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Alpiscorpius tropeai sp.n. from the Gümüşhane and Tokat Provinces, Turkey (Scorpiones: Euscorpiidae)

Alpiscorpius tropeai sp.n. из провинций Гюмюшхане и Токат, Турция (Scorpiones: Euscorpiidae)

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КЛЮЧЕВЫЕ СЛОВА: скорпионы, Euscorpiidae, *Alpiscorpius*, новый вид, Турция.

ABSTRACT. A new scorpion species, *Alpiscorpius tropeai* sp.n., is described from Gümüşhane and Tokat Provinces in northern Turkey. The species is classified within the genus *Alpiscorpius* Gantenbein *et al.*, 1999 based on the presence of three trichobothria in the *em* series on the external surface of the pedipalp patella and is characterized by a low trichobothrial count (*Pv* = 5 and *et* = 4). With this addition, the number of known species in the family Euscorpiidae increased to 25, while in the genus *Alpiscorpius* to nine species now in Turkey.

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РЕЗЮМЕ. Дано описание нового вида скорпионов, *Alpiscorpius tropeai* sp.n., из провинций Гюмюшхане и Токат в северной Турции. Вид отнесен к роду *Alpiscorpius* Gantenbein *et al.*, 1999 на основании наличия трех трихоботрий серии em на наружной поверхности колена педипальпы и характеризуется малым количеством трихоботрий (*Pv* = 5 и *et* = 4). С учтом этого вида, общее число известных в Турции представителей семейства Euscorpiidae достигает 25, а рода *Alpiscorpius* — девяти.

Introduction

The genus *Alpiscorpius*, initially described as a subgenus of *Euscorpius* by Gantenbein *et al.* [1999], is widely distributed across southern Europe, the Balkans, and Anatolia, inhabiting elevations from sea level to over 2,600 m a.s.l. [Tropea *et al.*, 2015]. It is characterized by the presence of three *em* trichobothria on the external surface of the pedipalp patella. Kovařík *et al.* [2019] reviewed the Alpine populations of *Alpiscorpius*, described seven new cryptic species, and elevated the subgenus to genus status. Currently, 25 species of *Alpiscorpius* are known from the Alps, the Balkans, and Turkey [Kovařík *et al.*, 2019; Podnar *et al.*, 2022; Tropea, 2021; Tropea *et al.*, 2024; Yağmur, 2024b, 2025; Yağmur, Sipahioğlu, 2025].

In Turkey, 24 species of the family Euscorpiidae have been recorded [Birula, 1898, 1917; Bonacina, 1980; Fet, 1989; Lacroix, 1995; Tropea, Yağmur, 2015, 2016a, b; Tropea *et al.*, 2012, 2014, 2015, 2016a, b, 2017, 2024; Yağmur, 2021, 2024a, b, 2025; Yağmur *et al*., 2013; Yağmur, Tropea, 2013, 2015, 2017]. Among these species, *E. mingrelicus*, *E. phrygius*, and *E. uludagensis* were transferred to *Alpiscorpius* by Kovařík *et al.* [2019]. Additionally, *A. istanbulensis, A. orgeli* and *A. victori* were recently described from Turkey [Tropea *et al.*, 2024; Yağmur, 2024, 2025] and *E. idaeus* was transferred to *Alpiscorpius* by Yağmur & Sipahioğlu [2025]. *Euscorpius arikani* Yağmur et Tropea, 2015, *E. ciliciensis* Birula, 1898, *E. eskisehirensis* Tropea et Yağmur, 2015, *E. hakani* Tropea et Yağmur, 2016, *E. honazicus* Tropea *et al.*, 2016, and *E. sultanensis* Tropea et Yağmur, 2015 have three trichobothria in the *em* series and may be considered related to *Alpiscorpius*. Thus, they need to be reviewed at the genus level. Fet *et al.* [2016] analysed some *Euscorpius* populations using the DNA barcoding method, which bear three *em* trichobothria and were traditionally referred to as the "*E. mingrelicus* complex." They reported the first discovery of a population with four *em* trichobothria. Later, this population was described as *E. aladaglarensis* by Tropea & Yağmur [2016b], which may be more closely related to *Alpiscorpius*.

The Eastern Black Sea Region of Turkey has two euscorpiid species: *Alpiscorpius mingrelicus* (Kessler, 1874) and *Euscorpius italicus* (Herbst, 1800). Both species are distributed in the northern regions of the Eastern Black Sea Mountains at low altitudes. However, no species belonging to the family Euscorpiidae have been recorded from Gümüşhane and Tokat provinces to date.

In this paper, I describe a new species of *Alpiscorpius*, based on morphological analysis, bringing the total number of species in the genus in Turkey to nine.

Material and methods

The specimens were collected from under stones in pine forests and bushy areas during the daytime, and from roadside

Table 1. *Alpiscorpius tropeai* sp.n., leg measurements.
Таблица 1. Промеры ног *Alpiscorpius tropeai* sp.n.

