

A new species of *Babelomurex* Coen, 1922 (Gastropoda Muricidae) for the Italian Pliocene: *Babelomurex brugnonei* n. sp.

Massimo Appolloni^{1*} & Carlo Smriglio²

¹Museo Civico di Zoologia, Rome, Italy; e-mail: massimo.appolloni@comune.roma.it

²Department of Science, Roma Tre University, Rome, Italy; e-mail: cmriglio@alice.it

*Corresponding author

ABSTRACT

A new fossil species of Coralliophilinae Chenu, 1859 (Gastropoda Muricidae), in the genus *Babelomurex* Coen, 1922, is here described and illustrated as *Babelomurex brugnonei* n. sp., found in Altavilla Milicia, Sicilian locality known for the Pliocene-Pleistocene siliciclastic succession exposed in this geographical area. The new species is compared with *Latiaxis janianus* (Cocconi, 1873) and *Latiaxis dellabellai* Brunetti, 2004, the other two morphologically close fossil species reported in the Pliocene of the Mediterranean Basin. A taxonomic update is suggested for these fossil species of Coralliophilinae, all belonging to the genus *Babelomurex*.

KEY WORDS

Coralliophilinae; *Babelomurex*; fossil; Pliocene; Sicily; new species.

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INTRODUCTION

As documented, the Monterosato collection, preserved at the Civic Museum of Zoology in Rome (Italy), also includes other collections of contemporary researchers of the Marquis of Monterosato. The reorganization of the Monterosato collection has been ongoing for a long time and has highlighted that it includes other collections and specimens from other important nineteenth-century collectors such as Brugnone, Benoit, Libassi and partly from Calcara (Appolloni et al., 2018). And it is precisely from the material of Abbot Brugnone's collection that some specimens of an unknown *Babelomurex* fossil species were separated, which is thus described with the name *Babelomurex brugnonei* n. sp. in memory of the Abbot himself who collected it during his existence. The new species is compared with the only other two morphologically close fossil species currently known, *Latiaxis janianus* (Cocconi, 1873)

and *Latiaxis dellabellai*, Brunetti, 2004, previously classified in the genus *Latiaxis* Swainson, 1840, and now attributed to genus *Babelomurex* Coen, 1922, the most suitable for hosting species with that type of morphology.

MATERIAL AND METHODS

All the specimens of *Babelomurex brugnonei* n. sp. ex Brugnone collection in Monterosato collection, are from a Plio/Pleistocenic outcrop located in Altavilla Milicia, Sicily (Italy). Photographs have been taken with a Nikon D3300 digital camera mounted on a Carl Zeiss 475052 stereomicroscope. Current systematics is based on the World Register of Marine Species (WoRMS, 2024).

ACRONYMS AND ABBREVIATIONS. CS–PM, Carlo Smriglio & Paolo Mariottini collection (Rome, Italy); MCZR–M, Monterosato collection,

Museum of Zoology of Rome, Italy; Other acronyms: L = length; H = height; Sh = shell/shells. Measurements in millimeters.

RESULTS

Systematics

Classis GASTROPODA Cuvier, 1795

Subclassis CAENOGASTROPODA L. R. Cox, 1960

Ordo NEOGASTROPODA Wenz, 1938

Superfamilia MURICOIDEA Rafinesque, 1815

Familia MURICIDAE Rafinesque, 1815

Subfamilia CORALLIOPHILINAE Chenu, 1859

Genus *Babelomurex* Coen, 1922

TYPE SPECIES *Babelomurex cariniferus* (G.B. Sowerby II, 1834) (type by original designation).

Genus *Latiaxis* Swainson, 1840.

TYPE SPECIES. *Latiaxis mawae* (Gray, 1833) (type by monotypy, Recent).

Babelomurex brugnonei n. sp. (Figs. 1–21)

<https://zoobank.org/7A979A0F-D4C6-4515-88FA-584AA36A22FD>

TYPE MATERIAL. Holotype MCZR-M-30092/H, paratypes 1–7 MCZR-M-30092/P; all from the type locality.

