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TWO NEW SPECIES OF ENIDAE (MOLLUSCA: GASTROPODA: PUPILLACEA) FROM TURKEY

by

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Gittenberger, E.: Two new species of Enidae (Mollusca: Gastropoda: Pupillacea) from Turkey. *Zool. Med. Leiden* 60 (13), 30-vii-1986: 209-216, figs. 1-6. — ISSN 0024-0672.

Key words: Mollusca; Enidae; spec. nov.; Turkey.

Two new species of Enidae, viz. *Zebrina (Ramusculus) mienisi* spec. nov. and *Turanena tuccari* spec. nov., are described from the Turkish provinces of Erzurum and Antalya, respectively. The former species is unknown anatomically and, therefore, its (sub)generic assignment is uncertain. The latter new species is the westernmost *Turanena* species known at present.

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INTRODUCTION

Some years ago Mr. H.K. Mienis (Jerusalem) sent me for study some very conspicuous gastropod shells from NE. Turkey, apparently belonging to the Enidae and clearly new to science.

More recently Dr. D. Koopman (Leiden) donated interesting molluscan material from S. Turkey to the Rijksmuseum van Natuurlijke Historie; among these samples another undescribed enid species proved to be represented. Later on it turned out that the latter new species had been discovered independently also by Dr. H. Schütt (Düsseldorf). On request, ir. H.P.M.G. Menkhorst (Krimpen aan de IJssel) collected additional material of this species, including some living specimens for anatomical research. Independently again, Dr. W. Rähle (Tübingen) sent me two samples of this new enid species; he had also collected living animals.

I am very grateful for the valuable and kind help offered by the colleagues mentioned.

The following abbreviations are used for collections: HUJ, Hebrew University (Jerusalem); Men, H.P.M.G. Menkhorst (Krimpen aan de IJssel); Räh, W. Rähle (Tübingen); RMNH, Rijksmuseum van Natuurlijke Historie

(Leiden); Sch, H. Schütt (Düsseldorf); SMF, Senckenberg Museum (Frankfurt am Main).

***Zebrina (Ramusculus)* Lindholm, 1925**

Type species (by original designation): *Z. (R.) subulata* (Rossmässler, 1837).

***Zebrina (Ramusculus) mienisi* spec. nov.**

(figs. 1, 2)

Material (shells). — Holotype (HUU) and 9 paratypes (HUU/6 & 2 fragments; RMNH 55881/1): Turkey, province of Erzurum, 5 km N. of Tortum, UTM GE16; 1600 m alt.; 5-IX-1967.

Diagnosis. — Shell about five times as high as broad, with over 12 whorls, with only an angular denticle in the aperture.

Description. — The shell is extremely slender; its upper half is very slender conical, whereas the lower half is cylindrical. The initial whorls are convex; the following whorls gradually become more flattened. The 12 $\frac{1}{4}$ -14 $\frac{1}{4}$ whorls are separated by indented sutures. The upper whorls are light corneous and somewhat translucent; most of the shell shows a very irregular pattern of corneous and light greyish or whitish parts. The shell is sculptured with irregular, very oblique (c. 45° at the suture), rather coarse growth-lines or wrinkles. About the last quarter or more of the body-whorl is conspicuously thickened. The outer lip of the aperture is flattened in front; the apertural lip is not reflexed, although it makes the impression of being so in front view. There is a prominent parietal callus, with an obsolete angular denticle. There are no additional teeth or lamellae in the aperture. The columellar side of the aperture is slightly oblique in relation to the general axis of the shell. There is a narrow umbilicus.

