A new species of predatory mite (Acari: Phytoseiidae) from Kerala, India

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ABSTRACT: Mites belonging to the family Phytoseiidae are renowned biocontrol agents of the plant feeding mites and other phytophagous insects. A survey conducted in different districts of North Kerala revealed a new species of predatory mite under the family Phytoseiidae from Thrissur district. The new species viz., Amblyseius perseani sp. nov. is described with appropriate illustrations. © 2014 Association for Advancement of Entomology

KEYWORDS: Amblyseius, Mesostigmata, Kerala, India, new species.

INTRODUCTION

Phytoseiid mites (Acari: Mesostigmata) constitute a large family of predatory mites. They are fast movers that have extensively exploited the foliage of higher plants (Chant and McMurty, 2007). They are seen mostly feeding on spider mites but can also survive on small insects, nematodes, fungi, honeydew and pollen (McMurty and Croft, 1997; Van Rijin et al., 2002; Nomikou et al., 2003). The importance of the mite family Phytoseiidae in biological and integrated control of injurious plant mite has stimulated taxonomic and ecological work on the group and has led to the discovery and descriptions of more than 2280 species from the world (Chant and McMurty, 2007; Tixier et al., 2012).

Genus Amblyseius was erected by Berlese in 1914 and Zercon obtuses Koch (1839) was designated as its type species. The status of subgenus to genus Amblyseius was given by Chant (1959). Pritchard and Baker (1962) also recognized it as a genus. They divided it into groups and described 20 species in it. Denmark and Muma (1989) revised the genus and described 136 species.

Based on several different characters, genus Amblyseius consists of five different groups and

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they are the *americanus*, *largoensis*, *obtusus*, *pusillus* and *sundi*. The *americanus* group with z4 longer; the *largoensis* group with the female ventrianal shield vase shaped or divided into separate ventral and anal shield; the *obstusus* group with setae z4 shorter; the *pusillus* group with seta J2 absent; and the *sundi* group with setae Z1 absent (Chant and Mc Murty, 2004).

The genus *Amblyseius* is further diagnosed in having a lightly sclerotized dorsal shield, female ventrianal shield with variety of shapes, chelicerae with many teeth, leg I, II, III with macrosetae, spermatheca highly variable in form, seta s4, Z4 and Z5 usually greatly elongated with a few exceptions and caudoventral seta ZV3 unstable and absent on a number of species (Chant and McMurty, 2007).

*Amblyseius* is the largest group of species in the subfamily Amblyseiinae with 367 nominal species and out of them 25 are known from India (Chant and McMurty, 2007). The research work of Chant and Baker (1965), Chant and Hansell (1971), De Leon (1966), Ehara (1959, 1966), Khan et al., (2000), Muma and Denmark (1970), Schuster and Pritchard (1963), Tuovinen (1993), Wainstein and Arutunjan (1970), on the genus *Amblyseius* is worth mentioning. Despite of this, there is only a meagre contribution to the acarine fauna from the region of Kerala and the new species described here is a result of the rapid surveys taken to explore the diversity of predatory mites from various districts of Kerala.

The specimens under study were collected from infested parts of economically important plants by beating or shaking methods. Specimens were cleared in lactic acid and permanent slides were prepared using Hoyer Cs medium (Walter and Krantz, 2009). Detailed structural studies and illustrations were made using Wild Leitz GMBH microscope. All measurements are given in microns. The classification system used is that of Chant and McMurty (2007). The setal nomenclature is of Rowell et al. (1978).

All the type specimens are kept in the Department of Zoology, Malabar Christian College but eventually will be transferred to the National Zoological Collection of the Zoological Survey of India, Calicut, Kerala.

*Amblyseius perseani* sp.nov. (Fig. 1)

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**Material examined**


Paratype: Three paratype slides, collection details same as holotype (No.C 25/6, 25/7, 25/8).
Female

**Dorsum.** Dorsal shield gently reticulate specially at the posterior region and indistinct at the anterior region, with 4 pairs of lyrifissures, 17 pairs of setae present, all being smooth. Shield 363 359 (355–363) long and 257 253 (249–257) wide. Setae ji 32 (26–32), j3 45 (36–45), j4 5 4 (3–5), j5 3 3 (2–3), j6 5 4 (3–5), J2 6 5 (4–6), J5 5 4 (3–5), z2 8 7 (6–8), z4 5 4 (3–5), z5 4 4 (3–4), Z1 6 5 (4–6), Z4 84 79 (75–84), Z5 157 154 (152–157), s4 95 94 (92–95), S2 6 5 (4–6), S4 5 4 (3–5), S5 6 5 (4–6), R1 8 7 (6–8). Distances between ji 10 9 (8–10), j3 41 39 (37–41), S5 6 5 (4–6) and S4 5 4 (3–5).

long and 55 51 (49–55) wide with three pairs of preanal setae measuring JV1 17 16 (13–17), ZV2 12 10 (9–12), JV2 17 15 (13–17) long. Setae ZV1 12 10 (9–12), ZV3 12 10 (9–12), JV4 13 11 (10–13), JV5 62 59 (57–62) long, anal setae a1 14 11 (10–14), a2 14 12 (10–14), a3 12 10 (9–12).

Peritreme. Extends anteriorly up to the base of j1.

Spermatheca. Spermatheca with tubular cervix and short atrium, major duct quite wide, minor duct invisible.

Chelicera. Fixed digit on chelicera 27 26 (24–27) long, smooth, movable digit 31 29 (25–31) long with six teeth anterior to pilus dentilus and four teeth posterior to that.

Legs. Macrosetae present on leg IV: genu IV 113 111 (109–113), tibia 81 78 (75–81), basitarsus 69 67 (65–69).

Leg chaetotactic formula: Genu II 2 2/0 2/0 1; Tibia II 1 2/1 1/1 1

Genu III 1 1/1 2/1 2; Tibia III 1 2/1 2/0 1

Etymology. The nomenclature of this new species is based on the name of the host plant Persea americana Mill. from which the specimen was collected.

Male: Unknown.

Habitat: Persea americana Mill, family Lauraceae.

Remarks: This species resembles Amblyseius largoensis (Muma, 1955) in having almost similar lengths of dorsal setae but it can be separated by following characters:

1. Fixed digit of chelicerae with six teeth anterior to pilus dentilus against four teeth in largoensis.
2. Difference in chaetotactic formula with regard to genu III, tibia III and Tibia II.
3. Cervix of spermatheca also differs in length being shorter in this species as compared to that of largoensis.
4. Length of macrosetae also differs in the two species with regard to the length of macrosetae on tibia and basitarsus.

This new species is also seen related to Amblyseius phillipsi (McMurty and Schicha, 1987) but differs distinctly in following characters.
1. Shape of sternal shield is lacking notch on the posterior margin as is present in case of *phillipsi*.

2. Setae Z5 smaller in this new species as compared to that in *phillipsi*.

3. Macrosetae on leg IV being smaller in this new species as it is longer in the case of *phillipsi*.

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**REFERENCES**


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