Dimensions (mm)		♂, holotype	♀, paratype
Carapace	L / W	3.14 / 3.14	3.64 / 3.85
Mesosoma	L	6.90	11.60
Tergite VII	L / W	1.26 / 2.49	2.00 / 3.52
Metasoma + telson	L	11.52	12.22
Segment I	L / W / D	1.05 / 1.24 / 1.14	1.21 / 1.38 / 1.12
Segment II	L / W / D	1.32 / 1.11 / 1.09	1.40 / 1.23 / 1.08
Segment III	L / W / D	1.33 / 1.07 / 1.04	1.55 / 1.17 / 1.08
Segment IV	L / W / D	1.64 / 1.00 / 0.98	1.89 / 1.05 / 1.04
Segment V	L / W / D	2.93 / 1.06 / 0.97	3.14 / 1.08 / 1.00
Telson	L / W / D	3.25 / 1.29 / 1.23	3.03 / 1.11 / 0.96
Vesicle	L	2.66	2.53
Aculeus	L	0.73	0.53
Pedipalp	L	10.29	12.76
Femur	L / W	2.30 / 0.98	3.03 / 1.14
Patella	L / W	2.65 / 1.12	3.08 / 1.31
Chela	L	5.34	6.65
Manus	L / W / D	2.47 / 1.94 / 1.14	3.47 / 2.27 / 1.55
Movable finger	L	3.18	3.44
Total	**L**	**18.56**	**27.46**

walls in mixed pine and fir forests at night using a UV lamp. The specimens were preserved in 96% alcohol. Photographs were taken with a Canon EOS 7D, and image stacking was performed using Helicon Focus software. The focus stacking method was modified from the Canon-Cognisys system, as recommended by Brecko *et al.* [2014]. The trichobothrial nomenclature follows Vachon [1974]. Morphological measurements are given in millimetres (mm), following Tropea *et al.* [2014]. Morphological nomenclature follows Stahnke [1971], Hjelle [1990], and Sissom [1990]; the chela carinae and dentition follow Soleglad & Sissom [2001]; sternum terminology follows Soleglad & Fet [2003]. Depositories: Holotypes and paratypes were deposited at the Zoology Museum of Alaşehir Vocational School, Manisa Celal Bayar University, Manisa, Turkey (AZMM).

Abbreviations: *D* — depth; *DD* — distal denticle; *D1* — digital carina; *Dp* — pectinal teeth number; *D4* — dorsal carina; *V1*— ventroexternal carina; *V3* — ventrointernal carina; *Pv* — trichobothria on the ventral aspect of pedipalp patella; *Pe* — trichobothria on the external surface of pedipalp patella; *et* — external terminal; *est* — external subterminal; *em* — external median; *esb* — external suprabasal; eb_a — external basal-*a*; *eb* — external basal; *L* — length; W — width; *MD* — median denticles; *OD* — outer denticles; *ID* — inner denticles; *IAD* — inner accessory denticles.

Taxonomy

Family Euscorpiidae Laurie, 1896
Subfamily Euscorpiinae Laurie, 1896
Genus *Alpiscorpius* Gantenbein, Fet, Largiadèr et Scholl, 1999

TYPE SPECIES: *Scorpius germanus* C.L. Koch, 1837.

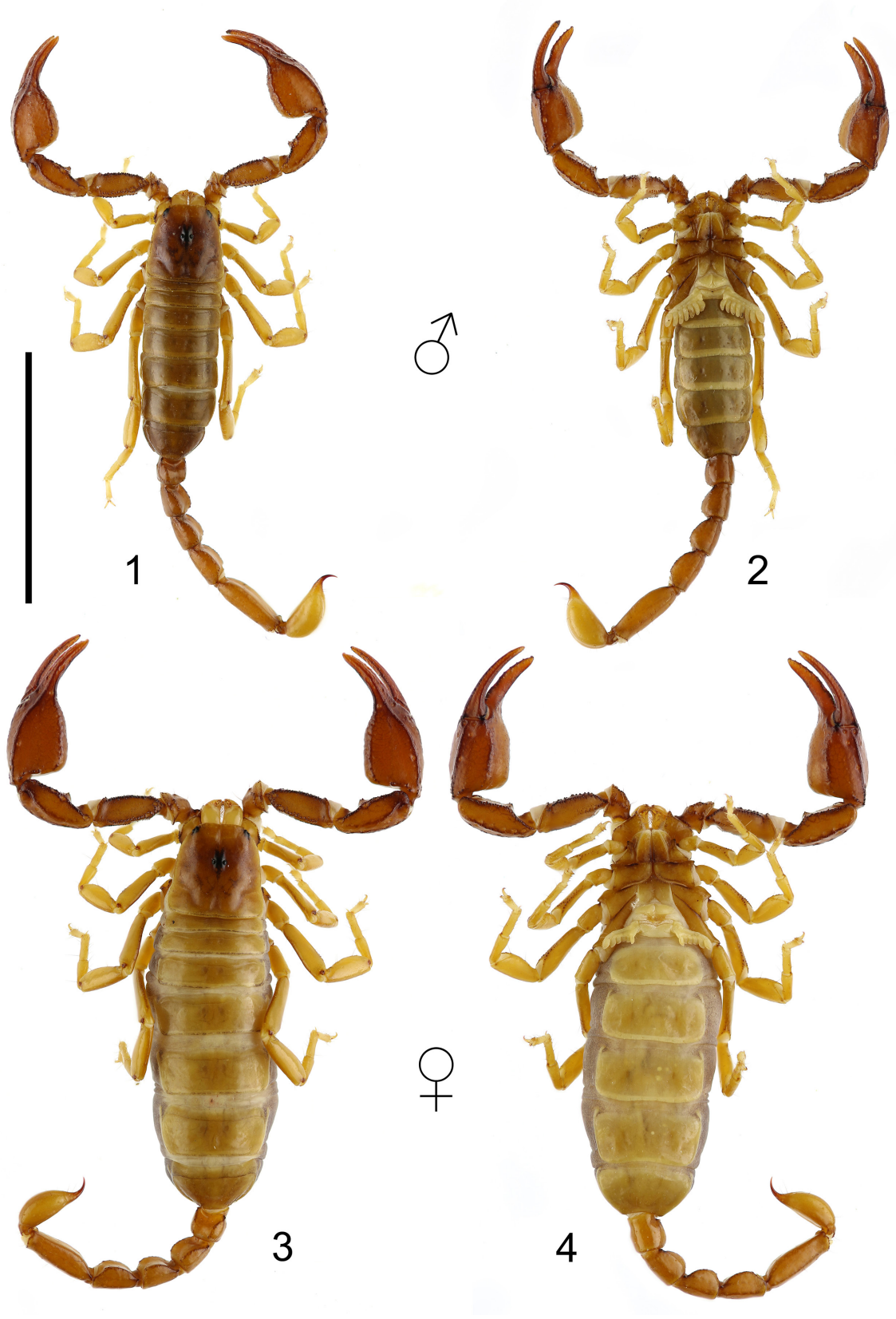
Alpiscorpius tropeai **sp.n.**
Figs 1–33, Table 1.

