

Two new species of the genus *Gunarus* Des Gozis, 1886 (Coleoptera: Tenebrionidae: Helopini) from Southern Turkey

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Abstract

Three species of the genus *Gunarus* (Coleoptera: Tenebrionidae: Helopini) are known from Turkey: *G. lapidicola* (Küster, 1850), *G. gayirbegi* sp. n. and *G. korkutelensis* sp. n. The species *G. nodicornis* Reitter, 1922 was described from Algeria (Takhat) and erroneously recorded from Turkey (Tokat). A key to the species of *Gunarus* of Turkey is provided.

Key words: Coleoptera, Tenebrionidae, *Gunarus*, new species, Southern Turkey

Introduction

Representatives of the genus *Gunarus* Des Gozis, 1886 are known from Northern Africa, Spain, Italy, Malta, the Aegean Islands, the Balkan Peninsula and Turkey. Only one species of this genus, *G. lapidicola* (Küster, 1850), was recorded in Turkey (European Turkey, Thracia). Gebien (1943) as well as Español & Comas (1987) erroneously mentioned *G. nodicornis* Reitter, 1922 from the city of Tokat in Turkey. However, this species was originally described from specimens with a similar locality name: the mountain Takhat in Algeria (Reitter, 1922). The mistake of these authors was repeated recently (Nabozhenko & Löbl, 2008). In this paper two new species of *Gunarus* from southern Turkey are described.

Many species from genera *Catomus* Allard, 1876 and *Ectromopsis* Antoine, 1949 have been included in the genus *Gunarus* by several authors (Reitter, 1922; Medvedev, 1965; Angelov & Medvedev, 1981; Español & Comas, 1987; Abdurakhmanov & Medvedev, 1994). Español and Comas (1987) reviewed the genus *Gunarus* of southern Europe and partially of Northern Africa and provided a short diagnosis of the genus, new descriptions and key to species in which they overlooked the description of one more species from the Aegean Island Santorin (Grimm 1981). More recently, some species were transferred to the genus *Ectromopsis* of the subtribe *Cylindrinotina* (Nabozhenko, 2005).

The genus *Gunarus* is closely related to the genus *Catomus* from which it differs in the vertical basal margin of elytra, fully developed humeral angles and fully developed dorsal margin of the epipleura (lateral margin of elytra). The vertical basal margin of the elytra and humeral angles allow movement of the pronotum only in a dorso-ventral direction, whereas the pronotum of *Catomus* can move in lateral and dorso-ventral directions; this allows for more efficient movement in cavities of soil, tunnels of other invertebrates (Formicidae, Annelidae etc.), or free movements on branches of small shrubs and grassy vegetation. Contrary to the majority of *Catomus*, many representatives of the genus *Gunarus* live on trees, on which they feed on lichens at night.

Material

This study is based on material collected by the authors and on material from the collection of Staatliches Museum für Naturkunde Stuttgart (SMNS, Stuttgart, Germany).

Description of new species

Gunarus gayirbegi Nabozhenko & Keskin, sp. n.

(Fig. 1a, c, e, f, h. Fig. 2a, b. Fig. 3)

Male. Body strongly shining, brown, legs pale brownish, antennae reddish-brown. Head widest at the level of eyes. Eyes large, convex. Ratio of head width at eyes to distance between eyes – 1.5. Anterior edge of clypeus straight. Genae strongly angulate. Outer margin of head at junction of gena and clypeus with obtuse emargination, rarely without emargination. Head with deep transverse depression between frons and clypeus. Genae raised in comparison with other surface of head in lateral view. Head glabrous dorsally except for short recumbent light setae near anterior margin of eyes. Punctuation of head coarse and dense. Clypeus, genae and anterior part of frons with deep round punctures. Middle part of frons and on occiput with longitudinally elongate punctures. Punctures near eyes merged in long and coarse rugae. Head ventrally covered with yellow recumbent setae. Antennae long, five apical segments extending beyond base of pronotum. Ratio of length/width of 2–11 antennal segments: 0.5/0.7; 2.2/0.7; 1.4/0.6; 1.5/0.6; 1.7/0.7; 1.7/0.7; 2.1/0.7; 2/0.8; 1.8/0.8; 2.5/0.8. 3rd, 8–11th antennal segments visibly longer than other segments. 11th antennal segment strongly elongated (3.1 times as long as wide), arcuate, banana-shaped, 1.4 times as long as 10th.

