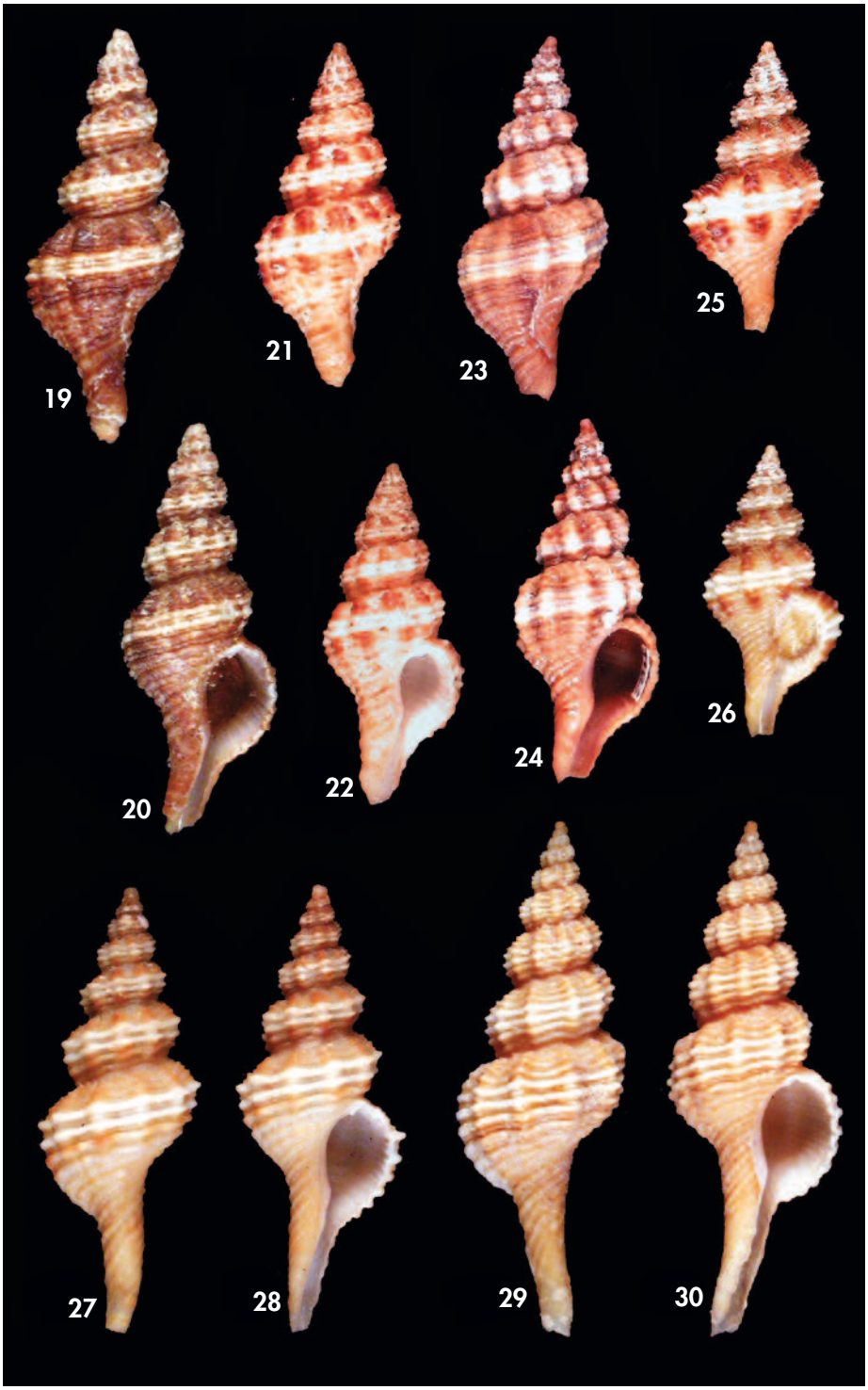
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Table I. Conchometrical parameters of F. cretellai and F. albacarinoides
Tabla I. Parámetros conquiológicos de F. cretellai *y* F. albacarinoides