TYPE LOCALITY. ITALY • 8 specimens (holotype and 7 paratypes), Sicily, Altavilla Milicia, Sicily, (Brugnone's name: "Altavilla"); 38°02'32"N - 13°33'01"E; datation: Late Pliocene-Early Pleistocene (D'Arpa & Ruggieri, 2004; Dominici et al., 2017; Appolloni et al., 2018).

OTHER MATERIAL EXAMINED. The holotype of *Babelomurex dellabellai* (Brunetti, 2004) = *Latiaxis dellabellai* Brunetti, 2004, (Figs. 25–27), Malacology Laboratory of the Earth Sciences Department of Bologna (Collections of the G. Capellini Museum, Bologna, Italy), inventory 23961, Piacenziano, Rio Martignone - Pradalbino (Bologna); one shell of *B. dellabellai* (Brunetti, 2004), Piacenzian, Pliocene, Guidonia, Latium, Italy; the holotype of *Babelomurex janianus* (Cocconi, 1873) = *Latiaxis janianus* Cocconi, 1873 (Figs. 22–24) from "Monte Alto" Castell'Arquato (PC), Department of Earth Sciences, University of Parma, inventory 3965; four

shells of *B. janianus* (Cocconi, 1873), Piacenzian, Pliocene, Guidonia, Latium, Italy.

DESCRIPTION OF THE HOLOTYPE (Figs. 1–6). Spiral gastropod shell of small size for the genus (holotype H = 8.0 x L = 5.0; medium size H = 8.26 x L = 5.7), solid and rather fusiform, with slightly scaly and more thorny ornamentation. Protoconch planktotrophic. Teleoconch of 4.5 spiral scalariform whorls. Wide infrasutural platform and slightly sloping towards the outer edge of the shoulder, which is smooth and free of spiral cords in the first body whorls, while in the last body whorl two spiral and barely scaly cords side by side are highlighted, one thicker. The sculpture of the last body whorl is composed of 8 orthoclinic axial ribs, which intersect with 7 spiral cords of which the first forms lamellar triangular processes on the edge of the infrasutural platform with the next two of equal size. Interspaces wide, deep and well engraved. Suture not very visible, because it is covered by a wavy spiral cord which intersects with axial sculpture. Oval aperture which is prolonged with a straight and open siphonal canal throughout its length; columella smooth and straight. External lip rather spiny and not very scaly, internally smooth.

