

Descriptions of Four New Species of *Camponotus* Mayr (Hymenoptera: Formicidae), with a Key for the Worker Caste of the *Camponotus* of Turkey

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ABSTRACT: Four new species of *Camponotus* are described in Turkey: *C. (Myrmentoma) aktaci* C. Karaman new species, *C. (Myrmentoma) anatolicus* new species, *C. (Myrmentoma) hirtus* new species, and *C. (Myrmentoma) honaziensis* new species. In addition, two species, *C. (Myrmentoma) abrahami* Forel, 1913 and *C. (Tanaemyrmex) oasisium* Forel, 1890 are reported for the first time from Turkey. We reexamined the *C. fedtschenkoi* material collected in Eastern Anatolia and identified the material as similar to *C. buddhae*. Therefore, *C. fedtschenkoi* is a dubious record for Turkish ant fauna. An identification key for all known Turkish species of *Camponotus* is presented.

KEY WORDS: *Camponotus*, Formicidae, key, new records, new species, Turkey

The genus *Camponotus* Mayr, 1861 is the most prevalent and speciose genus of ants, represented by about 1580 species and subspecies all over the world and 230 species and subspecies in the Palearctic Region (Bolton *et al.*, 2007; Karaman, unpublished). Identifying the species of genus *Camponotus* is difficult because of the high intra-specific variation and the similarity of many species (Mackay and Delsinne, 2009). The earliest record of the genus *Camponotus* in Turkey was made by Rigler (1852); many authors have subsequently added to the list. However, only 5 recent studies (Radchenko, 1996, 1997a, b, c; Karaman *et al.*, 2011) have focused primarily on the genus *Camponotus*. In brief, 38 *Camponotus* taxa (34 species and 4 subspecies) belonging to 5 subgenera (*Camponotus* s. str. Mayr, *Colobopsis* Mayr, *Myrmentoma* Forel, *Myrmosericus* Forel, and *Tanaemyrmex* Ashmead) have been recorded thus far from Turkey (Karaman *et al.*, 2011). These 38 taxa make Turkey the country with the highest number of reported *Camponotus* taxa among neighboring countries (Bulgaria: 14, Lapeva-Gjonova, 2010; Lapeva-Gjonova *et al.*, 2010; Greece: 32, Legakis, 2011; Borowiec and Salata, 2012; Georgia: 9, Gratiashvili and Barjadze, 2008; Armenia: 10, Arakelian, 1994; Iran: 28, Paknia *et al.*, 2008; Paknia *et al.*, 2010; Ghahari and Collingwood, 2011; Iraq: 13, Pisarski, 1971a, b; Radchenko, 1996; and Syria: 15, Radchenko, 1996; Ionescu-Hirsh, 2009). According to Radchenko (1997b), Asia Minor (the Asian part of Turkey) along with Greece, the Islands of the Aegean Sea, and the Middle East comprise the origin of the taxon groups of the *kiesenwetteri* species group and some species of the *lateralis* group.

In addition to the 38 known taxa, we describe here 4 new species of *Camponotus* and list 2 species new to the Turkish fauna. Despite the large number of *Camponotus* species known from Turkey, there are no identification keys for all known Turkish

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species. Therefore, in this study, we have also prepared an identification key for the worker caste of all known Turkish *Camponotus* species.

Materials and Methods

The *Camponotus* collection of the Biology Department of Trakya University, Edirne, Turkey (TU), includes more than 3000 *Camponotus* nest samples collected between 1965 and 2011. In addition to that collection, the MIZ PAS (Museum and Institute of Zoology Polish Academy of Sciences, Warsaw, Poland) collection was also checked and used for comparison. Type specimens and identified materials obtained from adjacent countries and other collectors were also used for comparison. The collection details of the new species are given with descriptions. The holotypes and paratypes of each new species are deposited in the collection of the Biology Department of Trakya University, Edirne, Turkey (TU).

Morphometric measurements and indices for new species:

MEASUREMENTS: HL: head length, from the anterior point of the median lobe of the clypeus to the midpoint of the occipital margin; HW: head width, maximum width behind the posterior margin of the eye; EL: maximum diameter of the eye; SL: scape length, excluding the basal condyle; CL: maximum length of the clypeus, including the posterior lobes (if present); CW: maximum width of the clypeus between the tentorial pits; ML: mesosoma length, diagonal length of the mesosoma laterally from the anterodorsal margin of the mesosoma to the posterior margin of the lobe of the metapleural lobe; MH: mesosoma height, from the upper level of the mesonotum to the lower margin of the mesopleuron; HFL: maximum length of the hind femorae; HFW: maximum width of the hind femorae; HTL: maximum length of the hind tibiae.

INDICES: CI (cephalic): $HL/HW \times 100$; SI1 (scape 1): $SL/HL \times 100$; SI2 (scape 2): $SL/HW \times 100$; CLI (clypeal): $CW/CL \times 100$; HFI (hind femorae): $FFW/FFL \times 100$; MI (mesosoma): $ML/MH \times 100$; HTI (tibiae): $HTL/HW \times 100$.

Results

Systematics

***Camponotus (Myrmentoma) aktaci* C. Karaman, new species**

DIAGNOSIS: *C. aktaci* n. sp. is similar in appearance to *C. libanicus* but can be distinguished from the latter by the red mandibles, antennae, and legs, absence of erect hairs on the occipital corners and scape, scarce erect hairs on the mesosoma, petiole and gaster (Fig. 1), and densely reticulate petiole that appears subopaque to dull. The new species is distinguished from *C. aegaeus* by a bare scape, thicker petiole, and scarce erect hairs on the entire body.

DESCRIPTION: ♀ major – (Measurements and indices are in Tables 1 and 3) (Fig. 1a, b) Head 1.03 times longer than wide, lateral sides of head narrowed in front of eyes; occiput convex behind eyes; scape 0.78 times head length and distinctly surpass occipital border, funiculus distinctly longer than scape; anterior margin of clypeus with a concave impression medially; mandibles with 5 black teeth, eyes situated on posterior half of head; mesosoma without metanotal groove, only metanotal suture present; anterior face of petiole rather convex, posterior face almost straight; whole head and mesosoma densely punctuated, dull; mandibles smooth, shiny; clypeus

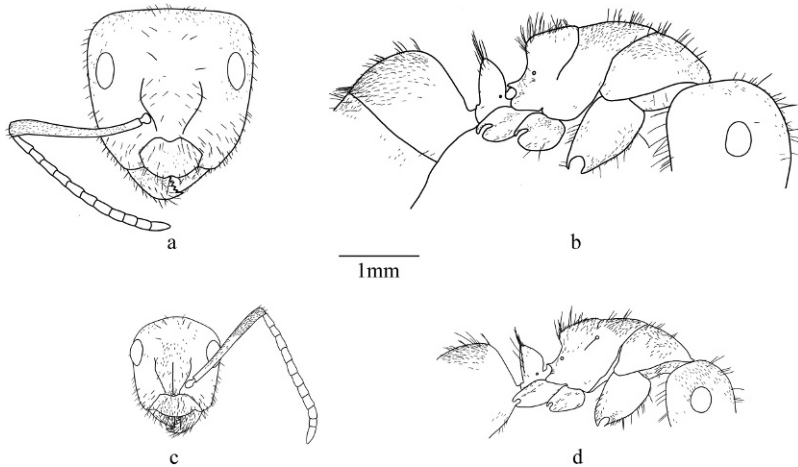


Fig. 1. *Camponotus aktaci* n. sp. (a,b - worker major); a) head (frontal view); b) alitrunk, petiole and gaster (in profile); (c,d - worker minor); c) head (frontal view); d) alitrunk, petiole and gaster (in profile).

densely punctuated with mid-point more sculptured; petiole reticulate sculptured, appearing subopaque to dull; gaster weakly punctuate, dull; whole head with short appressed hairs, genae and sides of head with short, erect hairs; occipital corners without or with only 1–2 erect hairs; occiput with 5–6 erect hairs; scape bare; mandibles with subdedcumbent hairs; ventral surface of head with long, erect hairs; whole mesosoma with short, appressed pilosity; pronotum with 10–12, mesonotum with 8–10 long, erect hairs, anterior half of propodeum with short erect hairs; posterior half of propodeum with long, erect hairs; dorsum of petiole with 10–12 long, erect hairs; gaster with dense, appressed pilosity and with long, scarce, erect hairs; whole body black except reddish mandibles, scape, funiculus, and legs.