TYPES (18 specimens: 6 ♂♂, 9 ♀♀, 3 juvs). Holotype ♂ (AZMM/Sco-2022: 195), TURKEY, Gümüşhane Prov., Central Dist., Karamustafa Vill., 5 km South (40°18′27″N, 39°18′20″E), 1787 m a.s.l., 19.VII.2022, leg. E.A. Yağmur, K. Kurt, Ö. Sipahioğlu & İ. Kartal. Paratypes, TURKEY, Gümüşhane Prov., Central Dist., Karamustafa Vill., 5 km South (40°18′27″N, 39°18′20″E), 1787 m a.s.l., 19.VII.2022, 1 ♀, 1 juv., leg. E.A. Yağmur, K. Kurt, Ö. Sipahioğlu & İ. Kartal (AZMM/Sco-2022: 196–197); Torul Dist., Around Karaca Cave (40°33′04″N, 39°24′40″E), 1307 m a.s.l., 14.V.2011, 2 ♀♀, leg. S. Anlaş & İ. Özgen (AZMM/Sco-2011: 45–46); Torul Dist., Cebeli Vill., 1 km Southeast (40°33′03″N, 39°25′08″E), 1392 m a.s.l., 19.VII–1.XII.2022, 1 ♂, Pitfall traps, leg. E.A. Yağmur, K. Kurt, Ö. Sipahioğlu & İ. Kartal (AZMM/Sco-2022: 198); Torul Dist., Kocadal Vill., 1.5 km West (40°21′06″N, 39°12′32″E), 1621 m a.s.l., 11.IX.2007, 1 ♀ (AZMM/Sco-2007: 186). Tokat Prov., Almus Dist., Bağtaşı Vill., 4 km West (40°13′21″N, 37°19′01″E), 1795 m a.s.l., 15.IV.2018, 4 ♂♂, 2 ♀♀, 2 juvs, leg. E.A. Yağmur, S. Anlaş & S. Örgel (AZMM/Sco-2018: 208–215); Almus Dist., Budaklı Vill. (40°14′36″N, 37°15′34″E), 1371 m a.s.l., 21. VII.2022, 3 ♀♀, leg. E.A. Yağmur, Ö. Sipahioğlu & İ. Kartal (AZMM/Sco-2022: 199–201).