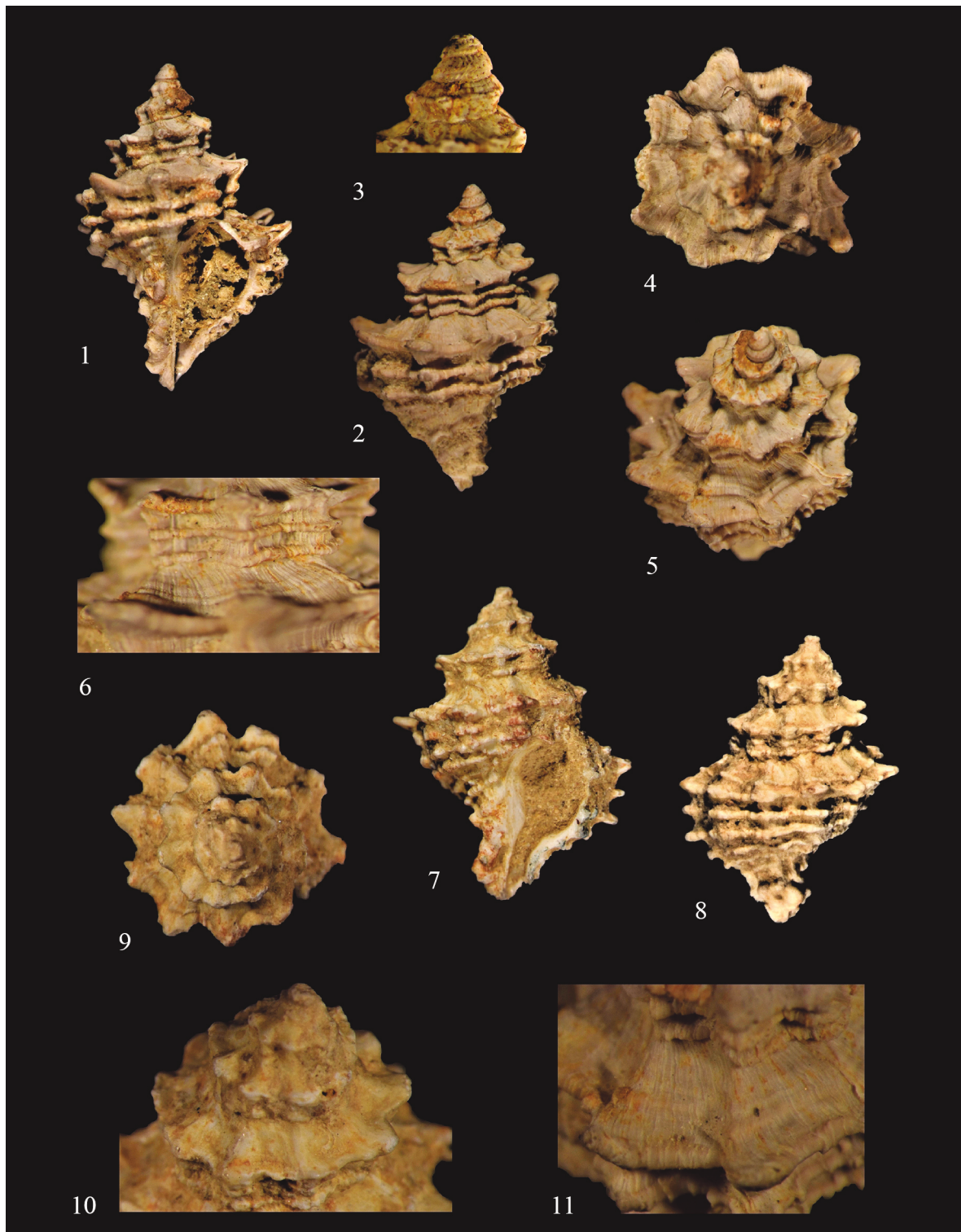
VARIABILITY. Paratype 1: H = 9.9, L = 6.4; paratype 2: H = 9.0, L = 6.6; paratype 3: H = 7.0, L = 5.1; paratype 4: H = 6.2, L = 4.8; paratype 5: H = 7.4, L = 5.4; paratype 6: H = 6.0, L = 4.3.

STRATIGRAPHIC AND GEOGRAPHIC DISTRIBUTION. Currently known from the type locality, Pliocene, Piacenzian of Italy (this work).