♀ minor – (Measurements and indices are in Tables 2 and 4) (Fig. 1c, d) Head 1.16 times longer than wide, lateral sides of head narrowed in front of eyes; scape almost as long as head length; anterior face of petiole rather convex and posterior face slightly convex, rather thick, densely reticulate and weakly shiny; occipital corners bare; occiput with 2–4 long, erect hairs; pronotum with 4–8 short, erect hairs, and anterior part bare; mesonotum with 4–6 long, erect hairs; posterior half of propodeum with erect hairs; other features same as in the major worker.

♀ and ♂ unknown.

MATERIAL EXAMINED: Holotype – worker: Turkey, Adana-Pozantı-Akçatekir Village (37°21'N, 34°49'E), 1300 m asl., 30 June 2001: 01/537 (Leg. N. Aktaş) (TU). PARATYPES: 14 workers, from same nest with holotype; 31 workers, Turkey, Elazığ-Sivrice-Gezin, (38°29'N, 39°19'E), 1256 m asl., 15 September 2004: 04/355a, 04/356b, 04/360, 04/362b (Leg. H. Bolu); 4 workers, Turkey, Adana-Pozantı-Gökbezi Köyü (37°26'N, 34°52'E) 1240 m asl., 29 June 2001: 01/505 (Leg. N. Aktaş); 8 workers, Turkey, Adana-Saimbeyli-Dündar Yaylası (37°59'N, 36°05'E), 1540 m asl., 02 July 2001: 01/583 (Leg. N. Aktaş); 1 worker, Turkey, Bingöl-Genç 1300 m asl., 20 September 1980: 2651 (Leg. N. Aktaş); 9 workers, Turkey, Diyarbakır-Ergani (38°28'N, 39°17'E), 1043 m asl., 07 September 2004: 04/359a, 04/361a (Leg. H. Bolu); 17 workers, Turkey, Elazığ-Keban (38°43'N, 38°53'E), 1206 m asl., 31 August–15 September 2004, 04/350a, 04/363 (Leg. H. Bolu); 6 workers,

Table 1. Measurements for minor worker holotypes and the range of measurements (mm) for minor worker paratypes.

<i>C. aktaci</i> n. sp. (<i>n</i> = 46)				<i>C. anatolicus</i> n. sp. (<i>n</i> = 37)				<i>C. hirtus</i> n. sp. (<i>n</i> = 40)				<i>C. honaziensis</i> n. sp. (<i>n</i> = 35)			
Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range	
HL	1.27	1.30 ± 0.109	1.08–1.60	0.90	0.92 ± 0.065	0.85–1.20		1.08	1.08 ± 0.055	0.98–1.24		0.98	1.04 ± 0.075	0.90–1.18	
HW	1.10	1.14 ± 0.113	0.95–1.48	0.75	0.81 ± 0.062	0.71–1.08		0.95	0.95 ± 0.061	0.85–1.15		0.85	0.89 ± 0.071	0.76–1.01	
EL	0.36	0.35 ± 0.024	0.30–0.40	0.21	0.23 ± 0.012	0.21–0.28		0.29	0.29 ± 0.013	0.26–0.33		0.26	0.27 ± 0.021	0.21–0.33	
SL	1.35	1.30 ± 0.084	1.10–1.50	0.93	0.93 ± 0.044	0.85–1.05		1.05	1.02 ± 0.033	0.93–1.10		1.05	1.07 ± 0.062	0.96–1.23	
CL	0.36	0.37 ± 0.039	0.30–0.48	0.27	0.25 ± 0.029	0.21–0.38		0.34	0.32 ± 0.030	0.26–0.38		0.31	0.29 ± 0.029	0.24–0.39	
CW	0.56	0.57 ± 0.040	0.50–0.66	0.44	0.42 ± 0.028	0.38–0.53		0.49	0.51 ± 0.023	0.48–0.58		0.48	0.48 ± 0.031	0.43–0.55	
ML	1.90	1.89 ± 0.115	1.63–2.15	1.30	1.35 ± 0.077	1.24–1.65		1.51	1.50 ± 0.056	1.35–1.65		1.45	1.52 ± 0.083	1.36–1.70	
MH	1.10	1.11 ± 0.071	0.96–1.25	0.64	0.65 ± 0.049	0.55–0.83		0.68	0.75 ± 0.116	0.65–0.84		0.68	0.75 ± 0.055	0.61–0.85	
FW	0.33	0.33 ± 0.029	0.27–0.40	0.18	0.19 ± 0.017	0.16–0.25		0.21	0.23 ± 0.015	0.20–0.26		0.23	0.22 ± 0.019	0.19–0.25	
FL	1.42	1.38 ± 0.101	1.05–1.63	0.91	0.92 ± 0.048	0.85–1.10		1.06	1.01 ± 0.041	0.93–1.13		1.04	1.08 ± 0.065	0.95–1.24	
HTL	1.48	1.43 ± 0.106	1.19–1.68	0.94	0.94 ± 0.053	0.83–1.10		1.05	1.03 ± 0.043	0.95–1.16		1.06	1.11 ± 0.077	0.95–1.26	

Table 2. Measurements for major worker holotypes and the range of measurements (mm) for major worker paratypes.

<i>C. aktaci</i> n. sp. (<i>n</i> = 4)				<i>C. anatolicus</i> n. sp. (<i>n</i> = 13)				<i>C. hirtus</i> n. sp. (<i>n</i> = 10)				<i>C. honaziensis</i> n. sp. (<i>n</i> = 7)			
Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range		Holotype	Mean ± SD	Range	
HL	2.13	2.01 ± 0.140	1.81–2.13	1.46	1.45 ± 0.115	1.28–1.63		1.61	1.51 ± 0.096	1.36–1.61		1.69	1.55 ± 0.179	1.34–1.78	
HW	2.08	1.94 ± 0.183	1.68–2.08	1.30	1.29 ± 0.115	1.11–1.48		1.55	1.46 ± 0.108	1.30–1.60		1.60	1.46 ± 0.193	1.21–1.68	
EL	0.46	0.45 ± 0.042	0.40–0.50	0.30	0.30 ± 0.023	0.28–0.35		0.35	0.35 ± 0.021	0.33–0.38		0.36	0.34 ± 0.017	0.31–0.36	
SL	1.66	1.65 ± 0.013	1.63–1.66	1.10	1.15 ± 0.077	1.08–1.35		1.24	1.19 ± 0.051	1.10–1.25		1.31	1.27 ± 0.073	1.15–1.35	
CL	0.70	0.64 ± 0.078	0.53–0.70	0.53	0.51 ± 0.072	0.40–0.61		0.58	0.52 ± 0.050	0.45–0.58		0.55	0.50 ± 0.099	0.38–0.65	
CW	0.79	0.76 ± 0.027	0.73–0.79	0.58	0.60 ± 0.090	0.50–0.88		0.70	0.66 ± 0.038	0.60–0.70		0.74	0.67 ± 0.085	0.58–0.78	
ML	2.58	2.53 ± 0.158	2.30–2.66	1.79	1.81 ± 0.119	1.65–2.03		2.06	1.87 ± 0.106	1.73–2.06		2.03	1.97 ± 0.156	1.79–2.16	
MH	1.51	1.39 ± 0.147	1.23–1.51	0.93	0.95 ± 0.066	0.88–1.09		1.05	0.92 ± 0.080	0.81–1.05		1.15	1.01 ± 0.135	0.84–1.15	
FW	0.46	0.45 ± 0.016	0.43–0.46	0.25	0.27 ± 0.026	0.24–0.33		0.30	0.28 ± 0.019	0.24–0.30		0.31	0.31 ± 0.023	0.28–0.33	
FL	1.85	1.81 ± 0.091	1.68–1.87	1.20	1.22 ± 0.062	1.15–1.31		1.35	1.33 ± 0.024	1.18–1.98		1.40	1.41 ± 0.099	1.28–1.50	
HTL	1.99	1.92 ± 0.085	1.80–1.99	1.24	1.27 ± 0.075	1.18–1.39		1.43	1.30 ± 0.069	1.23–1.43		1.51	1.48 ± 0.106	1.35–1.60	

Table 3. Indices of major worker holotypes and range of paratypes (*n* = number of paratypes).