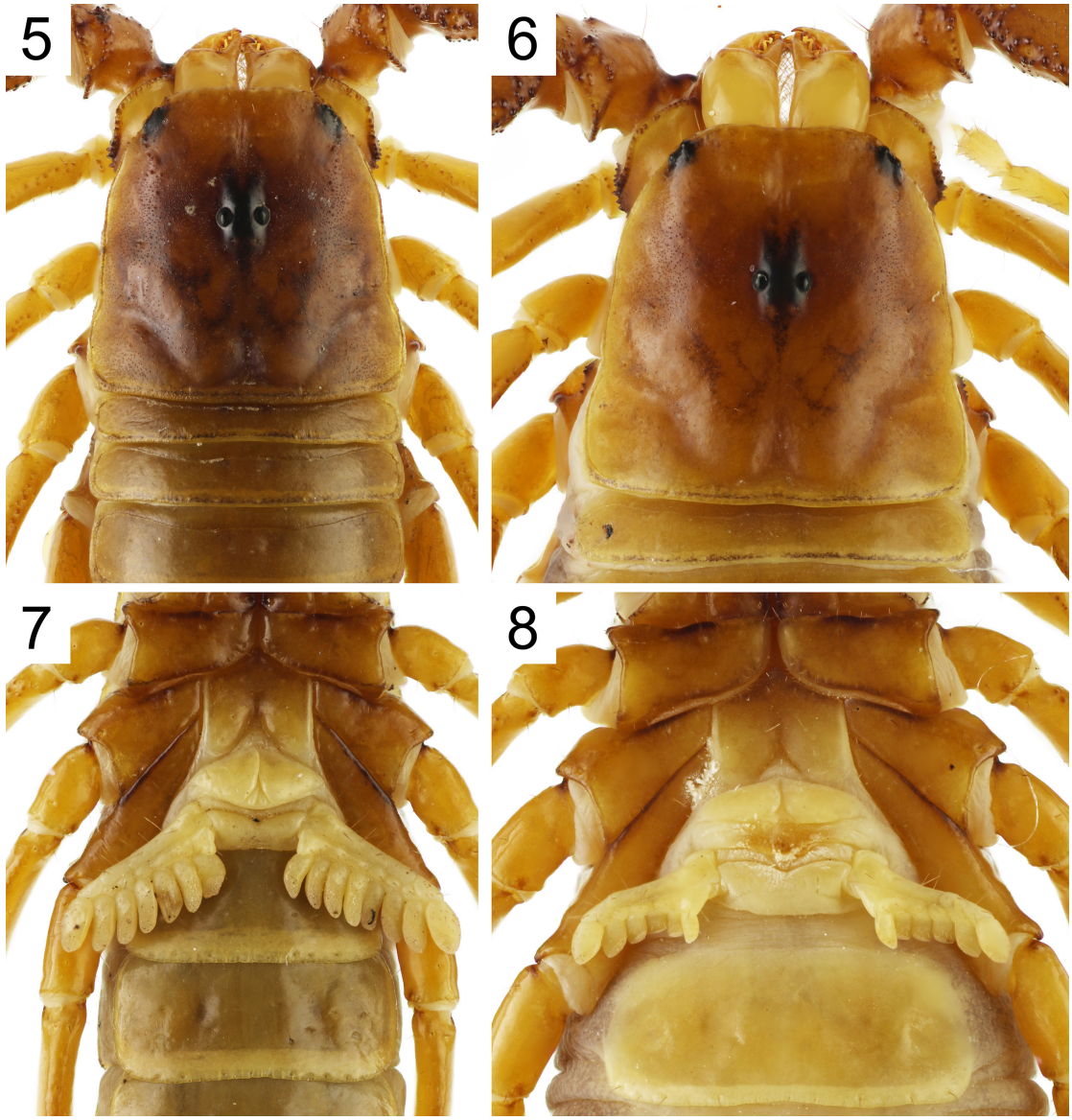
DISTRIBUTION. This new species only known from Gümüşhane and Tokat Provinces. The collection localities are located in the Eastern Black Sea Region of Turkey, in the southern foothills of the Eastern Black Sea Mountain Range (Fig. 34).

ETYMOLOGY. This specific epithet is dedicated to Gioele Tropea, an Italian arachnologist and friend of the author, for his significant contributions to the knowledge of the Euscorpiidae fauna in Turkey.

DIAGNOSIS. A small *Euscorpius* species, total length is 18.56–27.46. Colour of adults brownish red or yellowish red. The number of trichobothria on the pedipalp manus ventral surface 4 ($V_{1\text{-}3}$+Et_1). Trichobothrium *et* on fixed finger is located distally to the notch of the fixed finger; *est* is located



Figs 1–4. *Alpiscorpius tropeai* sp.n. 1, 2 — male holotype; 3, 4 — female paratype; 1, 3 — dorsal views; 2, 4 — ventral views. Scale bar: 10 mm.
Рис. 1–4. *Alpiscorpius tropeai* sp.n. 1, 2 — голотип самец; 3, 4 — паратип самка; 1, 3 — дорсально; 2, 4 — вентрально. Масштаб: 10 мм.



Figs 5–8. *Alpiscorpius tropeai* sp.n., 5, 7 — male holotype; 6, 8 — female paratype; 5, 6 — carapace; 7, 8 — sternopectinal area.
Рис. 5–8. *Alpiscorpius tropeai* sp.n., 5, 7 — голотип самец; 6, 8 — паратип самка; 5, 6 — карапакс; 7, 8 — стернопектинальная область.

above the notch at mid-point; and *dsb* is located proximally to *est* and the notch. The number of trichobothria on the pedipalp patella ventral surface is usually 5 (5 in 90.00%). The number of trichobothria on pedipalp patella external surface: *em* = 3 and *et* = 4 (4 in 100.00%). Trichobothrium *d* is barely proximal to *i,* while trichobothrium *e* is well distal to both *d* and *i*. The pectinal teeth number 7–8 (7 in 33.33% and 8 in 66.66%) in males, and in females 5–6, usually 6 (6 in 88.88%). Dorsal patellar spur bifurcated and well developed. Femur shorter than patella (*Lfem/Lpat* ratio on average is 0.86). Carapace long as its width or very slightly wider than long. Dorsal carinae moderate with several spaced indistinct granules on segments I–IV, smooth and rounded without granules on segment V. Ventrolateral carinae absent on segment I and II, obsolete, rounded without granules on segments III–V, indistinct and rounded with a few minute granules on segment V. Ventromedian carinae absent on segment I–IV, obsolete and indistinct without granules on segment V.