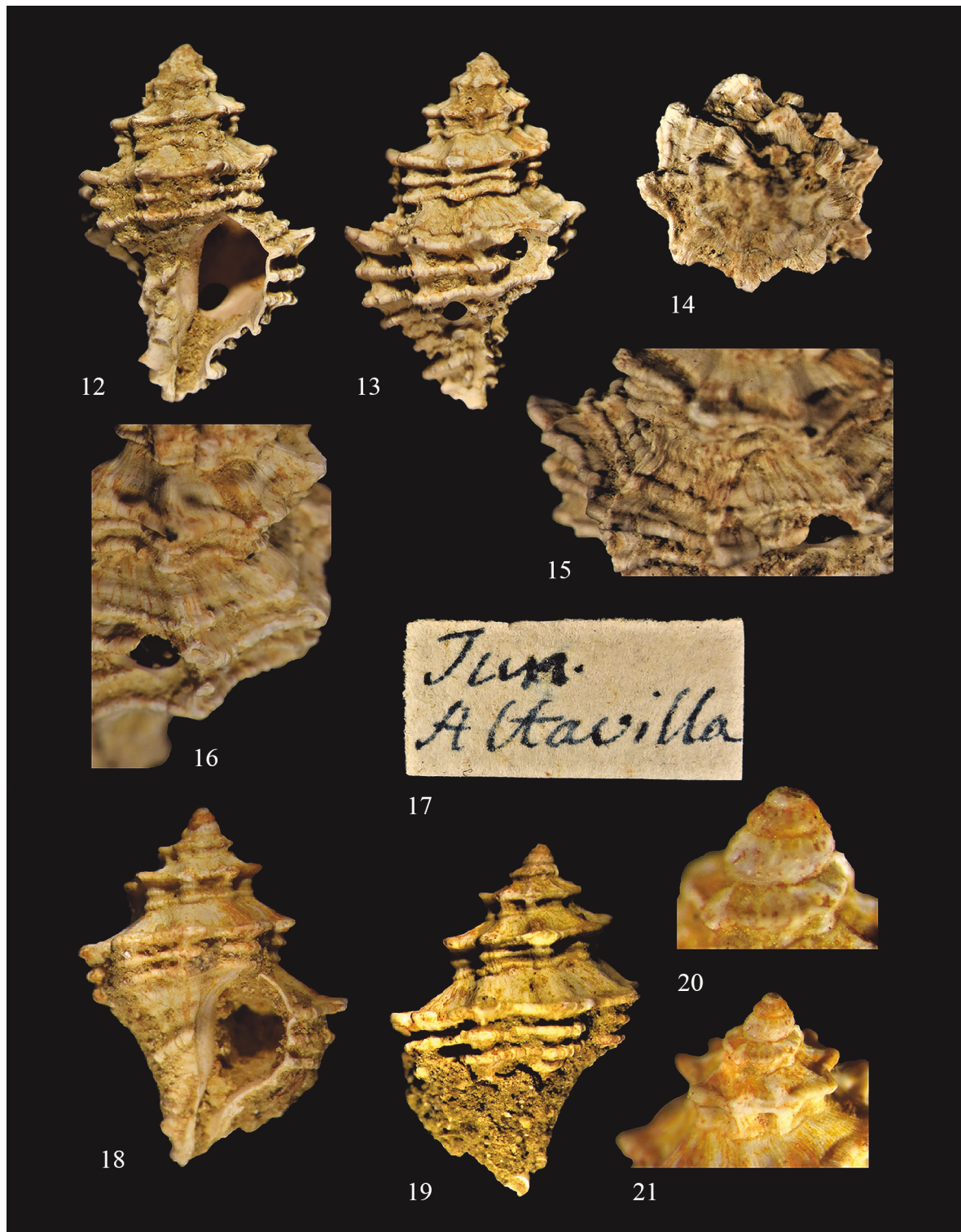
ETYMOLOGY. The species is named in memory of the Abbot Giuseppe Antonio Brugnone (Palermo, Italy) who found the specimens.

REMARKS. In this work, based on shell morphology, *Latiaxis janianus* (Cocconi, 1857) and *L. dellabellai* Brunetti, 2004 are transferred into the genus *Babelomurex* Coen, 1922, and a third fossil species, *B. brugnonei* n. sp. is described belonging to the same subfamily of the Coralliophilinae, comparing it with the previous two.

Comparing the genus descriptions of *Latiaxis* Swainson, 1840 and *Babelomurex* the differences between the two taxa are highlighted confirming the new taxonomic framework of the three species treated in this work.