<i>C. aktaci</i> n. sp. (<i>n</i> = 4)				<i>C. anatolicus</i> n. sp. (<i>n</i> = 13)				<i>C. hirtus</i> n. sp. (<i>n</i> = 10)				<i>C. honaziensis</i> n. sp. (<i>n</i> = 7)			
Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range
CI	103	104 ± 3.0	102–108	113	112 ± 1.7	110–115	104	103 ± 4.4	91–107	106	107 ± 2.8	103–110	106	107 ± 2.8	103–110
SI1	78	82 ± 5.8	78–90	75	80 ± 4.1	73–88	77	79 ± 3.5	76–86	78	82 ± 6.1	75–92	78	82 ± 6.1	75–92
SI2	80	85 ± 8.6	80–98	85	89 ± 5.5	81–101	80	82 ± 4.0	78–90	82	88 ± 8.0	78–101	82	88 ± 8.0	78–101
CLI	113	121 ± 11.9	113–138	110	120 ± 18.6	102–167	122	127 ± 7.9	117–141	134	136 ± 11.5	115–153	134	136 ± 11.5	115–153
MI	171	183 ± 16.4	175–205	193	191 ± 9.5	174–208	196	205 ± 12.4	192–223	176	196 ± 13.7	176–218	176	196 ± 13.7	176–218
HFI	25	25 ± 0.4	24–25	21	22 ± 1.4	20–25	22	21 ± 2.6	15–25	22	22 ± 0.6	21–23	22	22 ± 0.6	21–23
HTI	96	99 ± 5.9	94–108	95	98 ± 4.9	92–109	92	89 ± 3.4	84–96	95	101 ± 8.6	91–111	95	101 ± 8.6	91–111

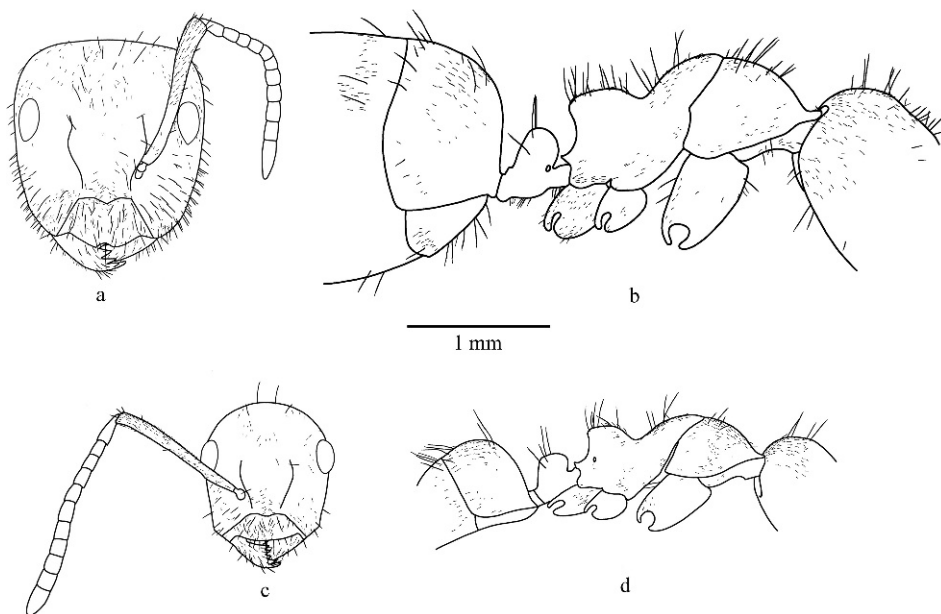


Fig. 2. *Camponotus anatolicus* n. sp. (a,b - worker major); a) head (frontal view); b) alitrunk, petiole and gaster (in profile); (c,d - worker minor); c) head (frontal view) d) alitrunk, petiole and gaster (in profile).

Turkey, Elazığ-Sivrice (38°28'N, 39°17'E), 1280 m asl., 18–31 August 2004: 04/351a, 04/357c (Leg. H. Bolu); 2 workers, Turkey, Malatya-Akçadağ-Amuklu Village, 800 m asl., 12 July 1977: 230 (Leg. N. Aktaş); 1 worker, Turkey, Muğla-Bodrum-Çamlık road, (37°02'N, 27°26'E), 01 July 1966: 66/095e (Leg. N. Aktaş).

ETYMOLOGY: The species is named in honor of Prof. N. Aktaş, C. Karaman's dissertation advisor.

REMARKS: *C. aktaci* was collected from the *Pinus nigra* Arnold forest and orchards of *Prunus dulcis* (Mill.) D.A. Webb between 1050 m and 1550 m altitude.

***Camponotus (Myrmentoma) anatolicus* Karaman and Aktaş, new species**

DIAGNOSIS: *C. anatolicus* n. sp. is distinguished from all of the *C. lateralis* group species except for *C. staryi* Pisarski by the deep metanotal groove and yellowish red to reddish brown first gaster segment that is paler than the rest of the gaster segments. *C. anatolicus* is similar to *C. staryi* due to the deep metanotal groove and reddish brown first gaster segment. We compared *C. anatolicus* with the holotype of *C. staryi*, which is deposited in the MIZ PAS Museum, and the new species can be differentiated from the latter by the following in minor workers: the propodeal dorsum, which is lower than the mesonotum, a thicker and almost nodiform petiole, dense appressed pilosity on the head and scape, abundant, subdecumbent and erect hairs on the dorsum of propodeum; and in major workers: shallower metanotal groove, much longer propodeal dorsum that is transversely convex or flat, and covered by abundant erect hairs, head darker than the mesosoma, abundant erect hairs on the genae and erect hairs on the lateral sides of the head and occipital corners, and dense appressed pilosity on the scape.

DESCRIPTION: ♀ major – (Measurements and indices are in Tables 1 and 3) (Fig. 2a, b) Head 1.13 times longer than wide, lateral sides of head narrowed in front of the eyes; occiput convex behind eyes; scape $\frac{3}{4}$ times head length, slightly surpasses occipital corners and with basal portion not extended; anterior and posterior margin of clypeus with a concave impression medially, only upper half of clypeus slightly carinatae; mandibles with 5 teeth; eyes situated on posterior half of the head; mesosoma with deep metanotal groove; anterior face of petiole rather convex, posterior face slightly convex, dorsum of petiole broadly straight, rather low in profile, the distance between petiolar spiracle and dorsum short, 0.02 mm; posterior half of head reticulate and shiny, head under the eyes densely punctuate and subopaque; mandibles longitudinally striate, weakly shiny; sides of mesonotum and propodeum densely reticulate, shiny; gaster slightly reticulate, shiny; genae and lateral sides of head with abundant, short, erect hairs; occipital corners bare, only with appressed pilosity; occiput with 6–8 erect hairs; ventral surface of head with abundant erect hairs; scape with dense appressed pilosity and 5–8 short, erect hairs; dorsum of pronotum and mesonotum with short appressed pilosity and with 6–12 long, erect hairs, dorsum of propodeum with short, subdecumbent pilosity and long, erect hairs; dorsolateral corners of petiole with 8 long, erect hairs; gaster with scarce, appressed pilosity and erect hairs. Head, scape, mesosoma and petiole red to reddish brown; mandibles, scape, first 3–4 funicular segments and legs red, rest of funiculus brownish red and rest of body black.

♀ minor – (Measurements and indices are in Tables 2 and 4) (Fig. 2c, d) Head 1.20 times longer than wide, lateral sides slightly narrowed in front of the eyes; occiput semicircular behind eyes; scape 1.03 times head length and not extended at the base; anterior margin of clypeus straight, posterior margin with a concave impression medially; mandibles with 5 teeth; eyes situated on posterior half of the head; mesosoma with rather deep metanotal groove; anterior face of petiole convex, posterior face slightly convex, dorsum of petiole straight and dorsal half rather thick in profile; gastric features same as in the major worker; head sculpturing reticulate, shiny; clypeus smooth and shiny; mesosomal sculpture as in the major worker; whole head with short and appressed pilosity; genae with erect hairs; occipital corners bare; occiput with 2–3 pairs of long, erect hairs; ventral surface of head with at least 1–2 short erect hairs; scape with dense decumbent pilosity and 1–3 erect hairs; pronotum with appressed pilosity and 4–6 erect hairs; mesonotum with appressed pilosity and 4–8 erect hairs; propodeum with short, semi-erect and 8–12 erect hairs; dorsolateral corners of petiole with 4–6 long, yellowish, erect hairs; gaster with sparse decumbent pilosity and erect hairs; head reddish, sometimes vertex and clypeus brownish red; mesosoma, petiole, legs red to reddish brown; first gastric segment red or brownish red, rest of gaster black.

♀ and ♂ unknown.

MATERIAL EXAMINED: Holotype – worker: Turkey, Antalya-Kemer-Altınyaka Village (36°22'N, 30°20'E), 551 m asl., 06 June 2007: 07/0888b (leg. C. Karaman and K. Kıran) (TU). PARATYPES: 26 workers, from same nest with holotype (Leg. C. Karaman and K. Kıran); 1 worker, Antalya-Kumluca (36°22'N, 30°22'E), 559 m asl., 06 June 2007: 07/857b (Leg. C. Karaman and K. Kıran); 30 workers, Turkey, Antalya-Kumluca-Yenikışla Village (36°31'N, 30°11'E), 886 m asl., 07 June 2007: 07/0916 (Leg. C. Karaman and K. Kıran); 20 workers, Turkey, Antalya-Kumluca-Çaltı Village (36°32'N, 30°17'E), 282 m asl., 08 June 2007: 07/0924c (Leg. C. Karaman and K. Kıran); 1 worker, Turkey, Antalya-Merkez-Kızıl Village (36°06'N, 30°42'E), 311 m asl., 06 August 2007: 07/1357b (Leg. C. Karaman and K. Kıran); 10

Table 4. Indices of minor worker holotypes and range of paratypes (*n* = number of paratypes).