DESCRIPTION. Based on male holotype and female paratypes. Measurements are in Table 1.

Coloration (Figs 1–4). Carapace brownish red with reddish black reticulations and brownish red marblings, anterior area reddish yellow and lateral margins dark yellow to reddish yellow in male, yellowish red with slight brownish reticulations, lateral areas yellow to reddish yellow in females; between median eyes and around lateral eyes black. Chelicerae lustrous dark yellow, teeth yellowish red. Coxae brownish red. Sternum light brownish red anteriorly, reddish yellow posteriorly. Genital operculum and pectins yellow. Femur, patella and chela dark yellowish red, carinae and granules brownish red or reddish black, condyles and dental margins on fingers reddish black. Legs dark yellow. Mesosoma yellowish red in male, reddish yellow in females. Sternites III–VI brilliant reddish yellow in male, posterior of sternites with light yellow bands, brilliant dark yellow in females; sternite VII brownish red in male, reddish yellow in females. Metasoma yellowish red, telson and dark yellow.

Morphology. Prosoma (Figs 5–8). Carapace finely granular, the anterior area between anterior margin and median eyes smooth. Anterior margin straight and slightly crenulate. Several

minute granules exist at anterior lateral area of carapace, behind of lateral eyes. Posterior lateral, posterior median, and anterior median furrows present but shallow. Two pairs of lateral eyes, and a pair of median eyes present, median eyes situated distally of the middle; distance from centre of median eyes to anterior margin is 41.08% of carapace length in male and 40.65% in female. Sternum: Pentagonal in shape, type 2; slightly wider than long, with a deep posterior emargination. Genital operculum: The genital operculum is formed by two longitudinally separated subtriangular sclerites; genital papillae distinct and distally protruding; a few microsetae are present. Pectines short: Teeth number 7/8 in male, 5/6 in females; middle lamellae number 4/4; several microsetae exist on proximal area of teeth, marginal lamellae, middle lamellae and fulcra. Genital operculum: The genital operculum is formed by two longitudinally separated subtriangular sclerites; genital papillae distinct and distally protruding; a few microsetae are present. Chelicerae. Typical of the genus *Alpiscorpius.*

Pedipalp (Figs 9–24). Coxa and trochanter with tuberculated carinae, granules indistinct and rounded in coxa, distinct and rounded in trochanter. Femur: Dorsal internal and ventral internal carinae strong with coarse and conical granules. Dorsal external carinae strong with coarse rounded granules. Ventral external carinae rounded with irregular moderate granules at proximal portion of femur. External median carinae formed by spaced and spinoid granules. Interior median carinae with irregular coarse, conical, pointed and spaced tubercles. Intercarinal area granulated with varied sized granules on dorsal surface and finely granular with several moderate granules in ventral surface. Patella: Dorsal internal and ventral internal carinae strong with coarse and rounded granules, the granules in proximal portion fused in dorsal internal carinae and trichobothrium d_2 located on this carina. Dorsal external carinae moderate to weak and smooth. Ventral external carinae strong with moderate and rounded granules. Intercarinal area rough with fine and reticular granulation and smooth patches on dorsal and ventral surfaces; internal surface finely granular. Dorsal patellar spur bifurcated and well developed. External surface smooth with flattened granules medially. Chelal carina *D1* strong and smooth; *D4* is rounded, rough and granular at proximal ¼ part; *V1* strong and bumpy, granular at proximal ¼ part, before trichobothrium V_4, following an oblique direction toward the internal of trichobothrium Et_1; *V3* rounded, rough and granular; external carina indistinct, rough without granules. Intercarinal area rough with fine granules on dorsal surface, smooth on ventral surface, and smooth and rough without granules on external surface, rough with minute distinct conical granules on internal surface. The fixed finger with a notch and movable finger with a well-developed lobe. Trichobothrium *et* on fixed finger is located distally to the notch of the fixed finger; *est* is located above the notch at mid-point; and *dsb* is located proximally to *est* and the notch. Finger dentition: In the most distal part bears a *DD* on the tip; *MD* is formed by a row of very small denticles closely spaced forming an almost straight line, discontinued at each 5-6 denticles at level of the *OD*, fixed finger has 6/6 *OD*, 5/5 *ID,* and 4/4 *IAD;* movable finger has 6/6 *OD*, 6/6 *ID*, and 4/4 *IAD.* Trichobothria: Chela: trichobothria on the pedipalp manus ventral surface (*V) is* 4/4 (V_{1-3}+Et_1); trichobothrium V_4 situated on the carina *V1*; trichobothrium on fixed finger *est* situated in proximal half of the notch of the fixed finger. Patella: *Pv* = 5/5; *et* = 4/4, *est* = 4/4, *em* = 3/3, *esb* = 2/2, eb_a = 4/4, *eb* = 4/4. Femur: trichobothrium *d* is barely proximal to *i,* while trichobothrium *e* is well distal to both *d* and *i,* situated on dorsal surface barely on dorsal external carina.