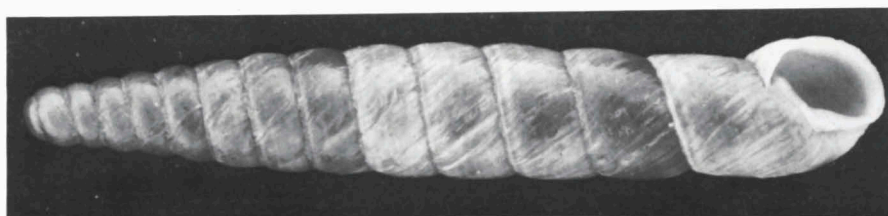


Fig. 1. *Zebrina (Ramusculus) mienisi* spec. nov., holotype (HUU), actual height 13.2 mm.

Height 11.1-13.2 mm; width 2.3-2.5 mm, or 2.2-2.4 mm if the last quarter of the body-whorl is not taken into account.

Differentiation. — The generic assignment of this species is problematic; it can be based on conchological data only. *Z. (R.) subulata* (Rossmässler, 1837) differs from *Z. (R.) mienisi* by its less slender shell, which is provided with irregular, dark, transverse streaks (as in most *Zebrina* species). *Imparietula blanda sebasteana* Forcart, 1940 is characterized by shells which are not as extremely slender as they are in *Z. (R.) mienisi*; moreover the aperture of the shell is different in the two taxa. In *I. b. sebasteana* there is a parietal denticle and the columellar side of the aperture is concave because of a rudiment of a low columellar fold (as in most *Imparietula* species).

Distribution (fig. 2). — The subgenus *Ramusculus* is still poorly known. According to Zilch (1959: 189) it is distributed in the Krym peninsula and Moldaviya, U.S.S.R., with only a few species. According to Schileyko (1984) only the type species of *Ramusculus* occurs in the U.S.S.R. Because the (sub)generic assignment of *Z. (R.) mienisi* is doubtful, further notes are considered premature.

Note. — The species here classified with *Zebrina (Ramusculus)* is conchologically extreme and, therefore, easily recognizable. Its generic position is quite uncertain.

Derivatio nominis. — *Z. (R.) mienisi* spec. nov. is named in honour of the distinguished malacologist Mr. H.K. Mienis, Hebrew University of Jerusalem, who most kindly offered me the present material for study.

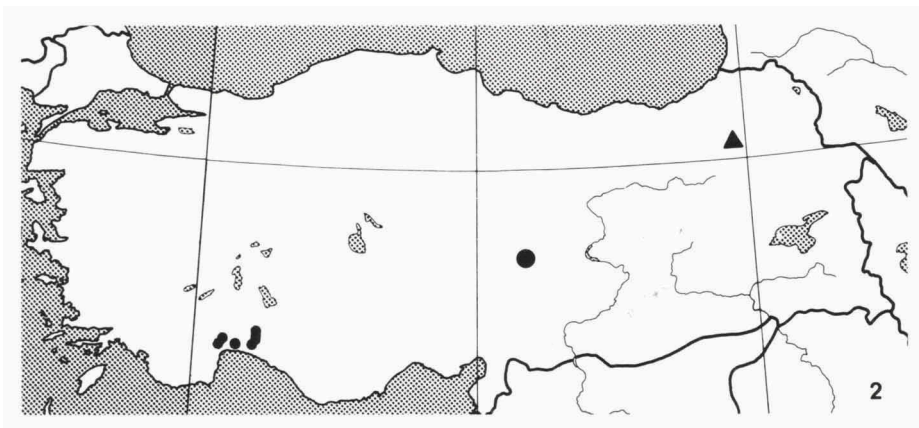


Fig. 2. UTM 50 km grid map of Turkey, with records of: *Turanena tuccari* spec. nov. (small dots); *Turanena forcarti* Schnell, 1979 from the province of Sivas, CC47-48 (large dot); *Zebrina (Ramusculus) mienisi* spec. nov. (triangle).

Turanena Lindholm, 1922

Type species (by original designation): *T. herzi* (O. Boettger, 1889).

Turanena tuccari spec. nov.