<i>C. aktaci</i> n. sp. (<i>n</i> = 46)				<i>C. anatolicus</i> n. sp. (<i>n</i> = 37)				<i>C. hirtus</i> n. sp. (<i>n</i> = 40)				<i>C. honaziensis</i> n. sp. (<i>n</i> = 35)			
Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range	Holotype		Mean ± SD	Range
CI	116	114 ± 2.75	109–121	120	115 ± 3.30	106–122	113	114 ± 2.67	108–119	115	116 ± 2.82	108–123			
SI1	106	98 ± 3.39	93–106	103	100 ± 4.52	88–113	98	95 ± 2.92	87–100	108	103 ± 3.55	97–114			
SI2	123	112 ± 5.51	102–124	123	115 ± 5.93	98–128	111	108 ± 4.61	94–116	124	120 ± 4.86	110–132			
CLI	158	157 ± 9.13	140–185	167	169 ± 13.13	136–190	144	160 ± 11.69	140–182	152	169 ± 10.62	136–190			
MI	173	171 ± 6.32	158–190	204	210 ± 9.25	192–232	224	202 ± 10.76	182–227	215	203 ± 9.15	182–223			
HFI	23	24 ± 1.11	23–28	19	21 ± 1.15	18–24	20	22 ± 1.23	20–25	22	21 ± 1.28	18–23			
HTI	135	125 ± 5.59	112–135	125	117 ± 5.13	102–130	111	109 ± 3.92	101–117	125	124 ± 4.88	115–140			

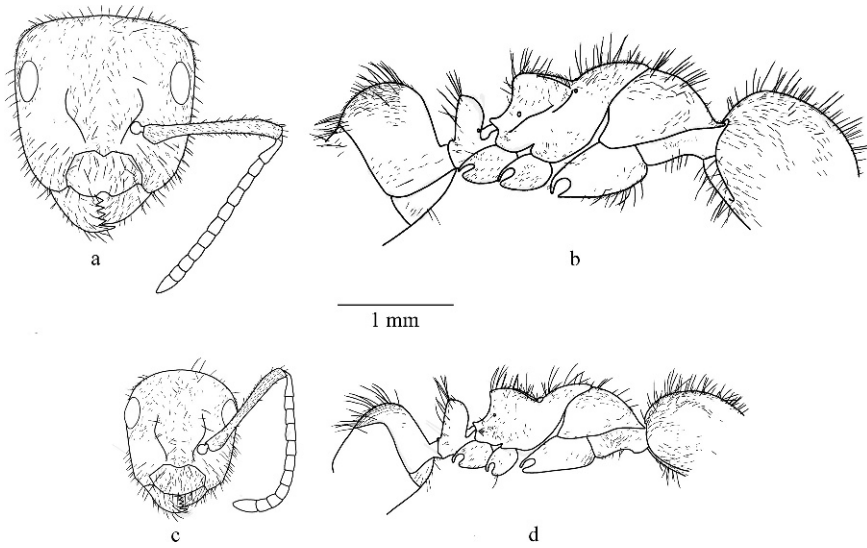


Fig. 3. *Camponotus hirtus* n. sp. (a,b - worker major); a) head (frontal view); b) alitrunk, petiole and gaster (in profile); (c,d - worker minor); c) head (frontal view); d) alitrunk, petiole and gaster (in profile).

workers, Turkey, Muğla-Fethiye-Kayadibi Village (36°30'N, 29°25'E), 398 m asl., 03 June 2007: 07/0767a (Leg. C. Karaman and K. Kıran).

ETYMOLOGY: This name is derived from the distribution of the species in Anatolia (the Asian part of Turkey).

REMARKS: *C. anatolicus* was collected in Antalya and Muğla between 282 m and 886 m altitude from the brook side, *Pinus brutia* Ten., *Quercus coccifera* L., and mixed forest (*Quercus* spp. and *Pinus brutia*) habitats.

Camponotus (*Myrmentoma*) *hirtus* Karaman and Aktaş, new species

DIAGNOSIS: *C. hirtus* n. sp. belongs to the *lateralis* group because of the red to partly red head, the reddish mesosoma and petiole contrasting with the black gaster, and the presence of the metanotal groove. However, this new species can be distinguished from all other species in this group by the abundant erect hairs on the whole mesosoma and gaster, the expanded basal portion of the scape that projects a basal lobe especially in major workers, and the abundant, erect hairs on scape.

DESCRIPTION: ♀ major – (Measurements and indices are in Tables 1 and 3) (Fig. 3a, b) Head 1.04 times longer than wide; lateral sides of head narrowed in front of the eyes; occiput convex behind eyes; scape 0.77 times head length, surpassing occipital corners hardly or only reach occipital corners, base of scape extended and projects a basal lobe; clypeus without carina, anterior and posterior margins with a concave impression medially; mandibles with 5 teeth; eyes situated on posterior half of the head; mesosoma with deep metanotal groove; anterior face of petiole convex, posterior face straight; head slightly reticulate, anterior half of head more sculpturing, shiny; clypeus more or less reticulate, subopaque; mandibles finely sculptured, subopaque; dorsum of pronotum and mesonotum superficially sculptured, shiny; sub-lateral sides of mesonotum and lateral sides of propodeum roughly reticulate and weakly shiny; gaster smooth, shiny; whole head with short

and appressed pilosity; genae, lateral sides of head, occipital corners and occiput with erect hairs, or occipital corners at least with subdecumbent pilosity; ventral surface of head with abundant, erect hairs; scape with dense, subdecumbent hairs and with 10 short, erect hairs; whole mesosoma with yellowish, abundant, erect hairs, pronotum with appressed, mesonotum with subdecumbent, propodeum with erect pilosity and hairs; dorsum of petiole with 5–6 long, erect hairs; gaster with appressed pilosity and erect hairs, pilosity as long as distance between them; tibia with dense subdecumbent pilosity, extensor surface of tibia with 1–3 erect hairs. Head reddish to dark brown, mesosoma red with brownish patches, legs brownish red, petiole red, gaster black.

♀ minor – (Measurements and indices are in Tables 2 and 4) (Fig. 3c, d) Head 1.13 times longer than wide, lateral sides of head narrowed in front of the eyes; occiput convex behind eyes; scape almost as long as head length, surpassing occiput by 1/3 of its length, base of scape extending at the base and project a basal lobe; anterior and posterior clypeal margins with a concave impression medially; mandibles with 5 teeth; eyes situated on posterior half of the head; mesosoma with deep metanotal groove, dorsum of propodeum straight or slightly convex; anterior face of petiole convex, posterior face straight; head and clypeus smoothly sculpturing, shiny; mandibles shiny to subopaque; propodeum superficially sculptured, shiny, except roughly reticulate lateral sides; gaster superficially reticulate, shiny; whole head with short, appressed pilosity; genae and lateral sides of head with short, erect hairs; occiput with long, erect hairs; occipital corners bare, only with subdecumbent pilosity; scape with short, dense, appressed pilosity and with 6–10 erect hairs; whole mesosoma with long, erect hairs and short, appressed pilosity as in the major worker; dorsal surface of mesonotum and propodeum with subdecumbent hairs; dorsolateral sides of petiole with long, erect hairs and lateral sides with short, thin, erect hairs; gaster with appressed pilosity and short, erect hairs, pilosity length as long as the distance between them. Head, mesosoma, petiole, and legs red and gaster black.

♀ and ♂ unknown.

MATERIAL EXAMINED: Holotype – worker: Turkey, Konya-Seydişehir-Taraşçı Town-Rize Belı, (37°27'N, 31°42'E), 1841 m asl., 04 August 2008: 08/1106 (leg. C. Karaman and K. Kıran) (TU). PARATYPES: 49 workers, from same nest with holotype (Leg. C. Karaman and K. Kıran) (TU); 7 workers, from same locality and same date with holotype, 08/1109b (Leg. C. Karaman and K. Kıran) (TU).

ETYMOLOGY: This name is derived from the abundant body hairs of the species.

REMARKS: *C. hirtus* was collected in Konya at 1841 m altitude from a 100 year old *Pinus nigra* forest patch between barren soil with small shrubs and the mountain alpine zone.