No.	Height (H) mm	Diameter (D) mm	Ratio H/D	Remarks
F. cretellai Buzzurro and Russo, 2008 *(= Fusus crassus* Pallary, 1901), from North Morocco, Bay of Tangier (type locality) (lectotype and paralectotypes MNHN)				
1	28.1	11.0	2.55	Lectotype MNHN Moll. 6492 (Figs. 13-14)
2	26.5	10.9	2.43	Paralectotype MNHN Moll. 6490 (Figs. 15-16)
3	24.1	10.2	2.36	Paralectotype MNHN Moll. 6490
4	25.0	10.7	2.34	Paralectotype MNHN Moll. 6490 (Figs. 17-18)
5	23.6	10.3	2.29	Paralectotype MNHN Moll. 6490
6	22.8	9.4	2.43	Paralectotype MNHN Moll. 6490
7	22.7	10.3	2.20	Paralectotype MNHN Moll. 6490
8	26.3	11.3	2.33	Paralectotype MNHN Moll. 6491
9	25.8	10.6	2.43	Paralectotype MNHN Moll. 6491
10	22.7	10.0	2.27	Paralectotype MNHN Moll. 6491
11	23.0	9.8	2.35	Paralectotype MNHN Moll. 6491
12	22.9	8.9	2.57	Paralectotype MNHN Moll. 6491
13	19.9	8.9	2.24	Paralectotype MNHN Moll. 6491
		average	2.37	
F. cretellai Buzzurro and Russo, 2008 from southern Spain (as *F. crassus* after Buzzurro and Russo, 2007: 203)				
1	23.5	8.5	2.76	Buzzurro and Russo (2007: 203)
2	24.0	8.9	2.70	Buzzurro and Russo (2007: 203)
3	23.0	9.0	2.56	Buzzurro and Russo (2007: 203)
4	22.5	8.5	2.65	Buzzurro and Russo (2007: 203)
5	23.5	8.3	2.83	Buzzurro and Russo (2007: 203)
6	23.5	9.8	2.40	Buzzurro and Russo (2007: 203)
7	23.0	8.8	2.61	Buzzurro and Russo (2007: 203)
8	22.5	8.5	2.65	Buzzurro and Russo (2007: 203)
9	23.4	9.1	2.57	CRH (Figs. 19-20)
10	19.3	7.6	2.54	CRH (Figs. 21-22)
		average	2.63	
F. albacarinoides sp. nov. from the Algarve, Portugal				
1	18.5	8.1	2.28	Holotype MNHN 21130
2	20.6	8.2	2.51	Paratype 1 IPM.014T
3	18.5	7.6	2.43	Paratype 2 MNCN 15.05/47.562
4	19.2	7.5	2.56	Paratype 3 ANSP
5	21.1	8.2	2.57	Paratype 4 CCMLA
6	17.9	7.2	2.49	Paratype 5 CCMLA
7	21.3	9.3	2.29	Paratype 6 CRH
8	20.7	8.0	2.59	Paratype 7 CRH
9	17.3	6.8	2.54	Paratype 8 CER
10	23.5	9.5	2.47	CRH
11	19.7	8.0	2.46	CRH
12	21.3	9.6	2.22	CCMLA
13	21.3	9.3	2.29	CRH
14	20.4	7.9	2.58	CRH
15	11.8	5.1	2.31	CRH
16	13.7	5.8	2.36	CCMLA
17	14.4	6.1	2.36	CCMLA
18	16.7	6.5	2.57	CCMLA
		average	2.44	

/ southern Spain: up to 24.0 mm), the comparatively broader shell (ratio length/diameter: Morocco: 2.37 / southern Spain: 2.63), the shorter spire, the thicker shell, the inflated body whorl, the predominant and deeper incised spiral sculpture on body whorl, the more close-set axial ribs with narrow and shallow interspaces, the larger number of axial ribs on body whorl, the entirely white aperture, the strong internal lirae, and the broader, stout siphonal canal with 3-4 conspicuously strong and broad, widely spaced white spiral cords on outer side of siphonal canal.

But the differences between the two populations are not consistent and linking specimens exists (e.g. BUZZURRO AND RUSSO, 2007: pl. 26, fig. e). As long as fresh material of *F. cretellai* from North Morocco with intact protoconch and soft parts is not available for study, we prefer not to describe the southern Spain population as a distinct species.

F. cretellai (Figs. 13-18) from North Morocco, Tangier (type locality), differs from *F. albacarinoides* sp. nov. by the larger shell size (20-28 mm), the thicker and more solid shell, the smoother surface, the shorter spire, the less constricted suture, the less prominent but more close-set axial ribs, the longer and stronger siphonal canal, the prominent but less numerous spiral cords on the outer side of the siphonal canal, and by the entirely white aperture and the thick outer lip.