(figs. 2-6)

Material (shells, with soft parts only if in alcohol [alc.]; localities with UTM 10 km grid code). — Holotype: Turkey, province of Antalya, near Beşkonak (53 km NE. of Antalya), rocky area along the river Köprü İrmagi, 200-300 m alt., UG41, D. Koopman leg. IV-1982 (RMNH 55877).

Paratypes: Turkey, province of Antalya: ancient ruins of Termessos (22 km NW. of Antalya), on limestone rocks facing east, 1100 m alt., TF79, W. Rähle leg. 26-III-1986 (Räh/2); Yeni Köy (22 km NNW. of Antalya), TG80, H. Schütt leg. 21-V-1964 (Sch/28); 6.5 km N. of Yeni Köy, between the caves Karain and Öküzini, on rocks facing east, TG80, W. Rähle leg. 21-III-1986 (Räh/31 [alc.]; RMNH 55875/1, 9190/3 [alc.], genital slides 937, 938); ancient ruins of Perge (15 km NE. of Antalya), UF09, H. Schütt leg. 14-V-1964 (Sch/4); ancient ruins of Aspendos (40 km ENE. of Antalya), on walls, UF39, H. Schütt leg. 14-V-1964 and H.P.M.G. Menkhorst leg. 1-VIII-1984 (Men/36; RMNH 55876/11; 9191/4 [alc.], genital slides 939, 940; Sch/10); type

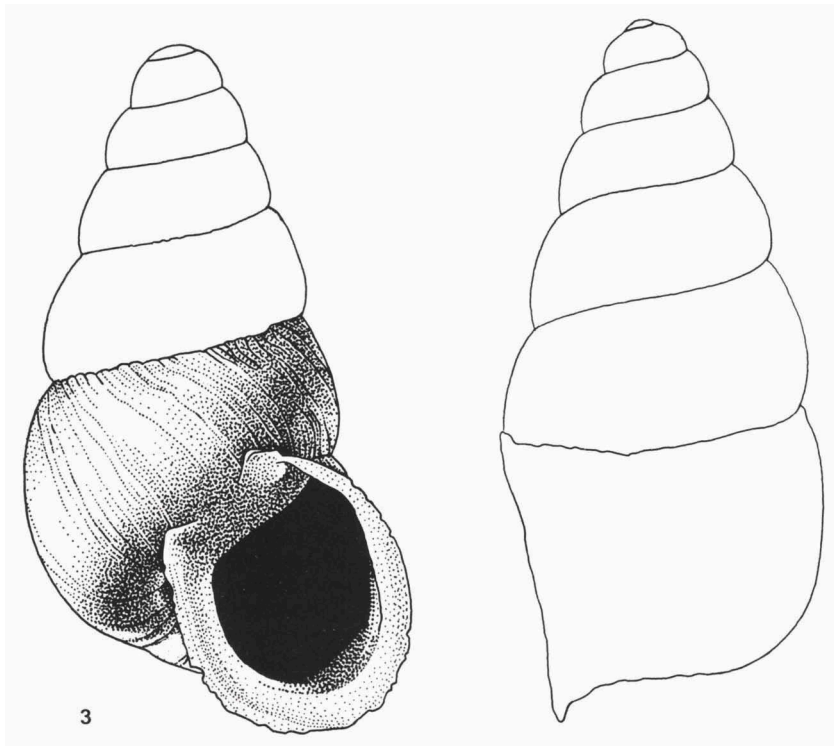


Fig. 3. *Turanena tuccari* spec. nov., holotype (RMNH 55877), actual height 8.4 mm. I. den Boer-van Noortwijk & F. Driessen del.

locality (RMNH 55878/24); 7 km N. of Beşkonak, in rock crevices, UG42, H.P.M.G. Menkhorst leg. 2-VIII-1984 (Men/25; RMNH 55879/4); 13 km S. of Beşkonak, on conglomerate rocks, UG40, H.P.M.G. Menkhorst leg. 2-VIII-1984 (Men/50; RMNH 55880/7).

