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SHORT NOTE

New occurrence of the mite genus *Columbicheyla* Thewke and Enns (Acari, Cheyletidae) in Turkey

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ABSTRACT: The genus *Columbicheyla* Thewke and Enns included the family Cheyletidae is characterized by presence of propodosomal and hysterosomal shields on idiosoma, presence of eyes, dorsolateral and humeral setae fan-like, dorsocentral setae squamate, palp tarsus with two comb-like setae and one sickle-like seta, palp claw edentate, all legs with claws. The genus comprises two species *viz. Columbicheyla bicirci* Lin and Zhang and *C. macroflabellata* Thewke and Enns. Here we present the new record of *Columbicheyla macroflabellata* for the fauna of Turkey. This is the first occurrence of the genus *Columbicheyla* from Turkey.

Keywords: *Columbicheyla*, fauna, mite, new record, predator.

Members of the family Cheyletidae are mainly free-living predators, and have a worldwide distribution, comprising about 500 described species in 77 genera (Fuangarworn and Lekprayoon, 2010; Zhang et al., 2011; Doğan et al., 2011). By now, three species have been described in the genus *viz. Columbicheyla bicirci* Lin and Zhang, *C. macroflabellata* Thewke and Enns and *C. nindota* (Corpuz-Raros). *C. nindota* was considered as synonym of *C. macroflabellata* by Fain and Bochkov (2001). The genus *Columbicheyla* Thewke and Enns was not represented in Turkey, and this paper reports the presence of this genus in Turkey with *C. macroflabellata*, based on the specimens collected from moss and soil.

The specimens were extracted in Berlese funnels from moss and soil samples collected from Çıkrıkdüzü highland and Zigana gate, Gümüşhane, and from Pülümür Valley, Tunceli. Mites were mounted on microscope slides in Hoyer's medium using the standard method (Walter and Krantz, 2009). Measurements were given in micrometers (µm) by using Leica Application Suite (LAS) Software Version 3.8. Mean values were given first and the range is given parenthetically. Specimens examined were deposited in the collection of the Acarology Laboratory of Erzincan Binali Yıldırım University, Turkey. The terminology used was based on Kethley (1990).

Columbicheyla macroflabellata Thewke and Enns, 1972

Female (n=3)

Body ovoid, length (excluding gnathosoma) 212 (201-225), width 173 (168-183).

Dorsum (Figs 1-2) – Covered by two large shields. Dorsal body setae heteromorphic, laterals fanlike, medians kidney-shaped. Propodosomal shield with faint punctuations, trapezoidal, 87 (85-92) long and 145 (142-151) width, and with four pairs of lateral and one pair of median setae. One pair of eyes on antero-lateral side on the shield. Humeral setae situated laterally, and similar to lateral setae on the shields. Length of hysterosomal shield 108 (104-110), width 152 (147-160) µm, with faint punctuations and with six pairs of lateral and two pairs of median setae. Hysterosomal medians and laterals in the same shape as the propodosomal medians and laterals. Lengths and distances of dorsal setae as follows: *vi* 23 (22-23), *ve* 18 (16-19), *sci* 15 (15-16), *sce* 14 (13-15), c_2 22 (20-25), d_2 14 (13-15), e_2 14 (14-16), f_2 14 (14-16), h_1 8 (7-8), h_2 12 (11-13), h_3 13 (11-14), *vi-vi* 45 (42-47), *ve-ve* 77 (75-79), *vi-ve* 13 (11-15), *sci-sci* 98 (96-100), *ve-sci* 14 (14-15), *sce-sce* 117 (117-118), *sci-sce* 17 (15-19), c_2-c_2 155 (143-167), d_2-d_2 127 (124-130), e_2-e_2 109 (106-112), d_2-e_2 26 (24-27), f_2-f_2 85 (81-87), h_1-h_1 13 (10-16), h_2-h_2 41 (34-53), h_1-h_2 14 (10-17), h_3-h_3 66 (60-75).

Venter – Venter finely striate; intercoxal setae *1a, 3a, 4a* and *4c* short. Ano-genital region with two pairs of aggenital ($ag_{1,2}$), two pairs of genital ($g_{1,2}$) and three pairs pseudanal (ps_{1-3}) setae; ps_1 fanlike others setaceous. Lengths and distance of these setae: *1a* 5 (3-7), *3a* 4 (3-6), *4a* 5 (3-8), *1a-1a* 14 (11-16), *3a-3a* 21 (14-27), *4a-4a* 32 (31-32).