***Camponotus (Myrmentoma) honaziensis* Karaman and Aktaş, new species**

DIAGNOSIS: *C. honaziensis* n. sp. most resembles *C. lateralis* and can be distinguished from the latter by at least 3–4 short erect hairs on the scape, erect hairs on the lateral sides of the head, 1–2 erect hairs on the occipital corners at least in the major workers, the presence of long erect hairs on the whole propodeal dorsum, and the thicker petiole. In some specimens, the propodeal dorsum may also have short subdecumbent pilosity, which is absent in the holotype worker, and the mesopropodeal groove may be much shallower. *C. honaziensis* is distinguished from *C. candiotes* by the expanded lobe at the base of the scape, a thicker petiole, and a flat propodeal dorsum. This new species differs from *C. hirtus* by the shorter and

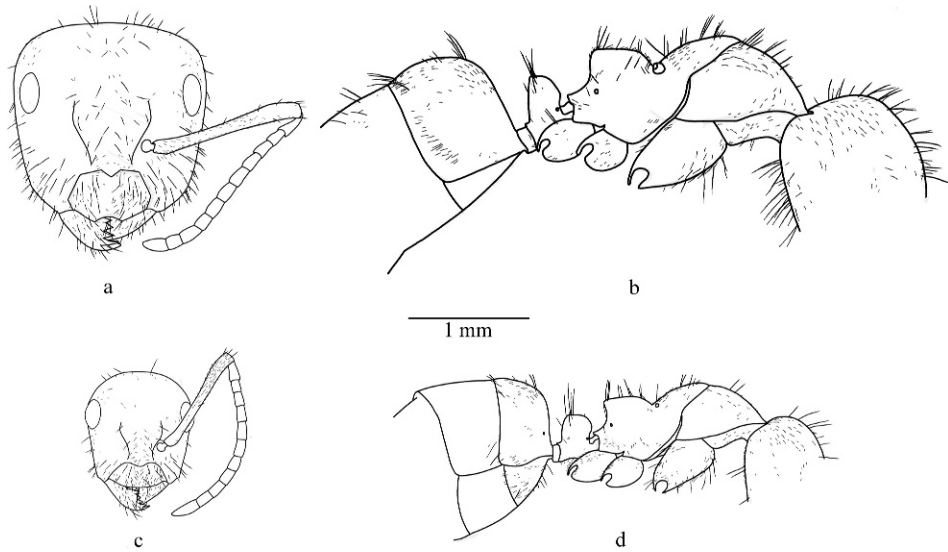


Fig. 4. *Camponotus honaziensis* n. sp. (a,b - worker major); a) head (frontal view); b) alitrunk, petiole and gaster (in profile); (c,d - worker minor); c) head (frontal view); d) alitrunk, petiole and gaster (in profile).

scarce erect hairs on the ventral surface of the head, the less expanded base of the scape, and the sparse appressed and erect hairs on the scape, the scarce erect hairs on the mesosoma, and the thicker petiole in major workers, and by the shorter and scarce erect hairs on the ventral surface of the head, bare occipital corners, 1–3 erect hairs on the scape, the less expanded base of the scape, the scarce erect hairs on the mesosoma, and the thicker petiole in minor workers. *C. honaziensis* differs from *C. interjectus* due to the partly reddish head and thicker petiole in major workers and red head, the short, scarce, erect hairs on the gaster, and the thicker petiole in minor workers.

DESCRIPTION: ♀ major – (Measurements and indices are in Tables 1 and 3) (Fig. 4a, b) Head 1.06 times longer than wide, lateral sides of head narrowed in front of the eyes; occiput slightly convex behind eyes; scape 0.78 times head length, base of scape weakly extended or without basal lobe; anterior and posterior margins of clypeus with a concave impression medially; mandibles with 5 teeth; eyes situated on posterior half of the head; mesosoma with deep metanotal groove; dorsum of propodeum almost straight; anterior face of petiole convex, posterior face nearly convex, dorsum of petiole straight medially and thick; anterior half of head dense and roughly reticulate, posterior half superficially sculpturing, shiny; clypeus roughly reticulate and punctate, subopaque to dull; mandibles shiny to subopaque; in profile whole mesosoma roughly reticulate; gaster weakly reticulates, shiny; head with short, appressed, scattered pilosity than *C. hirtus*; genae, lateral sides of head, occiput, vertex with short, erect hairs; occipital corners with 1–2 erect hairs or bare; ventral surface of head with long, abundant, erect hairs; scape with dense, appressed pilosity and 5–7 erect hairs; whole mesosoma with abundant, erect hairs, propodeum additionally with short, subdecumbent pilosity; tibiae with short, appressed, scattered pilosity; dorsolateral sides of petiole with 8–10 long, erect hairs; gaster

with short, appressed pilosity and distance between the pilosity shorter than their length; head reddish brown to brownish black; scape and first 3 to 5 funicular segments red, rest of funiculus brown; mesosoma reddish to reddish-brown; legs red; petiole dark red to reddish brown; gaster black.

♀ minor – (Measurements and indices are in Tables 2 and 4) (Fig. 4c, d) Head 1.15 times longer than wide, lateral sides of head narrowed in front of eyes; occiput convex behind eyes; scape 1.08 times longer than head length, base of scape extended more than that of major workers; anterior margin of clypeus nearly straight, posterior margin concave; mandibles with 5 teeth; eyes small, situated on posterior half of head; mesosoma with deep metanotal groove, dorsum of propodeum straight or weakly convex; head and clypeus reticulate, shiny; lateral sides of propodeum roughly sculpturing, shiny; gaster superficially reticulate, shiny; genae and lateral sides of head with erect hairs; occipital corners bare, with only appressed pilosity, occiput with 2–8 long, erect hairs; ventral surface of head with scattered, erect hairs; scape with appressed pilosity and 1–3 short, erect hairs; pronotum with scattered, appressed pilosity and 4 erect hairs; mesonotum with scattered, appressed pilosity and 10 erect hairs; whole propodeal dorsum with subdecumbent pilosity and erect hairs; dorsolateral sides of petiole with 6 long, erect hairs; gaster with short, appressed pilosity and scattered, erect hairs; head red to reddish brown; first 3–4 funicular segments reddish and rest of funiculus brown; mesosoma and petiole red; legs yellowish brown to red; gaster black.

♀ and ♂ unknown.

MATERIAL EXAMINED: Holotype – worker: Turkey, Denizli-Merkez-Cankurtaran-Honaz Dağı National Park, (37°38'N, 29°13'E), 15 July 2007: 07/2344 (leg. C. Karaman) (TU). PARATYPES: 15 workers, from same nest with holotype (Leg. C. Karaman) (TU); 4 workers, Turkey, Burdur-Yeşilova-Akçaköy Village (37°43'N, 29°55'E), 1274 m asl., 31 July 2007: 07/1126a (Leg. C. Karaman and K. Kıran) (TU); 1 worker, Turkey, Denizli-Serinhisar-Kızılhisar Hill (37°34'N, 29°14'E), 1332 m asl., 27 May 2007: 07/0269 (Leg. C. Karaman and K. Kıran) (TU); 1 worker, Turkey, Denizli-Acıpayam-Alaattin Village (37°28'N, 29°13'E), 1377 m asl., 27 May 2007: 07/0316b (Leg. C. Karaman and K. Kıran) (TU); 14 workers, Turkey, Denizli-Beyağaç-Dereköy Village (37°13'N, 28°58'E), 807 m asl., 28 May 2007, 07/0412 (Leg. C. Karaman and K. Kıran) (TU); 2 workers, Turkey, Denizli-Beyağaç (37°05'N, 28°51'E), 1831 m asl., 29 May 2007: 07/0433b (Leg. C. Karaman and K. Kıran) (TU); 4 workers, Turkey, Denizli-Honaz-Aydınlı Village (37°43'N, 29°30'E), 1313 m asl., 09 July 2007: 07/2192c (leg. C. Karaman) (TU); 1 worker, Turkey, Denizli-Köseler Village (38°01'N, 29°18'E), 1120 m asl., 10 July 2007: 07/2217c (Leg. C. Karaman) (TU).

ETYMOLOGY: This name is derived from the Honaz Dağı National Park, where this species was collected.

REMARKS: This species was collected in Denizli and Burdur between 807 m and 1831 m altitude from a mountain meadow and *Pinus nigra*, *Juniperus* spp., and mixed (*Pinus nigra* and *Quercus coccifera*) forests.