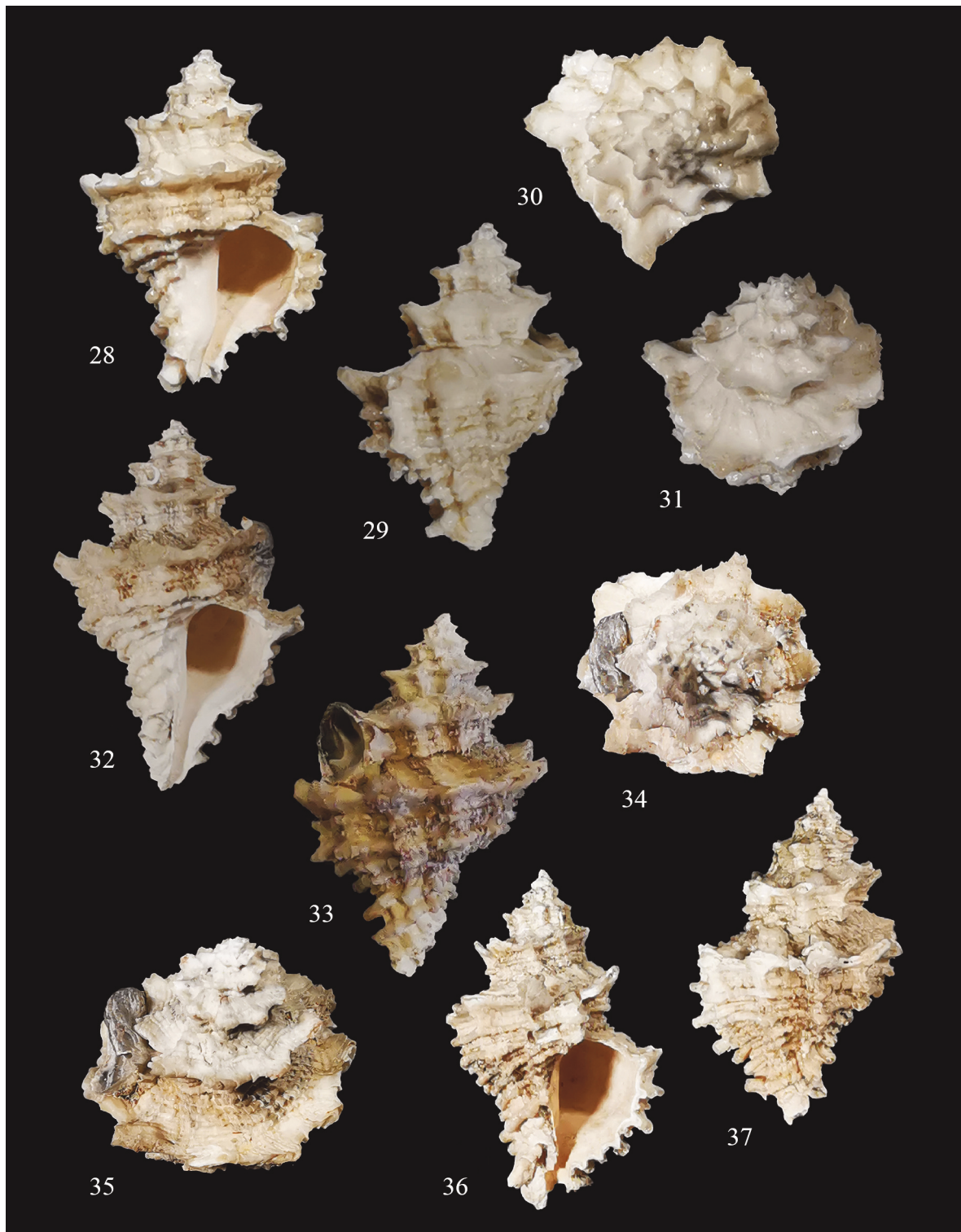
Figures 1–6. *Babelomurex brugnonei* n. sp., holotype (H = 8.0 x W = 5.0 mm), Altavilla Milicia, Sicily, Italy, Pliocene, Piacenzian, MCZR-M-30092/H. Figs. 1, 2, 4. *B. brugnonei* n. sp., holotype, frontal, dorsal and apical views. Fig. 3. Protoconch. Fig. 5. View of the first three spiral whorls without spiral cords. Fig. 6. View of the fourth spiral whorls with two non-scaly spiral cords. Figures 7–11. *B. brugnonei* n. sp., paratype (H = 9.0 x W = 6.6 mm), frontal, dorsal and apical views, Altavilla Milicia, Sicily, Italy, Pliocene, Piacenzian, MCZR-M-30092/P.



Figures 12–17. *Babelomurex brugnonei* n. sp., paratype (H = 9.9 x W = 6.4 mm), Altavilla Milicia, Sicily, Italy, Pliocene, Piacenzian, MCZR-M-30092/P. Figs. 12–14. *B. brugnonei* n. sp., paratype, frontal, dorsal and apical views. Figs. 15–16. views of the third spiral whorl without spiral cords and of the fourth spiral whorl with two non-scaly spiral cords. Fig. 17. Original label handwritten by the Abbot Brugnone. Figures 18–21. *B. brugnonei* n. sp. (H = 7.0 x W = 5.1 mm), frontal and dorsal views. Figure 20. protoconch. Figure 21. view of the first three spiral whorls without spiral cords.