Pronotum cordate, weakly transverse (1.1 times as wide as long), widest before middle, 1.24 times as wide as head. Lateral sides of pronotum moderately rounded. Base of pronotum rounded, anterior margin weakly rounded. All sides of pronotum margined. Margination of lateral sides very deep. Anterior angles obtuse, widely rounded on apex; basal angles obtuse, narrowly rounded at apex. Punctuation of pronotum moderately coarse and dense, punctures longitudinally elongate. Punctuation sparser in middle (puncture diameter subequal to distance between punctures). Diameter of punctures on sides of pronotum 1.5 times as long as distance between them. Disc regularly convex, only near lateral sides with deep depression on middle. Propleura near outer and inner margins smooth, with sparse puncturation. Surface of propleura covered with very narrow and short recumbent setae. In some specimens, propleura fully covered with narrow distinct confused rugae, only near outer margins smooth and with punctures. Prosternal process densely pubescent, not projected (in lateral view).

Elytra convex, elongate, oval (length 1.65–1.7 times as wide as long), widest in the middle, 1.7 times as wide as head, 1.35 times as wide and 2.5 times as long as pronotum. Vertical basal margin of elytral base well defined. Humeral angles projected as rounded dents. Intervals convex, 5th interval with small, sometimes indistinct granules. Puncturation of intervals sparse and fine. Strial punctures merged in entire deep rows.

Body ventrally completely pubescent. Abdominal sternites with regular coarse, sparse punctation. 5th abdominal sternite margined at the apex, pubescent (besides ordinary recumbent setae) with long erected goldish setae.

Tibiae straight. Outer apex of each tibia laterally projected. Anterior tarsi slightly widened, 2nd and 3rd tarsomeres weakly transverse (2nd tarsomere 1.25 times as wide as long, 3rd tarsomere 1.1 times as wide as long). Ventral surface of tarsi with very dense brush of setae.

Parameres spear-shaped, apex of penis acute, sclerites of penis not arcuate on apex. Blade of gastral spicula with obtuse angle at base of outer margin. Branches of gastral spicula formed trunk and merged only on the apex.

Female. Body robust, antennae shorter, only their three apical segments extending beyond base of pronotum. Pronotum more transverse (1.25 times as wide as long). Intervals of elytra not convex. Fore tarsi not widened.