Legs (Fig 33). Two pedal spurs present and no tarsal spur; ventral row of tarsus III with a total of 11/11 spinules, of increasing size from proximal to distal, ending with 2 spinule that form like an "Y"; 3 main lateral tarsal setae present. Tubercles present on ventral and dorsal surface of all leg femora; they are more marked and darker ventrally.

Mesosoma (Figs 1, 3). Tergites I–VI smooth and glossy without carinae, tergite VII smooth with several small granules posteriorly. Sternites glossy and smooth with scattered setae. Spiracles small and inclined about 45° downward towards outside.

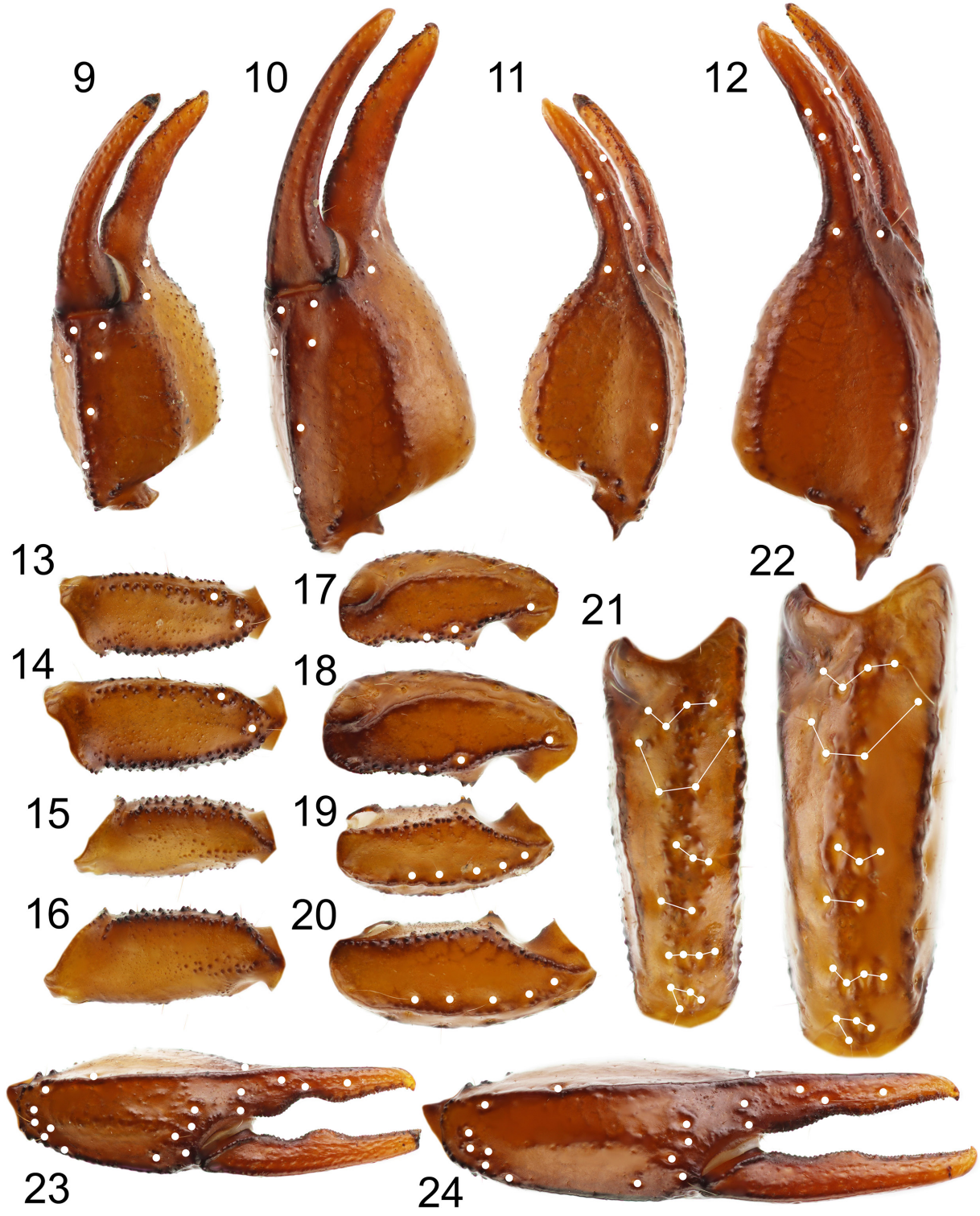
Metasoma and telson (Figs 25–32). Dorsal carinae moderate with several spaced indistinct granules on segments I–IV, smooth and rounded without granules on segment V. Ventrolateral carinae absent on segment I and II, obsolete, rounded without granules on segments III–IV, indistinct and rounded with a few minute granules on segment V. Ventromedian carinae absent on segment I–IV, obsolete and indistinct without granules on segment V. Intercarinal area smooth in all surfaces. Ventral surfaces of segments I–V with scattered setae. Telson: Vesicle slightly elongated and bulging, surface lustrous and smooth, with ventral setae of different size, especially near the vesicle/aculeus juncture in male, elongated and not bulged in females. Aculeus short and abruptly curved in male, aculeus short and less curved in females.