Legs – Leg I 134 (127-138), leg II 94 (92-97), leg III 109 (99-117), leg IV 116 (110-121). Chaetotaxy of leg segments as follows: coxae 2–1–2–2, trochanters 1–1–2–1, femora 2–2–2–1, genua 2–2–2–2, tibiae 5–4–4–4, tarsi 8(+1 ω)–7–7–7.

Gnathosoma – Length of gnathosoma 63 (61-64), width 57 (56-58). Rostrum conical, with two pairs of adoral setae ($or_{1,2}$). Protegmen emarginated, dorsal surface punctuated as tegmen. Peritremes with five segments on each side. Dimension and distance between subcapitular setae, *n* 8 (7-9), *n–n* 11(10-11). Palps short and thick. Palp tarsus

with two comb-like setae and one sickle-like seta. Palp claws edentate. Palp tibiae with one board fan-like dorsal seta and one board fan-like ventral seta near outer edge of segment. Palp genu with one board, fan-like dorsal seta near outer edge of the segment. Palp femur with one board fan-like dorsal seta near outer edge of segment.

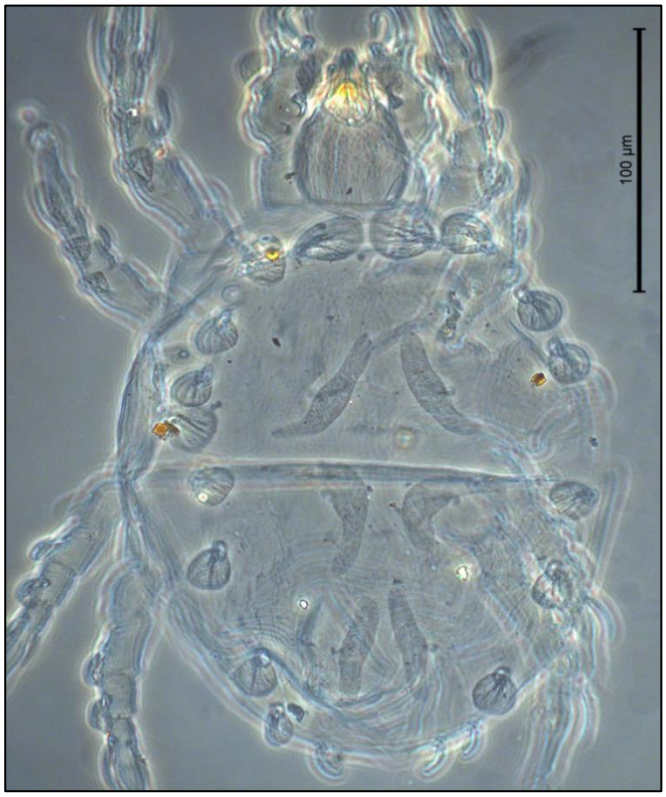

Figure 1. Phase-contrast micrograph of *Columbicheyla macroflabellata* (Female) – General view dorsally

Material examined

One female from soil under stone, Zigana gate, Gümüşhane, TURKEY, 40°38'17"N 39°22'04"E, 2050 m a.s.l., 6 October 2013; one female from moss, Çıkrıkdüzü highland, Gümüşhane, TURKEY, 40°39'58"N 38°59'52''E, 1994 m a.s.l., 12 October 2013; one female from soil from molehill, near to Seyithan Bridge, Pülümür Valley, Tunceli, TURKEY, 39°11'26.5''N 39°42'19.0''E, 988 m a.s.l., 11 November 2018, coll. S. Doğan.

This species was only known in China, Malaysia, the Philippines and USA (Thewke and Enns, 1972; Corpuz-Raros, 1988, 1998; Lin and Zhang, 1997, 2000; Fain and Bochkov, 2001; Xia, 2010). This rarely collected species has not been previously reported from Turkey, but now it is also part of the mite fauna of Turkey. This discrete distribution of the uncommon species cannot be explained by no performing much works on this group.

Columbicheyla macroflabellata was collected from Chinese calabrian pine bark, Chinese sweetgum bark, hickory bark and leaf litter (Thewke & Enns, 1972; Corpuz-Raros, 1988, 1998; Lin and Zhang, 1997). The Turkish specimens were found in soil and moss. This shows that habitat preference of the species is wide.

Thewke and Enns (1972) stated two setae on femur IV whereas Lin and Zhang (1997) and Corpuz-Raros (1988, 1998) mentioned one seta on femur IV. In the Turkish specimens femur IV bears one seta, and they resemble the other specimens of this species in the other features.