Diagnosis. — A *Turanena* species, characterized by a conical shell with a broadly reflexed apertural lip; the shell is less than 11.5 mm high. The epiphallus has an obsolete, blunt flagellum and a small caecum; instead of a penial papilla there are two ridges, which do not fuse, in the lumen of the male part of the genitalia, distad of the insertion of the penial retractor muscle.

Description. — The shell is conical and slightly less than twice as high as broad. It has 6-7 whorls, separated by indented sutures; the initial whorls are convex, whereas the following ones, sculptured with rather coarse, irregular growth-lines, become more or less clearly flattened. The apical whorls are corneous; on the penultimate and on the body-whorl a pale bluish grey (as in the

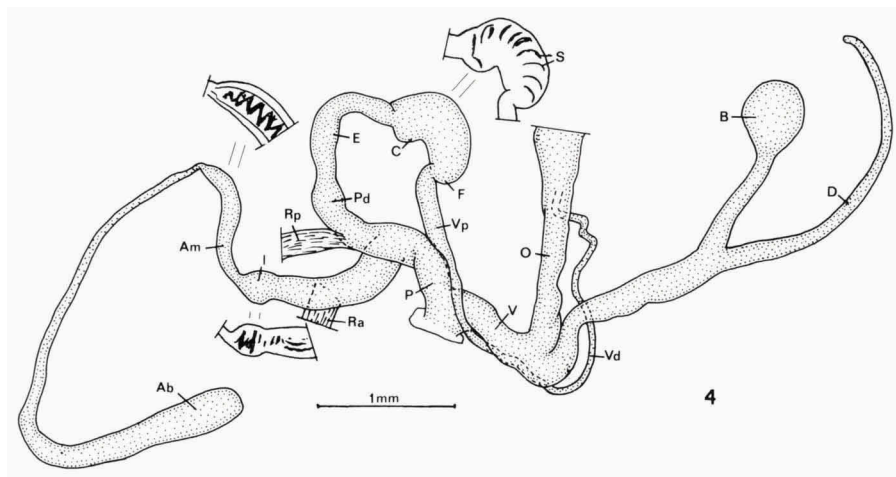


Fig. 4. *Turanena tuccari* spec. nov., paratype (RMNH genital slide 938); with details concerning the inner structure of the distal part of the epiphallus, the distal end of the middle segment of the penial appendix ($\times 2$) and the transition of the proximal to the middle segment of the penial appendix. Abbreviations (also used in figs. 5 and 6): A, penial appendix; Ab, bursa of the penial appendix; Am, middle segment of the penial appendix (with a zigzag-structure in the lumen); At, genital atrium; B, bursa of the bursa copulatrix; C, caecum on the distal part of the epiphallus; D, diverticulum of the bursa copulatrix; Dh, hermaphroditic duct; Di, diaphragma; E, epiphallus; F, flagellum of the distal part of the epiphallus; G, groove in the prostata, indicating the position of the diverticulum of the bursa copulatrix in situ; Ga, albumen gland; I, inflated transitional segment (with a papilla in the lumen) between the proximal and the middle segment of the penial appendix; O, oviduct; P, penis; Pd, (inflated) most distal segment of the penis, with two prominent ridges in the lumen (see fig. 5); Pr, prostata; Ra, retractor muscle of the penial appendix, inserting in about the middle of the proximal segment of the appendix; Rp, penial retractor muscle; S, septa in the distal part of the epiphallus; V, vagina; Vd, vas deferens; Vp, thickened proximal part of the vas deferens (with some muscle fibres at the distal end).

common NW. Mediterranean *Solatopupa similis* (Bruguière, 1792)) is the prevailing colour. The apertural lip is whitish, whereas the aperture is corneous inside. There is a broadly reflexed and flattened apertural lip. At the parietal side the apertural lip is interrupted; a parietal callus is very thin or lacking. Apart from an inconspicuous angular denticle there are no teeth or lamellae in the aperture. There is an open, but very narrow umbilicus.

