

First record of *Amblyseius bryophilus* Karg (Acari: Phytoseiidae) for the Turkish fauna

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Abstract: *Amblyseius bryophilus* Karg (Acari: Phytoseiidae) is recorded for the first time for the Turkish fauna. The specimens were collected on bean plants infested with *Tetranychus urticae* Koch (Acari: Tetranychidae) in Ayder plateau, Rize Province, Turkey. In this paper, the redescription of *A. bryophilus* based on the collected adult females and a key to the Turkish *Amblyseius* species are given.

Key words: Predatory mite, Phytoseiidae, *Amblyseius*, Fauna, Turkey

More than 2250 species of the family Phytoseiidae are known worldwide (Moraes et al., 2004). Some species are important predators and may be more specific in terms of their food sources, while other species are general feeders. Studies on the diet of phytoseiid mites show a range of food sources that include pollen, fungi, nematodes, mites, and insects. Species of the genus *Amblyseius* Berlese are classified as generalist predators because they use a variety of foods (Croft et al., 1997).

Prior to this study, a total of 62 species of phytoseiid mites, 6 of them belonging to the genus *Amblyseius*, were recorded for the Turkish fauna (Faraji et al., 2011a). Previous faunistic studies showed no indication of the presence of *A. bryophilus* Karg in Turkey. In the present study, this phytoseiid mite was collected on bean plants (*Phaseolus vulgaris* L.) infested with *Tetranychus urticae* Koch (Acari: Tetranychidae) from Ayder plateau, Rize Province, Turkey.

Amblyseius bryophilus was first described from Germany on moss (Karg, 1970). Faraji et al. (2011b) redescribed this species based on French specimens. In the current paper, the female of *A. bryophilus*, which is a new record for Turkish phytoseiid mite fauna, is redescribed and illustrated. A key for the 7 *Amblyseius* species known for the Turkish fauna is also provided.

The specimens were collected from bean plants using a camel hair brush and stored in 95% ethanol. Permanent slides were made using Hoyer's medium. A Zeiss Axioskop 2 plus drawing tube (camera lucida) was used for the illustrations. The taxonomic system is based on that proposed by Chant and McMurtry (2004,

2006) for Amblyseiinae. The setal notations used follow Lindquist and Evans (1965) as adapted by Rowell et al. (1978) to phytoseiid mites. The key to Phytoseiidae of Turkey proposed by Faraji et al. (2011a) is the basis of the revised key for the identification of Turkish species of *Amblyseius*. All measurements are given in micrometers (μm) and presented as the mean followed by the range in parentheses. Voucher slides are deposited in Acarology Lab. of the Department of Plant Protection, Çukurova University, Adana, Turkey.

Family Phytoseiidae Berlese

Subfamily Amblyseiinae Muma

Genus *Amblyseius* Berlese

Amblyseius bryophilus Karg

Amblyseius bryophilus Karg, 1970: 298.

Material examined

Two female specimens collected by İsmail Döker, at Ayder plateau, Rize Province, Turkey, (40°59'18"N, 41°03'42"E, 825 m above sea level) 2 July 2012, on *Phaseolus vulgaris* L. (Fabaceae).

Female (n = 2)

Dorsum (Figure 1). Dorsal setal pattern 10A:9B (r3 and R1 off shield). Dorsal shield oval with waist, sclerotized, reticulated, bearing 9 pairs of pores. Muscle-marks (sigilla) visible, mostly on podosoma, length of dorsal shield (j1-J5) 347 (346-348), width (distance between bases of s4) 166 (162-170), (distance between bases of S2) 210. All dorsal setae smooth except for Z4, Z5, and J5, which are serrated. Measurements of dorsal setae as follows: j1 21 (20-22), j3 35 (34-36), j4 7 (6-8), j5 5 (4-6), j6 9 (8-10), J2 9 (8-10), J5 8, z2 14, z4 12, z5 6, Z1 9 (8-10), Z4 84