AFFINITIES. **(a)** *Euscorpius* (*Polytrichobothrius*) *italicus* has a higher number of trichobothria (more than 5) on the ventral surface (V) of the pedipalp manus, whereas *Alpiscorpius tropeai* sp.n. has 4 trichobothria. **(b)** The trichobothria series *em* = 4 on the pedipalp patella external surface in *E. aladaglarensis*, *E. alanyaensis*, *E. avcii*, *E. gocmeni*, *E. koci*, *E. lesbiacus*, *E. lycius*, and *E. tauricus*, whereas *em* = 3 in *A. tropeai* sp.n. **(c)** The trichobothrial series is usually *Pv* = 6 on the pedipalp patella ventral surface in *A. istanbulensis*, *A. mingrelicus*, *A. orgeli*, *A. phrygius*, *A. victori*, *E. idaeus*, *E. arikani*, *E. eskisehirensis*, *E. sultanensis*, and *E. honazicus*, and *Pv* = 7 in *E. hakani* and *E. ciliciensis*, whereas *Pv* = 5 is usually found in *A. tropeai* sp.n. and *A. uludagensis*. **(d)** The trichobothrial series is usually *et* = 5 on the pedipalp patella external surface in *A. uludagensis*, whereas *et* = 4 is usually found in *A. tropeai* sp.n. **(e)** The Eastern Black Sea Region includes *A. mingrelicus* and *E. italicus* in the Euscorpiidae. Based on the characteristics mentioned above, these two species can be identified by their coloration patterns. *A. mingrelicus* is dark brown to brownish red, and *E. italicus* is dark brown or brownish black, whereas the general coloration of *A. tropeai* sp. nov. is yellowish red.

MEASUREMENTS. See Table 1.

ECOLOGY. *Alpiscorpius tropeai* sp.n. specimens were collected in pine or mixed pine and fir forests, as well as in bushy areas. All these habitats are cool and humid. The northern regions of the Eastern Black Sea Mountain Range are humid and rainy and include only *A. mingrelicus* and *E. italicus. A. mingrelicus* is found from sea level to 2000 m [Tropea *et al.*, 2015], whereas *E. italicus* is found from sea level to 500 m [Gantenbein *et al.*, 2002]. The southern regions of this mountain range are less rainy and humid due to the mountains blocking moisture. *A. tropeai* sp. nov. is found at altitudes ranging from 1307 to 1795 m.

VARIATION. Pedipalp patella ventral (*Pv*) and external (*Pe*) trichobothria and pectinal teeth count (*Dp*) variations observed in 15 studied specimens (6 ♂♂ and 9 ♀♀) are given below. *Pv* (*n* = 15): 5/5 (12) and 5/6 (3); collectively, 5 in 90.00% and 6 in 10.00%; mean = 5.10, SD = 0.3051. *Pe* (*n* = 15): *et* =, 4/4 (15); collectively, 4 in 100.00%; mean = 4.00, SD = 0.0000; *em* = 3/3 (15); *esb* = 2/2 (15); eb_a = 4/4 (15); *eb* = 4/4 (15). Male *Dp* (n = 6): 7/7 (1), 7/8 (2), 8/8 (3); collectively, 7 in 33.33% and 8 in 66.66%; mean = 7.66, SD = 0.4923. Female *Dp* (*n* = 9): 5/6 (2) and 6/6 (7); collectively, 5 in 11.11% and 6 in 88.88%; mean = 5.88, SD = 0.3233.



Figs 9–24. *Alpiscorpius tropeai* sp.n., pedipalp segments of male holotype (9, 11, 13, 15, 17, 19, 21, 23) and female paratype (10, 12, 14, 16, 18, 20, 22, 24). 9, 10, 11, 12, 23, 24 — chela ventral (9–10), dorsal (11–12) and external (23–24) views; 13, 14, 15, 16 — femur dorsal (13–14) and ventral (15–16) views; 17–22 — patella dorsal (17–18), ventral (19–20) and external (21–22) views. Trichobothrial pattern is indicated by white circles.

Рис. 9–24. *Alpiscorpius tropeai* sp.n., сегменты педипальп голотипа самца (9, 11, 13, 15, 17, 19, 21, 23) и паратипа самки (10, 12, 14, 16, 18, 20, 22, 24). 9, 10, 11, 12, 23, 24 — хела ветрально (9–10), дорсально (11–12) и снаружи (23–24); 13, 14, 15, 16 — бедро дорсально (13–14) и вентрально (15–16); 17–22 — колено дорсально (17–18), вентрально (19–20) и снаружи (21–22). Размещение трихоботрий указано белыми кружочками.