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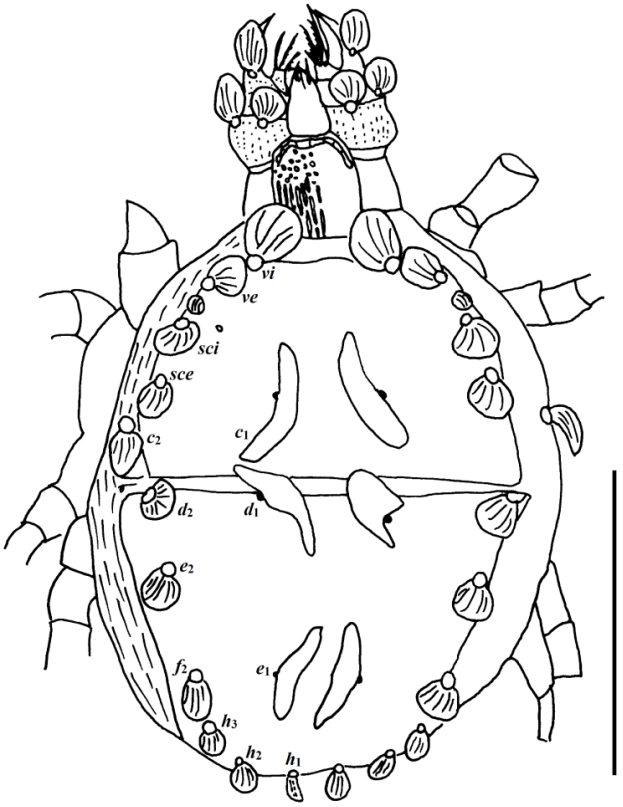

Figure 2. *Columbicheyla macroflabellata* (Female) – Dorsum. Scale 100 µm

REFERENCES

Corpuz-Raros, L.A. 1988. Systematic studies of Philippine cheyletid mites (Acarina). V. New species and new records, with a note on the synonymy of *Tutacheyla* Corpuz-Raros. Philippine Journal of Science, 117: 413-427.

Corpuz-Raros, L.A. 1998. Twelve new species and one new record of Cheyletidae (Acari) from the Philippines. International Journal of Acarology, 24: 259-290. doi: 10.1080/01647959808683594

Doğan, S., Jalaeian, M. and Kamali, H. 2011. New records of two cheyletid mite species (Acari: Cheyletidae) from Iran. Turkish Journal of Zoology, 35: 781-782. doi: 10.3906/zoo-1008-138

Fain, A. and Bochkov, A.V. 2001. A review of some cheyletid genera (Acari: Prostigmata) with descriptions of new species. Acarina, 9: 47-95.

Fuangarworn, M. and Lekprayoon, C. 2010. Two new species of cheyletid mites (Acari: Prostigmata) from Thailand. Zootaxa, 2494: 59-68.

Kethley, J. 1990. Acariformes, Prostigmata. In: Soil Biology Guide. Dindal, D.L. (Ed.). Wiley, New York, 667-756 pp.

Lin, J.-Z. and Zhang, Y.-X. 2000. Cheyletoidea. Insect Fauna of Fujian. Fujian Science and Technology Press, 184-197 pp.

Lin, J.-Z. and Zhang, Y.-X. 1997. Three new species and a new record of Cheyletinae from Fujian (Acari: Cheyletidae). Wuyi Science Journal, 13: 131-138.

Thewke, S.E. and Enns, W.R. 1972. A new genus and three new species of cheyletid mites (Acarina: Cheyletidae) from Missouri and Michigan. Journal of the Kansas Entomological Society, 45: 450-459.

Xia, B. 2010. A review of progress on the systematics and biology of the family Cheyletidae in China, with a checklist of the Chinese cheyletids. Zoosymposia, 4: 158-164.

Walter, D.E. and Krantz, G. 2009. Collecting, rearing, and preparing specimens. In: A Manual of Acarology, 3rd ed. Krantz, G.W. and Walter, D.E. (Eds). Lubbock, Texas Tech University Press, 83-96 pp.

Zhang, Z.-Q., Fan, Q.-H., Pesic, V., Smit, H., Bochkov, A.V., Khaustov, A.A., Baker, A., Wohltmann, A., Wen, T., Amrine, J.W., Beron, P., Lin, J., Gabrys, G. and Husband, R. 2011. Order Trombidiformes Reuter, 1909. In: Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. Zhang, Z.-Q. (Ed.). Zootaxa, 3148: 129-138.

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