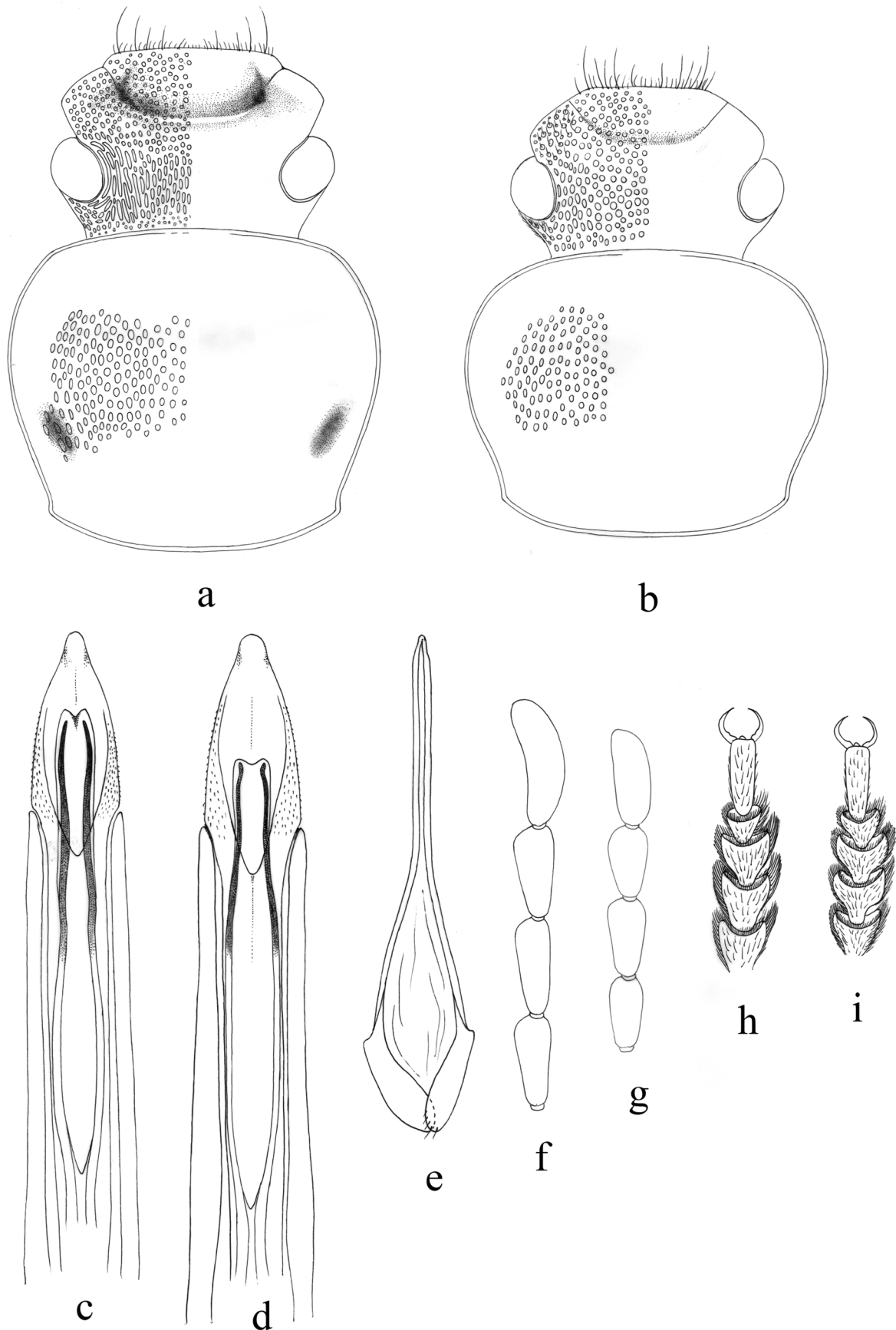


FIGURE 1. A–B) Head and pronotum. C–D) Genitalia. E) Gastral spicula. F–G) Antenna. H–I) Fore tarsus. A), C), E), F), H) *G. gayirbegi* sp. n. B), D), G), I) *G. korkutelensis* sp. n.