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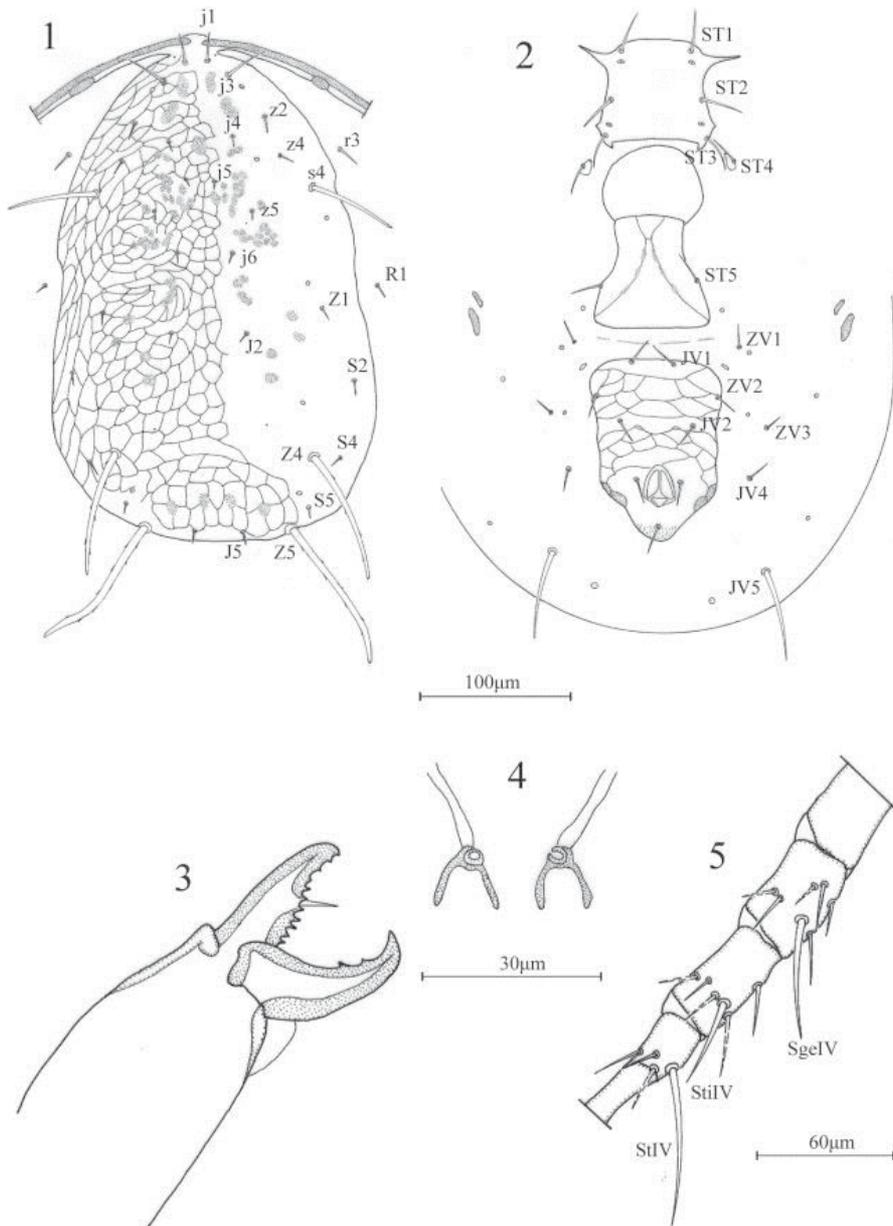
(83–85), Z5 101 (99–103), s4 62 (61–63), S2 11 (10–12), S4 9 (8–10), S5 9 (8–10), r3 17 (16–18) and R1 10. Peritreme extending beyond the level of setae j1.