Figs 25–32. *Alpiscorpius tropeai* sp.n., metasoma and telson of male holotype (26, 27, 29, 32) and female paratype (25, 28, 30, 31). 25, 26 — lateral views of metasoma and telson; 27, 29, 30, 31 — segment V of metasoma lateral (27–28) and ventral (29–30) views; 31, 32 — lateral views of telson.

Рис. 25–32. *Alpiscorpius tropeai* sp.n., метасома и тельсон голотипа самца (26, 27, 29, 32) и паратипа самки (25, 28, 30, 31). 25, 26 — метасома и тельсон, латерально; 27, 29, 30, 31 — сегмент V метасомы латерально (27–28) и вентрально (29–30); 31, 32 — тельсон, латерально.

Fig. 33. *Alpiscorpius tropeai* sp.n., right legs I–IV, male holotype (top) and female paratype (bottom).
Рис. 33. *Alpiscorpius tropeai* sp.n., правые ноги I–IV, голотип самец (сверху) и паратип самка (снизу).

Discussion

The number of known species of *Alpiscorpius* and *Euscorpius* in Turkey has increased significantly from 2 to 24 since 2012 [Kovařík *et al.*, 2019; Tropea, Yağmur, 2015, 2016a, b; Tropea *et al.*, 2012, 2014, 2015, 2016a, b, 2017, 2024; Yağmur, 2021, 2024a, b, 2025; Yağmur *et al.*, 2013; Yağmur, Sipahioğlu, 2025; Yağmur, Tropea, 2013, 2015, 2017]. Among these species, *A. phrygius* is found only in northwestern Turkey; *A. uludagensis* is endemic to Uludağ Mountain (Bursa Province, northwestern Turkey); *A. istanbulensis* occurs exclusively in İstanbul Province (northwestern Turkey); *A. orgeli* has been reported only in Manisa Province (western Turkey); *A. idaeus* is endemic to Kazdağı Mountain (Balıkesir and Çanakkale Provinces, northwestern Turkey); *A. victori* is endemic to Murat Mountain (Kütahya and Uşak Provinces, northwestern Turkey) and *A. mingrelicus* is distributed in the middle and eastern parts of the Black Sea Region. The last species is restricted to the northern regions of the Eastern Black Sea Mountains, and it does not occur sympatrically with *A. tropeai* sp.n.

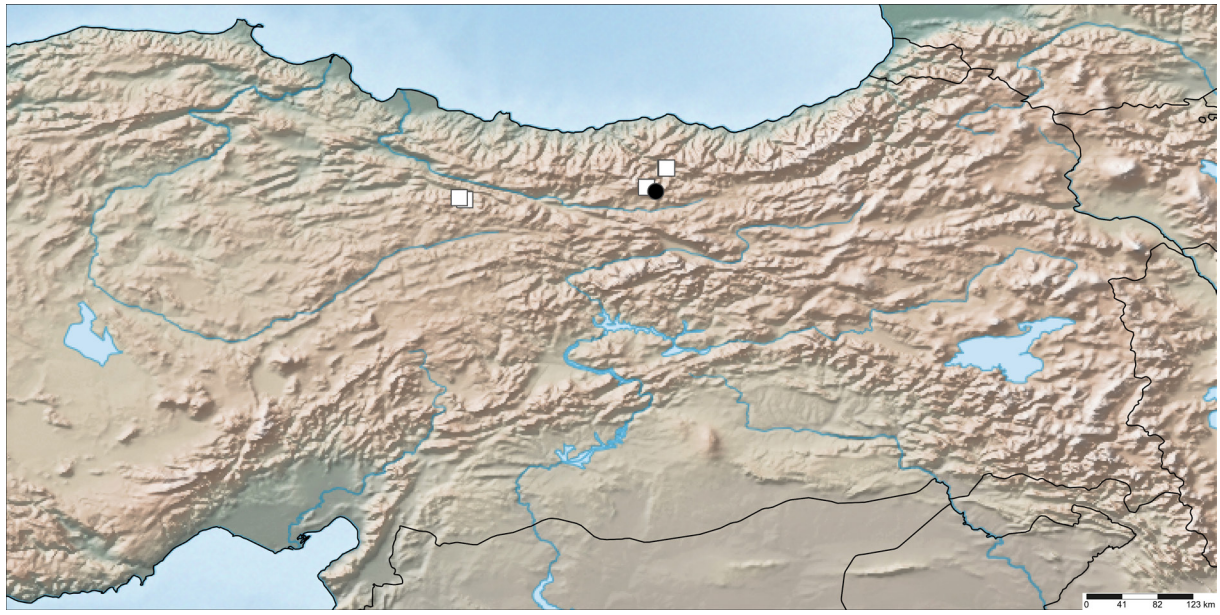


Fig. 34. A map of distribution of *Alpiscorpius tropeai* sp.n. Black circle — holotype locality; white square — other collection localities.
Рис. 34. Распространение *Alpiscorpius tropeai* sp.n. Черный кружок — местонахождение голотипа; белые квадратики — другие находки.

Compliance with ethical standards

CONFLICT OF INTEREST: The author declares that he has no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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