First records of *Camponotus* from Turkey

Camponotus (*Myrmentoma*) *abrahami* Forel, 1913

MATERIAL EXAMINED: 6 workers, Turkey, Diyarbakır-Ergani (38°16'N, 39°44'E), 1043 m asl., 07.09.2004: 04/359b and 04/361b (Leg: H. Bolu). This material is

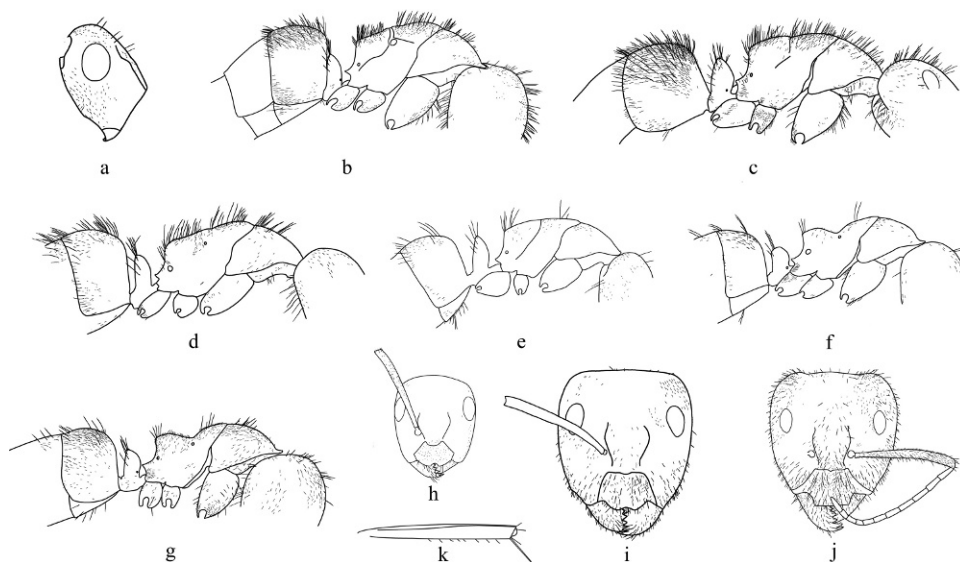


Fig. 5. a) *C. truncatus*, head of soldier (in profile); b) *C. aegaeus*, mesosoma, petiole and gaster of major worker (in profile); c) *C. libanicus*, mesosoma, petiole and gaster of major worker (in profile); d) *C. gestroi*, mesosoma, petiole and gaster of major worker (in profile); e) *C. abrahami*, mesosoma, petiole and gaster of worker (in profile); f) *C. lateralis*, mesosoma, petiole and gaster of worker (in profile); g) *C. candiotes*, mesosoma, petiole and gaster of major worker (in profile); h) *C. fallax*, head of minor worker (frontal view); i) *C. fallax*, head of major worker (frontal view); j) *C. festai*, head of major worker (frontal view); k) *C. aethiops*, hind tibiae (in profile).

deposited in the collection of the Biology Department of Trakya University, Edirne, Turkey (TU).

GENERAL DISTRIBUTION: Lebanon, Middle East.

Camponotus (Tanaemyrmex) oasium Forel, 1890

MATERIAL EXAMINED: 2 workers, Turkey, Hakkari-Esendere (37°42'N, 44°35'E), 1800 m asl., 11.06.1978: 1206. This material is deposited in the collection of the Biology Department of Trakya University, Edirne, Turkey (TU).

GENERAL DISTRIBUTION: North Africa, Middle East, Iran, Saudi Arabia, United Arab Emirates, Oman.

Key to the Worker Castes of Turkish Species of the Genus *Camponotus*

* symbols designate the species newly added to the Turkish *Camponotus* fauna.

1. In soldiers, head truncated anteriorly as in queen (Fig. 5a); in minor workers, propodeal dorsum transversally concave; petiole dorsum concave in frontal view; dimorphic species NW Africa; Caucasus; Crimea; Cyprus; Southern and Central Europe (until to Poland); Kopet Dag; Middle East; Ukraine; Turkey *C. (Colobopsis) truncatus* (Spinola)
- Workers' head not truncated anteriorly; with different characteristics combined 2

- 2 (1). Metanotal groove absent; mesosoma in profile quite convex; propodeal dorsum meets propodeal declivity at an obtuse angle 18
 – Metanotal groove always present; propodeal dorsum meets declivity at an acute angle 3
- 3 (2). Whole body (especially gaster) densely punctured, appears dull. 4
 – Whole body (especially gaster) weakly punctured or reticulate, appears more or less shiny. 8
- 4 (3). Dorsal surface of mesosoma only with metanotal suture (Fig. 5b, c) . . . 5
 – Dorsal surface of mesosoma at least with shallow metanotal groove (Fig. 5f, g) . . . 7
- 5 (4). Petiole thin (Fig. 5b) Bulgaria; Greece; Turkey.
 *C. (Myrmentoma) aegaeus* Emery
 – Petiole thick (Fig. 5c) 6
- 6 (5). Mandible, scape, and legs red; occipital corners and scape without erect hairs (Fig. 1a, c); petiole weakly sculptured and more or less shiny; whole body with scarce erect hairs (Fig. 1b, d).
 *C. (Myrmentoma) aktaci* n. sp.
 – Mandible, scape and legs dark brown-black or black; occipital corners and scape with erect hairs; petiole coarsely sculptured and dull; whole body with long, abundant erect hairs (Fig. 5c) Cyprus; Greece; Iran; Israel; Lebanon; Turkey *C. (Myrmentoma) libanicus* André
- 7 (4). Propodeal dorsum posteriorly with short teeth Cyprus; Greece; Turkey. *C. (Myrmentoma) kiesenwetteri* (Roger)
 – Propodeal dorsum posteriorly without teeth Greece; Turkey.
 *C. (Myrmentoma) boghossiani* Forel
- 8 (3). Whole body black. 9
 – Body color different, at least some parts of mesosoma reddish 11
- 9 (8). Dorsum of mesosoma with deep metanotal groove NW Africa; Caucasus; Southern and Central Europe, Southeastern Europe; northern Kazakhstan; Turkey *C. (Myrmentoma) piceus* (Leach)
 – Dorsum of mesosoma with shallow metanotal groove or with suture (Fig. 5d, e). 10
- 10 (9). Dorsum of propodeum meets declivity at a rounded blunt angle; mesosoma and gaster with abundant erect hairs (Fig. 5d) NW Africa; Armenia; Southern Europe; Iraq; Iran; Israel; Lebanon; Turkey.
 *C. (Myrmentoma) gestroi* Emery
 – Dorsum of propodeum meets declivity at an acute angle (Fig. 5e); mesosoma and gaster with scarce erect hairs Middle East
 *C. (Myrmentoma) abrahami* Forel*
- 11 (8). Dorsum of mesosoma with metanotal groove (Fig. 5f, g) 12
 – Dorsum of mesosoma without metanotal groove, only metanotal suture present. 17
- 12 (11). Especially in minor workers metanotal groove quite deep; petiole rather low (Fig. 2b, d); first gastral tergite brownish red and lighter than other gastric segment. *C. (Myrmentoma) anatolicus* n. sp.
 – In minor workers, metanotal groove more shallow; petiole high; whole gaster dark brown to black 13
- 13 (12). Erect hairs present only on posterior part of propodeal dorsum, subdecumbent hairs absent (Fig. 5f) 14