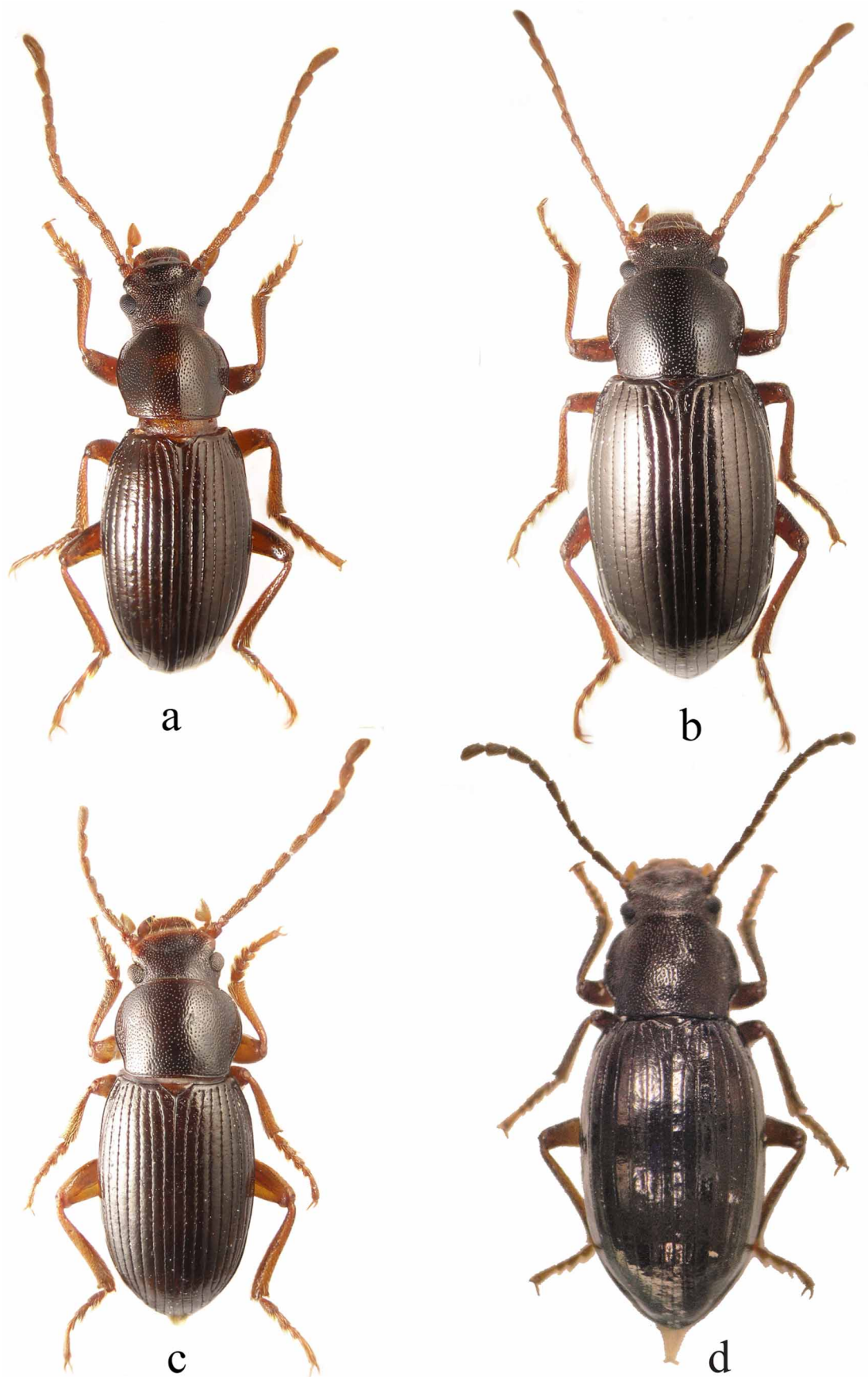


FIGURE 2. A) *G. gayirbegi* sp. n., male. B) *G. gayirbegi* sp. n., female. C) *G. korkutelensis* sp. n., male, D) *G. korkutelensis* sp. n., female,