Height 7.9-11.3 mm; width 4.3-6.2 mm.

The genitalia of *T. tuccari* show the pattern described for *Turanena* species by Schnell (1979: 105, figs. 2, 3) and Schileyko (1984: 277-287, figs. 188, 191, 193, 195, 197, 199, 201, 203). Four specimens have been dissected (see Material: genital slides 937-940). There is a complicated penial appendix, with its own retractor muscle. Distad of the insertion of the penial retractor muscle there is a slight swelling in the male genital tract (not always clearly visible); inside this swelling, in the lumen, there are two prominent, unfused ridges (fig. 5). The epiphallus is characterized by an obsolete, blunt flagellum and a small caecum. The proximal part of the vas deferens is about as thick as the proximal part of the epiphallus. The bursa copulatrix has a relatively long diverticulum, which is gradually and very slowly tapering towards the end. See also figs. 4-6.

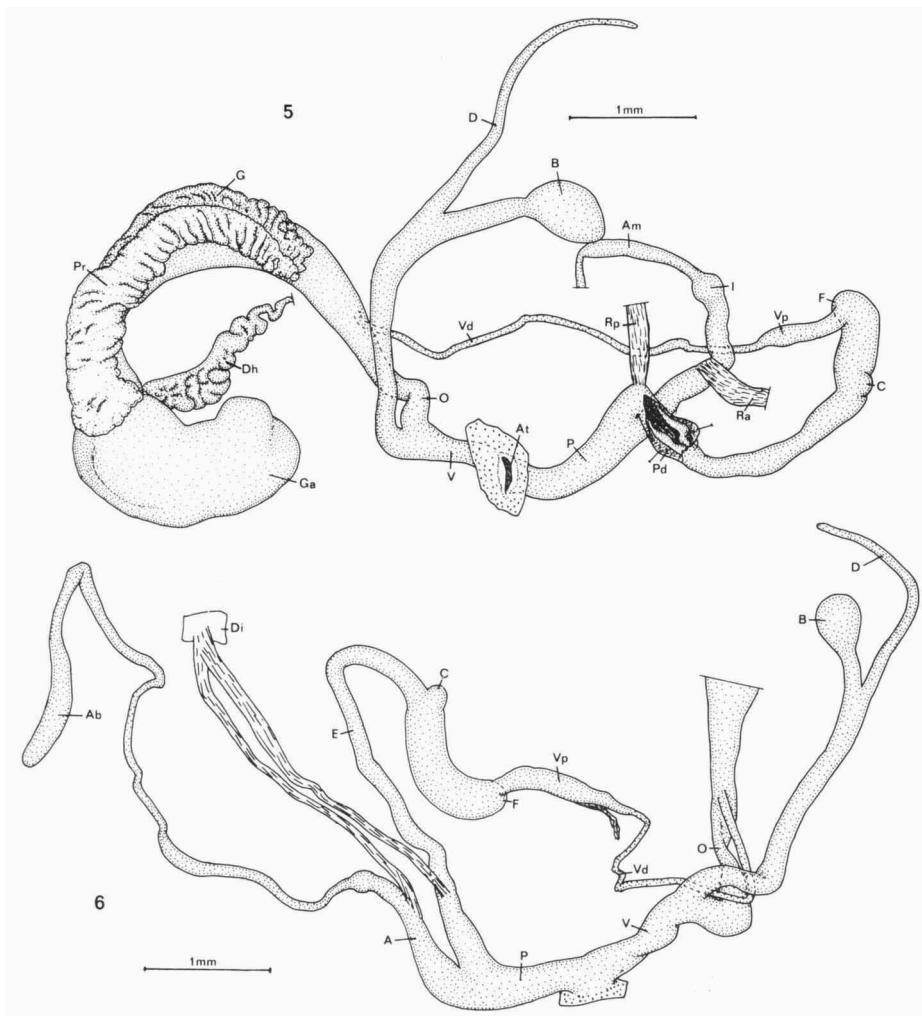
In two specimens from Aspendos the radula and the mandibula have been studied. There is a "rock-scraping radula" (Breure & Gittenberger, 1982), characteristic for species feeding on rock-faces. In a transverse row, next to the unicuspid, symmetrical, central tooth, there are seven or eight unicuspid lateral teeth, which are asymmetrical because their basal plate has a supporting ridge at one side only. From about the eighth tooth on a second cusp becomes discernible at one side of the main cusp; this side cusp strongly increases in prominence towards the margin of the radula. In the two radulae studied 24 and 29 teeth, respectively, have been counted next to the central tooth in a half transverse row; only the most marginal four to six teeth have an irregularly split side-cusp.

