Genus *Euseius* Wainstein (Acarina: Phytoseiidae) Two New Predatory Mites 
Species from Pakistan

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**Abstract:** Two new species *Euseius affinis* and *Euseius alto*no. belonging to the genus *Euseius* Wainstein of the family Phytoseiidae are described. A detailed description of these species along with measurements have been given.

**Key words:** *Euseius affinis*, *Euseius alto*, Pakistan

**Introduction**

Genus *Euseius* is one of the important predatory genera of the world distribution. This genus was erected by Wainstein in 1962 and he designated *Euseius finlandicus* Oudemans as its type species. A great deal of taxonomic work on this genus has been carried out in the world by Deleoh (1966), Denmark and Muna (1970, 1975, 1978), Gupta (1978), Denmark and Andrews (1981), Gilberto et al. (1982), McMurtry and Morant (1985), Walter (1959), in Pakistan, Chaudhri et al. (1979) described 3 new species, Ahmed et al. (1987), Khan and Chaudhri (1991), Khan et al. (1992), and Qayyum (2000) described 4, 23 and 2 new species in this genus respectively. The authors have now collected and described 2 new species, thus making a total of 16 species in this genus from Pakistan. The terminology and abbreviation used are those of followed by Rowell et al. (1978).

**Euseius affinis**, new species

(Fig. 1A-F)

**Female:**

**Dorsum:** Dorsal shield smooth, deeply concave near *R1*; 360 µm long, 170 µm wide with 17 pairs setae and 5 pairs pores (4 pairs elliptical, 1 pair rounded) (Fig. 1A). Chelicera 23 µm long; movable digit with 1 tooth, fixed digit with 2 subapical teeth (Fig. 1B). All dorsal shield setae smooth except *Z6* weakly serrate, setae measuring: *J1* 23 µm, *J2* 25 µm, *J4* = 15 - 20 µm, *J6* = 15 - 20 µm, *J6* = 16 - 18 µm, *J6* = 16 - 18 µm, *Z2* 25 µm, *Z4* 28 µm, *Z6* 20 µm, *Z6* 18 µm, *Z4* 23 µm, *Z6* 43 µm; *S4* 33 µm, *S2* 25 µm, *S4* 20 µm, *S6* 23 µm, *R3* 25 µm and *R1* 18 µm in length (both on membrane). Setae *J3* = *J3* - *J2*; *Z2* < *Z2* - *Z4*; *Z4* < *Z4* - *S5*; *S5* > *S6* - *Z6*. Setae anterior to setae *S4*, 28 µm and *S3* µm apart respectively from setae *S4* and *S5*. (Fig. 1A). Peritreme blunt ended, reaching between setae *Z4* and *Z2*. Peritreme shield base broad, 38 µm long, with 1 process on ventral side, in middle (Fig. 1E).

**Venter:** Sternal shield margins not clear. Genital shield smooth, 96 µm wide, wider than ventralian shield width, setae 1 pair. Genital and ventralian shields 10 µm apart, membranous fold present between them. Ventral shield smooth, oval, 70 µm long, 50 µm wide, 3 pairs preanal setae, 1 pair elliptical pores (Fig. 1C). Four pairs setae including *JVS* 23 µm, smooth and 1 pair pores on membrane surrounding ventralian shield. Metapodal platelets 1 pair on each side; primary, elongate, pointed posteriorly, rounded anteriorly, 23 µm long; secondary, 4 µm long (Fig. 1C). Spermatheca cervix bulging out at base, tubular posteriorly, 8 µm long; atrium undifferentiated; major duct tubular; vesicle flask-like (Fig. 1D).

**Legs:** Leg IV with 3 macrosetae, 1 seta each on genu, tibia and basitarsus, measuring 15 µm - 16 µm and 28 µm in length, respectively, all setae pointed, simple (Fig. 1F).

**Male:** Not came in collection.

**Type:** Holotype female, collected 2205-4600 (Baluchistan) on 24.x.1995 (Shahbaz) from unidentified host plant No. 1/65 and deposited in the Acarology Research Laboratory, Department of Agric. Entomology, University of Agriculture, Faisalabad, Pakistan.