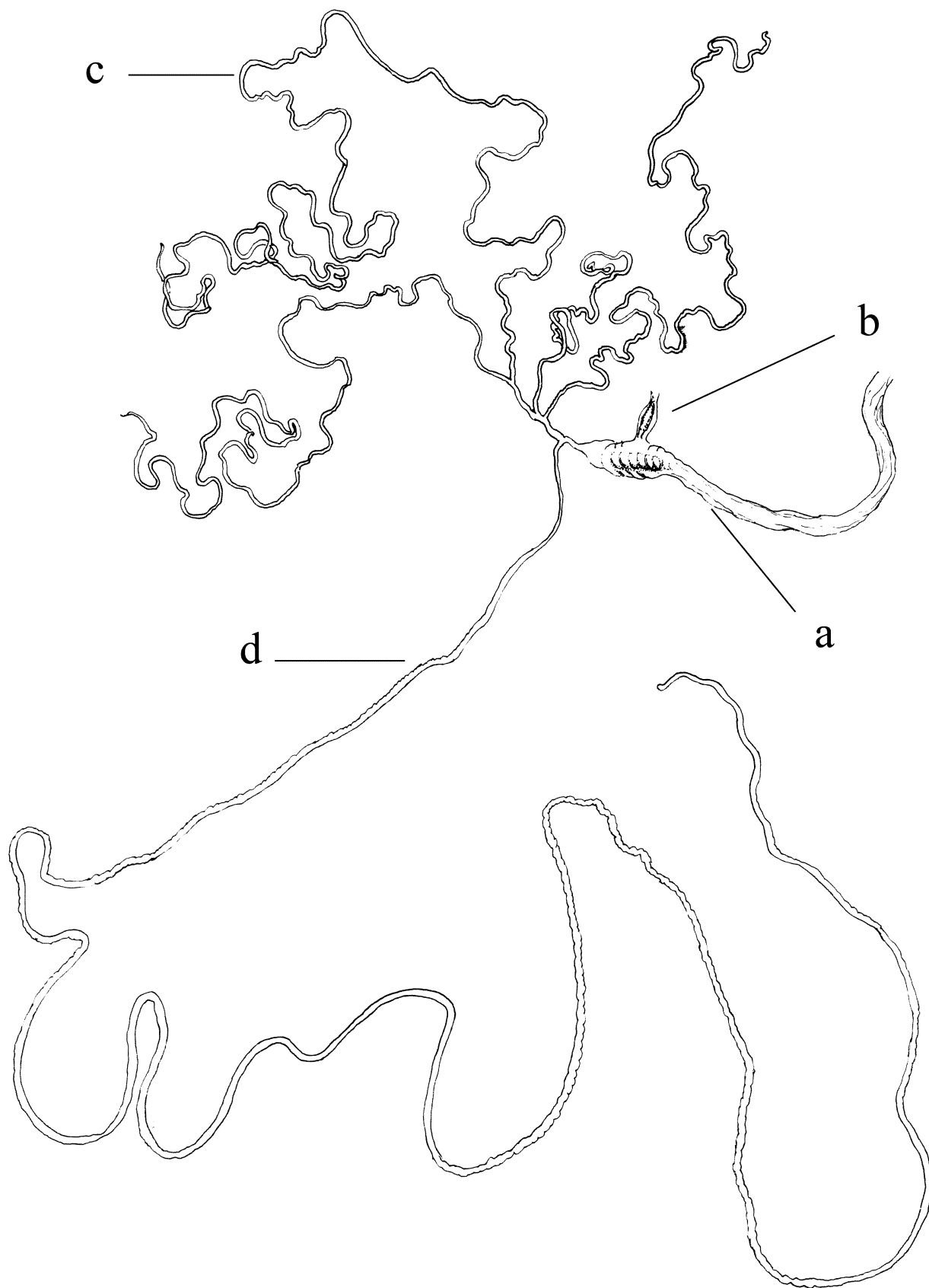


FIGURE 3. *Gunarus gayirbegi* sp. n., sexual ducts of female. A) Vagina. B) Oviduct. C) Spermatheca. D) Gland of spermatheca.

Sexual ducts of female. Vagina with sclerotized structures, oviduct with sclerites, spermatheca with 4 long ducts, gland long (Fig. 3)

Length of body (males and females) 6–9.5 mm, width 2–3 mm.

Type material. Holotype, male: Turkey, Prov. Antalya, Akdag ridge, pass between Seki and Elmali, 1700 m, 16–17.04.2008 (leg. M.V. Nabozhenko) [Zoological Institute, Russian Academy of Sciences, St.-Petersburg, Russia]; paratypes (8 males, 4 females), same, 2 paratypes (male and female) in collection of Ege University (Izmir-Bornova, Turkey), 1 paratype (male) in collection of M.V. Nabozhenko; 1 paratype, male [SMN], with labels: “Tr., Lyk. Taurus, Elmali, Kohu dag, 27–29.4.1990 (leg. Kuft + Szallies)”, “Kein *Catomus/Gunarus*, det. Schawaller” ; 2 paratypes, males: Turkey, prov. Antalya, Çaltılar, N37°54'309", E29°42'054", 1340 m, 9.05.2009 (leg. S.V. & M.V. Nabozhenko, B. Keskin) [in collection of Ege University]; 1 paratype, male: Antalya, Kas, Gömbe, Sinekibeli, 36°27'N, 29°39'E, 1435m, 23.04.2001 (leg. Hasbenli), [Zoological Museum of Gazi University].

Etymology. The species is named in honour of the outstanding Caucasian entomologist, Prof. Gayirbeg Magomedovich Abdurakhmanov (Institute of applied ecology, Makhachkala, Dagestan, Russia).

Bionomics. The new species was found on red juniper (*Juniperus oxycedrus*), active at night between 21:00 and 23:00, creeping on the base of trunks and crawling higher later. The beetles feed on lichens. In the afternoon the beetles were hiding in deep cracks of trunks or at the base of trees or in needle litter.

Differential diagnosis. This species is closely related to *G. korkutelensis* sp. n. (differences are in the key), and differs from *G. lapidicola* on the basis of cordiform, less transverse pronotum, densely pubescent ventral side of the body and completely margined anal sternite.