Venter (Figure 2). Ventral setal pattern 14:JV-3:ZV. Sternal shield smooth, slightly sclerotized, with 3 pairs of setae (ST1, ST2, and ST3) and 2 pairs of pores (pst1 and pst2); length (ST1–ST3) 63, width (distance between setae ST2) 69; metasternal setae ST4 and a pair of pores (pst3) on metasternal shields. Genital shield smooth; width at level of genital setae (ST5) 72 (69–73). Ventrianal shield subpentagonal, reticulated, with 3 pairs of preanal setae

(JV1, JV2, and ZV2), anal setae (a1, a2, and a3), one pair of crescent-like solenostomes posteromedial of JV2 and muscle marks posterolaterally. Length of ventrianal shield 123, width 97 (95–99). Setae JV4, JV5, ZV1, ZV3, and 7 pairs of pores on integument surrounding ventrianal shield. Seta JV5 smooth, 49 (48–50) in length.

Chelicerae (Figure 3). Fixed digit 27 (26–28) long with 10 visible teeth, with pilus dentilis; movable digit 30 long with 2 teeth.

Spermatheca (Figure 4). Calyx bell-shaped, 11 (10–12) long; atrium nodular; major duct long, minor duct not visible.



Figures 1–5. *Amblyseius bryophilus* Karg (♀). Dorsal shield, 2. Ventral surface 3. Chelicera 4. Spermathecae, 5. Leg IV.

Legs (Figure 5). Length of legs (base of coxae to base of claws) as follows: leg I 348; leg II 289 (285–293); leg III 295 (293–297); leg IV 386 (384–388). GeII, GeIII, and GeIV with 8, 7, and 7 setae, respectively. Leg IV with 3 macrosetae, SgeIV 55 (53–57), StiIV 42 and StIV 73 (72–75).

Male.

Unknown.

The genus *Amblyseius* Berlese is the largest grouping of species in the subfamily Amblyseinae (Mesostigmata: Phytoseiidae), with 344 nominal species (Chant and McMurtry 2004). However, only 6 of them, namely *A. largoensis* (Muma), *A. obtusus* (Koch) *A. swirskii* Athias-Henriot, *A. andersoni* (Chant), *A. armeniacus* Arutunjan and Ohandjanian, and *A. kadhajai* Gomelauri are known for the Turkish fauna (Faraji et al., 2011a). In the present study, *A. bryophilus* is recorded for the first time for Turkey. Among the other 6 species known, *A. bryophilus* is the only species that has a reticulated dorsal shield. Morphological characters and measurements of the Turkish specimens are very close to those of the original description and redescription.

Turkish specimens of *A. bryophilus* were collected from *P. vulgaris* associated with *T. urticae*. No study has yet been done on the food habits and biology of this species. Therefore, further studies should be conducted to determine biological parameters and effectiveness of this

species against some economically important pest species such as spider mites, thrips, and whiteflies.

Key to species of the genus *Amblyseius* Berlese in Turkey based on adult females

- 1 Ventrianal shield vase-shaped *A. largoensis* (Muma)
 - Ventrianal shield not vase-shaped 2
 2 Seta Z5 longer than width of dorsal shield; spermatheca with calyx annulated, flared distally
 *A. obtusus* (Koch)
 - Seta Z5 shorter than width of dorsal shield; spermatheca with calyx not annulated. 3
 3 Ventrianal shield with large elliptical (crescent-shaped) preanal solenostomes 4
 - Ventrianal shield with small round preanal solenostomes 6
 4 Dorsal shield reticulated *A. bryophilus* Karg
 - Dorsal shield smooth 5
 5 Seta Z5 102–116 µm long; atrium of spermatheca relatively long; StiIV at most reaching the insertion of StIV
 *A. swirskii* Athias-Henriot
 - Seta Z5 longer than 150 µm; atrium of spermatheca short and c-shaped; StiIV passing well behind the insertion of StIV
 *A. andersoni* (Chant)
 6 Seta Z4 almost reaching insertion of seta S4
 *A. armeniacus* Arutunjan and Ohandjanian
 - Seta Z4 short, less than 1/3 of distance between setae Z4 and S4
 *A. kadhajai* Gomelauri

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