Figures 22–24. *Babelomurex janianus* (Cocconi, 1873), original illustration of *Murex janianus* Cocconi, 1873 (tab. I, figs 4-5). Fig. 23. Holotype (H = 39.5 x W = 24 mm), “Monte Alto” Castell’Arquato (PC), clay silt, Dipartimento Scienze della Terra, University of Parma, Italy, inventory number 3965, Cocconi collection (courtesy of Mauro Brunetti). Fig. 24. Detail of the fourth and fifth spiral whorls sculpted by numerous spiral cords. Figures 25–27. *B. dellabellai* (Brunetti, 2004), holotype, frontal, dorsal and lateral views, (H = 17 x W = 10 mm), Pradalbino, Bologna, Italy, Museum G. Capellini, Bologna, Italy, inventory number 23961 (courtesy of Mauro Brunetti).



Figures 28–31. *Babelomurex dellabellai* (Brunetti, 2004), (H = 13.2 x W = 9.8), frontal, dorsal, apical and lateral views, Guidonia, Latium, Italy, Pliocene, Piacenzian. Figures 32–35. *B. dellabellai* (Brunetti, 2004), (H 17.6 x W 11.9), frontal, dorsal, apical and lateral views, Guidonia, Latium, Italy, Pliocene, Piacenzian. Figures 36–37. *B. janius* (Cocconi, 1873), (H = 19.2 x W = 12.9), Guidonia, Latium, Italy, Pliocene, Piacenzian, frontal and dorsal views, morphotype with exalted sculpture.

For further understanding the original descriptions of the two genera are provided:

Latiaxis Swainson, 1840

Original description (Swainson, 1840): “*Shell subpyriform, turbinate, and the whorls detached, as if distorted; but the spire flattened at the summit; whorls angulated, and carinated, with a fimbriated undulate ridge; pillar none; umbilicus excessively large and deep; aperture angular; the basal notch nearly obsolete*”.

Babelomurex Coen, 1922

Original description (Coen, 1922): “*Conchiglia fusiforme, biconica, a spira acutissima; giri fortemente carenati al terzo superiore, concavi sopra, convessi sotto la carena; ornamentazione consistente in cordoni spirali elevati, squamosi, intersecati da numerose onde longitudinali poco cospicue, ciascuna delle quali forma, però, sulla carena una grande squama triangolare spiniforme, impartendo alla conchiglia uno speciale aspetto coronato ricordante la spira di un Columbarium: ombelico largamente aperto, profondissimo, circondato da una carena fortemente squamosa, e simile in tutto a quello dei *Latiaxis*; columella semplice, lievemente torta alla base in corrispondenza della carena periombelicale; peristoma superiormente subcontinuo, labbro internamente crenato e solcato*”.

As reported in the original description, the genus *Latiaxis* includes species with flattened whorls at the top: “*but the spire flattened at the summit*” (Swainson, 1840), in fact the four confirmed species of Coralliophilinae included in the genus all show this morphological characteristic: *L. mawae* (Gray, 1833) type species of the genus, *L. hayashii* Shikama, 1966, *L. pilsbryi* Y. Hirase, 1908 and *L. nipooleifera* Chino, 2014.

Babelomurex brugnonei n. sp. for the morphology exhibited has been compared with the two morphologically closest species *B. janianus* (Cocconi, 1857) and *B. dellabellai* (Brunetti, 2004) highlighting the morphological differences existing between the three species, which can be summarized with the presence of numerous scaly spiral cords and on the first upper part of the shoulder of all teleoconch whorls for *B. janianus*, on the total absence of spiral cords in the same area of all teleoconch whorls for *B. dellabellai* and for the presence of two non-scaly spiral cords on the last body whorls, but the previ-

ous body whorls, in the same area, have no spiral cords for *B. brugnonei* n. sp.

It is reported for the first time the presence of *B. janianus* and *B. dellabellai* in the Pliocene deposit of Guidonia widening the Italian distribution of the two species also in the Lazio region; previously both have been reported for the Pliocene, lower Piacenzian and upper Zanclean of El Lobillo, Velerin, Estepona, Spain (Landau et al., 2007, pag. 63, pag. 87, plate 15, figs 8a–c and figs 9a–b, respectively). Furthermore the fact of having found *B. janianus* and *B. dellabellai* together in the Guidonia and Velerin deposits strongly suggest a possible sympatry between the two species that populated the ancient Pliocene sea together, therefore sharing the same chronodistribution referring to that period.

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