***Gunarus korkutelensis* Nabozhenko & Keskin, sp. n.**

(Fig. 1b, d, g, i. Fig. 2c)

Male. Body strongly shining, black, legs and antennae red-brown. Head widest at eyes level. Eyes widely placed, strongly convex. Ratio of head width at eyes to distance between eyes – 1.5. Outer margin of genae not angulate. Outer margin of head at junction of gena and clypeus straight, without emargination. Genae not raised, relative to other surface of head (lateral view). Head with shallow transverse depression between frons and clypeus. Punctuation of head not coarse, moderately dense (diameter of punctures subequal to distance between them); punctures rounded, only near eyes longitudinally elongated, but not merged into long distinct rugae. Antennae long, their four apical segments extending beyond base of pronotum. Ratio of length/width of 2–11 antennal segments: 0.5/0.5; 1.6/0.6; 1.1/0.6; 1.1/0.6; 1.2/0.6; 1.2/0.6; 1.5/0.6; 1.5/0.6; 1.4/0.7; 1.8/0.7. 11th antennal segment elongated (2.57 times as long as wide), weakly arcuated, banana-shaped, 1.3 times as long as 10th.

Pronotum cordiform, transverse (1.2 times as wide as long), 1.3 times as wide as head, widest before the middle. Lateral sides of pronotum distinctly rounded, emarginate near base. Punctuation of pronotum moderately coarse and moderately dense, punctures rounded, only on sides of disc weakly elongate.

Elytra elongate, oval (1.6 times as long as wide), 1.6 times as wide as head, 1.2 times as wide and 2.4 times as long as pronotum. Intervals weakly convex, 5th interval without granules.

Abdominal sternites covered with recumbent light setae. 5th abdominal ventrite margined at the apex. Tibiae straight, strongly recumbent. 2–3 tarsomeres of fore tarsi widened, 1.3 times as wide as long.

Parameres spear-shaped, elongated. Sclerites of penis arcuate apically.

Length of body 6,5 mm.

Female. Body robust, antennae shorter, only their three apical segments extending beyond base of pronotum. Pronotum more transverse.

Type material. Holotype (male) [Zoological Institute, St.-Petersburg, Russia]: Turkey, prov. Antalya, 10 km S Korkuteli, N36°58'707", E30°09'691", 1111 m, 10.05.2009 (leg. M.V. & S.V. Nabozhenko, B. Keskin);

18 paratypes (11 males and 7 females) with same labels, 4 males and 3 females in ZIN, 7 males and 4 females in Ege University. 1 paratype, male: “TR: Prov.: Antalya, Umg. Korkuteli, ca. 1000 m, 4. Mai 1992 leg. U. Heinig” and “*Gunarus* sp.? det. Schawaller 1999” [SMNS].

Etymology. Named after the type locality of Korkuteli.

Bionomics. This species inhabits xerophilous forests of *Quercus coccifera* which is widespread on the plains and hills near Korkuteli.

Diagnosis. This species is closely related to *G. gayirbegi* **sp. n.** Differences are given in the key.

Notes. The new species is distributed in the same range (Akdag mountain) as *G. gayirbegi* **sp. n.**, however both species are isolated from each other by extensive mountain deserts without woody vegetation (between northern and southern Akdag).

Key to the species of *Gunarus* of Turkey

1. Anterior margin of pronotum bisinuate, with distinct anterior angles. Pronotum with strong, coarse and dense puncturation of strongly elongated punctures. Abdominal sternites not pubescent, anal sternite not margined at apex *G. lapidicola*
- Anterior margin of pronotum rounded, anterior angles not distinct, very rounded. Pronotum with moderately coarse and dense puncturation, with weakly elongated punctures. Abdominal sternites pubescent, anal sternite completely margined at apex 2
2. Outer margin of head at junction of gena and clypeus with emargination. Genae raised in comparison with other surface of head in lateral view. Outer margin of genae angle-shaped. Transverse depression between frons and clypeus very deep. Head with strongly elongated, merged punctures (fig. 1a). 11th segment of antennae strongly elongated, bent, banana-shaped (fig. 1f). Pronotum less transverse (1.1 times as wide as long)..... *G. gayirbegi*
- Outer margin of head at junction of gena and clypeus straight, without emargination. Genae not raised in comparison with other surface of head in lateral view. Outer margin of genae not angle-shaped, rounded. Transverse depression between frons and clypeus shallow. Puncturation of head not coarse, moderately dense, punctures rounded (fig. 1b). 11th segment of antennae weakly elongated, weakly arcuate, not banana-shaped (fig. 1g). Pronotum more transverse (1.2 times as wide as long)..... *G. korkutelensis*

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