- Whole propodeal dorsum with erect and/or subdecumbent hairs 15
- 14 (13). Head and mesosoma red (head can be partly brownish) NW Africa; Crimea; Caucasus; Southern and Central Europe; Israel; Lebanon; Syria; Turkey *C. (Myrmentoma) lateralis* (Olivier)
- Head brownish to black, mesosoma red or only pronotum red, rest of the mesosoma brownish black Bosnia and Hercegovina; Bulgaria; Croatia; Israel; Italy; Lebanon; Macedonia; Montenegro; Romania; Serbia; Slovenia; Switzerland; Syria; Turkey *C. (Myrmentoma) dalmaticus* (Nylander)
- 15 (13). Occipital corners with erect hairs; scape with more than 5 erect hairs (Fig. 3a). 16
- Occipital corners and scape without erect hairs in minor workers (Fig. 4c), occipital corners bare or with one short erect hair; scape with at most 3 erect hairs in major workers (Fig. 4a). *C. (Myrmentoma) honaziensis* n. sp.
- 16 (15). Dorsum of pronotum and mesonotum with abundant erect hairs; propodeal dorsum with abundant erect and short subdecumbent hairs (Fig. 3b, d). *C. (Myrmentoma) hirtus* n. sp.
- Dorsum of pronotum and mesonotum with sparse erect hairs; posterior part of propodeal dorsum with erect hairs (Fig. 5g) Croatia; Greece; Turkey. *C. (Myrmentoma) candiotes* Emery
- 17 (11). Head and mesosoma red Balkans; Former Yugoslavia; Lebanon; Israel; Iran; Turkey. *C. (Myrmentoma) vogti* Forel
- Head dark brown, mesosoma red China; Iran; Iraq; Israel; Turkey *C. (Myrmentoma) kurdistanicus* Emery
- 18 (2). Anterior margin of clypeus rounded, does not form a small subrectangular lobe beyond the genal margins (Fig. 5h). 19
- Anterior margin of clypeus extended and forms a small subrectangular lobe beyond the genal margins (Fig. 5j; Fig. 6b, f, h). 24
- 19 (18). Whole body shiny. 20
- Whole body subopaque or dull 21
- 20 (19). Genae, lateral sides of head, occipital corners, and scape with short erect hairs; mesosoma and gaster with long, abundant erect hairs Hungary; Italy; Romania; Slovenia; Turkish Thrace (European part of Turkey) *C. (Myrmentoma) tergestinus* Müller
- Genae, lateral sides of head, occipital corners, and scape without erect hairs (Fig. 5h); mesosoma and gaster with long, scarce erect hairs Europe, Georgia, Iran, Israel, northwestern Kazakhstan, Morocco, southern part of Siberia, Turkey . . . *C. (Myrmentoma) fallax* (Nylander)
- 21 (19). Whole body black. 22
- Body bicolored, mesosoma red, head and gaster black except for anterior part of first gastral segment which lighter than rest of gaster 23
- 22 (21). Anterior margin of clypeus notched medially (Fig. 5i) Iraq; Israel; Turkey. *C. (Camponotus s. str.) cilicicus* Forel
- Anterior margin of clypeus without median notch NW Africa; Caucasus; Europe (until southern Sweden and Finland); N. Kazakhstan; until the Altai mountains in Asia; Turkey. *C. (Camponotus s. str.) vagus* (Scopoli)

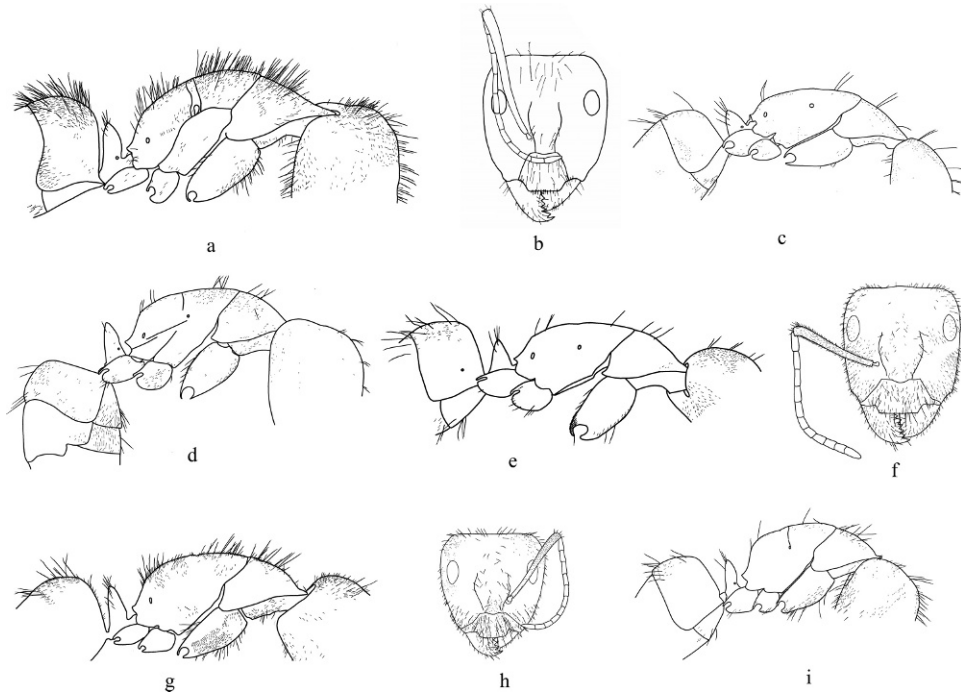


Fig. 6. a) *C. festai*, mesosoma, petiole and gaster of major worker (in profile); b) *C. ionius*, head of major worker (frontal view); c) *C. baldaccii*, head, mesosoma, petiole and gaster of minor worker (in profile); d) *C. sanctus*, mesosoma, petiole and gaster of major worker (in profile); e) *C. oasium*, head, mesosoma, petiole and gaster of major worker (in profile); f) *C. buddhae*, head of major worker (frontal view); g) *C. buddhae*, mesosoma, petiole and gaster of major worker (in profile); h) *C. shaqualavensis*, head of major worker (frontal view); i) *C. shaqualavensis*, mesosoma, petiole and gaster of major worker (in profile).

- 23 (21). Anterior half of the first gaster segment reddish, the rest of the gaster black
Caucasus; Europe; Turkey *C. (Camponotus s. str.) ligniperda* (Latreille)
– Whole gaster black or only reddish spot at anterior of first segment of
gaster Caucasus; Northern and Eastern Europe; southern and central
European Mountains; Kazakhstan; Kyrgyzstan; Mongolia; Siberia;
Turkey. *C. (Camponotus s. str.) herculeanus* (Linnaeus)
- 24 (18). Gaster with short, dense, thick, decumbent pilosity, hairs 3–3.5 times
longer than the distance between each other southern Caucasus; Iran;
Turkey. *C. (Myrmosericus) armeniacus* Arnol'di
– Gaster with much sparser and shorter, decumbent pilosity, hairs at
most 2.5 times longer than the distance between each other 25
- 25 (24). Tibiae ventrally with a row of bristles (Fig. 5k) 26
– Tibiae ventrally without a row of bristles 37
- 26 (25). Gaster with abundant, decumbent pilosity and erect hairs (Fig. 6a);
tibiae with abundant subdecumbent hairs 27
– Gaster with sparse decumbent pilosity and erect hairs (Fig. 6c, d); tibia
without subdecumbent hairs 29
- 27 (26). Gaster unicolor, black 28

- Basal part of gaster yellow to yellowish red and always lighter than dark brown-black rest of gaster Bulgaria; Cyprus; Greece; Italy; Serbia; Turkey *C. (Tanaemyrmex) samius* Forel
- 28 (27). Genae, antennal scape and tibiae with abundant erect hairs (Fig. 5j); head and gaster black, mesosoma red Middle East; Turkey.
. *C. (Tanaemyrmex) festai* Emery
- Genae, antennal scape and tibiae without erect hairs (Fig. 6b); whole body unicolored, black Bulgaria; Greece; Serbia; Turkey.
. *C. (Tanaemyrmex) ionius* Emery
- 29 (26). Genae with erect hairs. 30
- Genae without erect hairs 31
- 30 (29). Whole body dark brown or black Afghanistan; NW Africa; Caucasus; Middle East; Europe; Iran; Kazakhstan; Turkey.
. *C. (Tanaemyrmex) aethiops* (Latreille)
- Whole body red, sometimes gaster brownish-black Greece; Iran; Serbia; Southern Transcaucasia; Turkey *C. (Tanaemyrmex) oertzeni* Forel
- 31 (29). Ventral surface of head with erect hairs (Fig. 6c). 32
- Ventral surface of head without erect hairs, only in major workers of *C. sanctus* 1–2 erect hairs present near foramen magnum (Fig. 6d) . . . 34
- 32 (31). Whole body unicolored, brownish black to black Arabian Peninsula; Egypt; Iran; Iraq; Israel; Jordan; Lebanon; Syria; Turkey
. *C. (Tanaemyrmex) fellah* Tohmé
- At least lower parts of mesosoma lighter than head and gaster 33
- 33 (32). Whole gaster reddish brown to black Bulgaria; Egypt; France; Georgia; Gibraltar; Italy; Luxembourg; Portugal; Spain; Turkey.
. *C. (Tanaemyrmex) sylvaticus* (Olivier)
- Basal part of gaster yellow or reddish yellow, rest of gaster black Greece; Iran; Israel; Saudi Arabia; Turkey. *C. (Tanaemyrmex) baldaccii* Emery
- 34 (31). Gaster unicolored, black Central Asia; Iran; Saudi Arabia; Sinai Peninsula; Turkey *C. (Tanaemyrmex) xerxes* Forel
- Basal part of gaster yellow or reddish yellow, rest of gaster black . . . 35
- 35 (34). Ventral surface of head always bare in major workers; head reddish-brown to brownish in minor workers 36
- Ventral surface of head bare or generally 1–2 erect hairs near foramen magnum in major workers; head yellow to reddish-yellow in minor workers Afghanistan; Bulgaria; Cyprus; Greece; Iran; Israel; Lebanon; Syria; Turkey *C. (Tanaemyrmex) sanctus* Forel
- 36 (35). Mesosoma dorsum with more than 12 erect hairs; petiole dorsum steeply convex N. Africa; Kuwait; Oman; Saudi Arabia; United Arab Emirates; Yemen *C. (Tanaemyrmex) thoracicus* (Fabricius)
- Mesosomal dorsum with at most 10 erect hairs (Fig. 6e); petiole dorsum weakly convex or straight N Africa; Middle East; Iran; Oman; Saudi Arabia; United Arab Emirates *C. (Tanaemyrmex) oasisum* Forel*
- 37 (25). Genae and occipital corners with erect hairs (Fig. 6f, h). 38
- Genae and occipital corners bare Southeastern Asia; Greece (?); Hawaiian Islands; Turkey (?) *C. (Tanaemyrmex) variegatus* (Smith)
- 38 (37). Extensor surface of tibiae and scape with abundant, subdecumbent and erect hairs (Fig. 6f); whole body with abundant hairs (Fig. 6g)