F. cretellai (Figs. 19-22) from southern Spain is most similar to *F. albacarinoides* sp. nov., but differs by the lighter coloured shell, the smaller protoconch (diameter 0.7 mm instead of 0.8-0.9 mm), the smoother surface, the weaker and less prominent spiral sculpture especially at periphery, and by the distinct white tooth near the posterior canal. The radula is very similar and not distinctive, but the animal differs considerably. The animal of *F. cretellai* is bright red in colour (BUZZURRO AND RUSSO, 2007: 185), but in *F. albacarinoides* bright red with numerous white speckles all over the animal including tentacles and siphon. But most distinctive is the completely different penis (different shape and with a short penial appendage in *F. cretellai*). For details we refer to BUZZURRO AND RUSSO, 2007: 185, pl. 9, figs. d-e. Moreover, *F. cretellai* lives under stones, generally with a reduced weed cover, at depths of 2-5 m (Buzzurro and Russo, 2007: 184); *F. albacarinoides* sp. nov. lives in deeper water starting from 14-22 m down.

F. pulchellus (Philippi, 1844) (Figs. 25-28) from the Mediterranean Sea, lives at depths of 2 to 120 meters, and was recorded also from the Atlantic Ocean, from Portugal and Atlantic coasts of Spain and from the Canary Islands (BUZZURRO AND RUSSO, 2007: 148-149). The second author obtained *F. pulchellus* from the Algarve coast from local fishermen collected in gill and tangle nets, depth 35 m down and associated to muddy Bryozoan bottoms of *Adeonella calveti*. We compare *F. albacarinoides* sp. nov. to the larger morphotype "quandumpulchellus" figured by SNYDER (2000: 174, figs 1A, 1B). BUZZURRO AND RUSSO (2007: 149-154) placed *F. quandumpulchellus* Snyder, 2000, in synonymy of *F. pulchellus* (Philippi, 1844). *F. pulchellus* differs by the smaller number but more prominent and wider spaced axial ribs, the lighter coloured shell, and the longer, straight and more slender siphonal canal. The animal of *F. pulchellus* differs by a distinctive large, very stubby penis, triangular in shape (BUZZURRO AND RUSSO, 2007: 150; pl. 4, figs. a-b).

F. rostratus (Olivi, 1792) (Figs. 29-30) is distributed all over the Mediterranean Sea, also the Atlantic coasts, namely from Portugal to the Canary Islands, also recorded from Moroccan coasts, Spain, France and Mauritania (BUZZURRO AND RUSSO, 2007: 138). *F. rostratus* often has a rough surface produced by numerous thin axial growth striae, forming fine scales and nearly granular spiral cords, but differs by the larger size (45-55 mm on the average), by the distinct prominent axial sculpture, the usually uniformly coloured shell, and the long straight siphonal canal.

F. syracusanus (Linnaeus, 1758), an infralittoral species distributed throughout the Mediterranean Sea, also occurring

in the eastern Atlantic, from Portugal to the Canary Islands (BUZZURRO AND RUSSO, 2007: 178), differs by the larger size, the stout but light and broad shell, the carinated, well-shouldered whorls, and the distinct close-set, regularly spaced and usually white coloured axial ribs.

F. tenerifensis Hadorn and Rolán, 1999 (Figs. 23-24) from the Canary Islands (Tenerife and La Palma) is similar in shape, sculpture and colouration, but differs by the red brown protoconch, the dark brown to chocolate-brown colouration, the more prominent and well-spaced axial ribs, the dark brown, sometimes slightly purplish aperture, and usually by the less conspicuous white band, and the shorter siphonal canal.

Some other *Fusinus* species are recorded from the Ibero-Moroccan Gulf, from the Atlantic coasts of Portugal or Morocco, but none of them is similar to *F. albacarinoides* sp. nov.:

F. sectus (Locard, 1897), known only from the holotype (figured in HADORN AND RYALL, 1999: 34, figs. 1-2), collected from off Mauritania 882 m deep, differs by the broader and shorter spire and the uniformly coloured shell.

F. agadirensis Hadorn and Rolán, 1999, from the Atlantic coast of Morocco, collected between Agadir and Casablanca 50-70 m deep, differs by the smaller shell size (up to 16.6 mm), the uniform light brown shell, and the distinct regularly spaced axial and spiral ribs.

F. boucheti Hadorn and Ryall, 1999, from the Atlantic coast of Morocco and the Canary Islands, collected 480-724 m deep, differs by the larger shell size (up to 45.8 mm), the larger protoconch (diameter 1.3-1.8 mm), the longer siphonal canal, and the uniformly coloured shell.

F. bocagei bocagei (P. Fischer, 1882), distributed from the Bay of Biscay to the Ibero-Moroccan Gulf, the Azores and the Canary and Cape Verde Islands, collected 225-3215 m deep, differs by the larger size (24-38 mm), the prominent broad, well-spaced axial ribs, the simple inconspicuous spiral sculpture, and the uniformly coloured shell.

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