The mandibula is provided with several obsolete, rather narrowly spaced, transverse lines.

Differentiation. — *T. tuccari* is most similar conchologically to *T. albolimbata* (Lindholm, 1927), *T. meshkovi* Schileyko, 1984, *T. tenuispira* Schileyko, 1984, and *T. stschukini* (Lindholm, 1927). These four species, described and illustrated by Schileyko (1984), are known from Kirgiziya, U.S.S.R. Their shells have a broadly reflexed apertural lip, as in *T. tuccari*. Only in *T. albolimbata* the shells are about equal in size to those of *T. tuccari*; in the other three species the shells are clearly larger. *T. albolimbata*, *T. meshkovi*, and *T. tenuispira* differ anatomically from *T. tuccari* by a relatively longer

and less blunt flagellum of the epiphallus and by the presence of several irregular ridges, or two proximally fused ridges, inside the lumen distad of the insertion of the penial retractor muscle.

T. forcartiana Schnell, 1979, the geographically nearest *Turanena* species, and the only member of the genus described from Turkey up till now, differs from *T. tuccari* by its smaller shell (height 6 mm or less), which is not provided with a broad apertural lip. Its flagellum is blunt, but longer than in *T. tuccari*



Figs. 5, 6. *Turanena tuccari* spec. nov., paratypes (RMNH genital slides 937, 939); see legends to fig. 4.

(see Schnell, 1979: 105, figs. 2, 3). *T. forcartiana* is more similar to *T. scalaris* (Nägele, 1902) from southern Armenia and Iranian Azerbaijan, which also lacks the broadly reflexed apertural lip of the shell.

Distribution (fig. 2). — *T. tuccari* is known from several localities in the province of Antalya, Turkey. Obviously the species prefers a rocky habitat. The species has been found up to 1100 m altitude in the mountains. It is surprising that *T. tuccari* has not been described before, because it appears to be quite common at several places near Antalya.

T. tuccari is the westernmost species known in the genus *Turanena*, which is disjunctly distributed in mountainous parts of Turkey, Armenia, N. Iran, Uzbekistan, Kirgiziya and China (at least in the eastern part of the Tien Shan).

Notes. — The type species of *Turanena*, i.e. *T. herzi* (O. Boettger, 1889) from Shahrud in N. Iran, is still unknown anatomically. Therefore, the interpretation of this nominal taxon remains somewhat doubtful, as has been emphasized by Schnell (1979: 103).

Four shells collected by H. Schütt at the mountain Catma Dağ, SE. of Antalya (UTM TF87), differ from *T. tuccari* by their more slender shape (height 9.1-9.9 mm; width 3.7-4.0 mm), less clearly indented sutures and a narrower apertural lip. These shells might represent more than only a local form of *T. tuccari*. They are not considered paratypes.

Derivatio nominis. — *T. tuccari* is named in honour of Dr. D. Koopman. The Dutch "koopman" (= merchant) has to be translated as "tuccar" in Turkish, hence *tuccari*.

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