- Afghanistan; Armenia; Iran; Turkmenistan; Kyrgyzstan; Pamir; Tajikistan; Tibet; Transcaucasia; Turkey *C. (Tanaemyrmex) buddhae* Forel
 – Extensor surface of tibiae with only appressed pilosity; antennal scape bare (Fig. 6h); whole body with sparse erect hairs (Fig. 6i) Iran; Iraq; Turkey. *C. (Tanaemyrmex) shaqualavensis* Pisarski

Discussion

Thirty-eight *Camponotus* taxa have been recorded in Turkey. During the examination of the *Camponotus* collection of the Biology Department of Trakya University and the material recently collected by the authors, we described 4 new species (*C. aktaci* n. sp., *C. anatolicus* n. sp., *C. hirtus* n. sp. and *C. honaziensis* n. sp.) and recorded 2 new species for the Turkish fauna (*C. abrahami* and *C. oasium*). We also identified 28 of the 38 formerly recorded taxa from Turkey. The remaining 10 of the 38 taxa (*Camponotus* (*Camponotus* s.str.) *ligniperda* Latreille, 1802, *C. (Myrmentoma) tergestinus* Müller, 1921, *C. (Tanaemyrmex) fellah* Dalla Torre, 1893, *C. (T.) sylvaticus* Olivier, 1792, *C. (T.) thoracicus* Fabricius, 1804, and *C. (T.) variegatus* Smith, 1858, *C. (T.) aethiops* subsp. *escherichi* Emery, 1925, *C. (T.) compressus* subsp. *cosensis* Finzi, 1939, *C. (T.) compressus* subsp. *symiensis* Forel, 1910, *C. (T.) maculatus* subsp. *sylvaticomaculatus* Dalla Torre, 1893) were not found. However, we did not have the opportunity to examine the previously collected material of these taxa from Turkey, to check the accuracy of their existence in Turkey. Of the 10 taxa, 6 are species, and 4 are subspecies. While preparing the key for the worker caste of the genus *Camponotus*, we added the 6 species to the key. However, we did not include the 4 subspecies, whose original descriptions are insufficient to distinguish them from other *Camponotus* taxa, in the key. Thus, the number of *Camponotus* taxa has increased from 38 to 43 (*C. fedtschenkoi* is not included in this calculation as explained below).

All 4 new species belong to the subgenus *Myrmentoma*, which is characterized by the presence of the metanotal groove or at least suture that interrupts the convexity of the mesosoma, by the rounded anterior margin of the clypeus, without a small subrectangular lobe beyond the genal margins and notched medially at least in the major workers. This result is meaningful when Radchenko's (1997b) assertions are considered; he considered Anatolia along with Greece, the Islands of the Aegean Sea, and Middle East the center of origin for some species groups of the subgenus *Myrmentoma*. Thus, the subgenus *Myrmentoma* has become the most speciose subgenus with 18 species while the subgenera *Tanaemyrmex*, *Camponotus* s. str., *Colobopsis* and *Myrmosericus* are represented by 15, 4, 1 and 1 species, respectively.

Moreover, we also recorded 2 new species, (*C. abrahami* and *C. oasium*) of Turkish fauna. Forel described *C. abrahami* in Lebanon in 1913 as a variety of *C. libanicus*, and for almost 100 years, this species was not recorded in any other country. According to Forel, *C. abrahami* is morphologically similar to *C. libanicus*, which is differentiated by the reticulate sculpture of the body, which appears shiny, by the rather thin petiole with a straight posterior face. Our material is consistent with the original description of *C. abrahami*. Thus, *C. abrahami* is recorded for the first time in Turkey.

C. oasium is distributed in North Africa, Middle East, Iran, Saudi Arabia, United Arab Emirates, and Oman. As seen in Fig. 7, *C. oasium* is recorded from Hakkari which is near the border of Iran. Therefore, the record of *C. oasium* in Turkey is

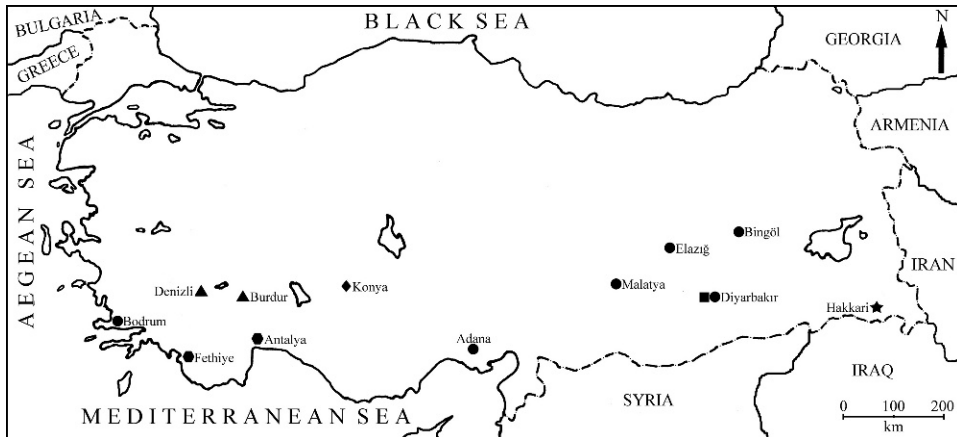


Fig. 7. The distributional map data for the new described species. Symbols: ■ distribution of *C. abrahami*; ● distribution of *C. aktaci*; ◼ distribution of *C. anaticus*; ◆ distribution of *C. hirtus*, ▲ distribution of *C. honaziensis*; ★ distribution of *C. oasium*.

consistent with the Palearctic distribution of the species. *C. oasium* is differentiated from *C. sanctus* by the absence of erect hairs on the ventral surface of head, by the presence of fewer than 10 erect hairs on the dorsum of the mesosoma, and by the subopaque body. *C. oasium* differs from *C. thoracicus*, which is distributed in North Africa, Kuwait, Oman, Saudi Arabia, United Arab Emirates, and Yemen, by the presence of fewer than 10 erect hairs on the dorsum of the mesosoma, and a weakly convex or straight petiole dorsum.

We re-examined 7 ♀♀, 1 ♀, and 1 ♂ from Eastern Anatolia that was previously identified as *C. fedtschenkoi* by Aktaş, but it differs from *C. fedtschenkoi* due to the presence of abundant erect hairs on the genae, occipital corners, scape, and tibiae, the absence of a row of bristles on the tibiae ventrally, and the paler basal part of the gaster compared to the rest. Therefore, *C. fedtschenkoi* is a dubious record for Turkish ant fauna; thus we did not include this species in the identification key. We also concluded that these specimens are similar to *C. buddhae*. However, the specimens differ from the original description of *C. buddhae* due to the presence of short erect hairs on the eyes.

We reexamined the material collected from Turkish Thrace that was previously identified as *C. kurdistanicus* by Aras and Aktaş (1987, 1990) and Çamlıtepe and Aktaş (1987) and concluded that these specimens are *C. gestroi*. Thus, the distribution of *C. kurdistanicus* in Turkish Thrace is doubtful. *C. kurdistanicus* is still found only in the Anatolian part of Turkey.

Acknowledgments

This paper is based on C. Karaman's (2011) doctoral dissertation. This study was supported by Trakya University Research Projects TUAFF-836 and TUAFF-845. Thanks to Dr. Kadri KIRAN and Halil BOLU for their help in collecting some of the specimens. Thanks to Prof. Dr. Wiesław BOGDANOWICZ and Prof. Dr. Wojtek CZECHOWSKI for permission to visit the MIZ PAS Museum and for their kindness and hospitality. We also thank the reviewer, Prof. Dr. Alexander Radchenko, for his comments on an earlier version of this paper.

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