**Remarks:** *Euseius affinis*, new species is closely related to *Euseius asperum* Zia but following characters separate them from each other.

1. Cheliceral movable digit with 4 teeth in *asperum* but 2 teeth in this new species.
2. Dorsal shield setae *J3*, *Z4*, *S4*, *S2*, *S4*, *S6* and *Z4* serrated in *asperum* whereas all dorsal shield setae smooth except setae *Z6* serrate in this new species.
3. Peritreme reaching up to setae *J3* in *asperum* but reaching between setae *Z4* and *Z2* in this new species.
4. Shape of spermatheca differs in both the species; vesicle ovate in *asperum* but flask-like in this new species.

**Euseius affinis**, new species differs from *Euseius 8ubillus*, Parvez due to the following characters:

1. Dorsal shield with 6 pairs pores (3 pairs elliptical, 3 pairs rounded) in 8ubillus but 6 pairs pores (4 pairs elliptical, 1 pair rounded) in this new species.
2. Seta *J3* = *J3* - *J2* in 8ubillus but seta *J3* = *J3* - *J2* in this new species.
3. Seta *Z4* < *Z4* - *S4* in 8ubillus but seta *Z4* < *Z4* - *S4* in this new species.
4. Two pairs pores on membrane surrounding ventralian shield in 8ubillus, but 1 pair pores in this new species.

Shape of spermatheca differs in both the species; cervix funneliform; vesicle rounded in 8ubillus but cervix bulging out at base, tubular posteriorly; vesicle flask-like in this new species.

**Euseius alto**, new species

**Female:** (Fig. 2A-F)

**Dorsum:** Dorsal shield smooth, sole shaped bulging out near setae *S4* deeply concave near *R1*; 230 µm long, 156 µm wide with 17 pairs setae and 3 pairs elliptical pores. (Fig. 2A). Chelicera 18 µm long; movable digit with 1 tooth, fixed digit with 2 subapical teeth (Fig. 2B). All dorsal shield setae smooth except *Z6* weakly serrate, setae measuring: *J1* 30 µm, *J3* 23 µm, *J4* 10 µm, *J6* 13 µm, *J8* = *J2* = 16 µm, *J6* 5 µm: *Z2* 20 µm, *Z4* 23 µm, *Z5* 13 µm, *Z1* 13 µm, *Z4* 20 µm, *Z6* 50
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µm; 448 µm, S2 = S4 = 23 µm, S5 = 25 µm; r1 = 15 µm and R1 = 13 µm, length (both on membrane). Seta3 < j3 < z2, z2 < z2 < z4, z4 < z4 < z5, S6 < S6 = S6; seta Z4 anterior to seta S4, 16 µm and 23 µm apart from S4 and S8, respectively (Fig. 2-A). Peritreme blunt ended, reaching much below seta s4. Peritremal shield base, 13 µm long, as shown in Fig. 2-B.

Venter: Sternal shield 82 µm long, 85 µm wide, anterior margins almost straight, 3 pairs sternal setae, 2 pairs pores; sternal setae St1 < St4 < St2 < St2 < St3. Metasternal setae 1 pair, on membrane, metasternal platelets absent. Genital shield smooth, 88 µm wide, wider than ventral shield width, setae 1 pair, Genital and ventral shield 83 µm apart, membranous fold absent between them. Ventral shield smooth, ovate, 82 µm long, 60 µm wide. Setae preanal setae 1 pair elliptical pores (Fig. 2-C). Four pairs setae including vJ6, 25 µm long, smooth on membrane surrounding ventral shield. Metapodal platelets 1 pair on each side: primary, elongate, rounded anteriorly, pointed posteriorly, 13 µm long; secondary, 4 µm long (Fig. 2-C). Spermatheca cervix tubular, with a bend medially, other parts not clear (Fig. 2-D).

Legs: Leg IV with 3 macrosetae, 1 seta each on genu, tibia and basitarsi, measuring 60 µm, 76 µm and 80 µm in length, respectively, all setae pointed, simple (Fig. 2-F).

Male: Not found in collection.

Type: Holotype female, collected Daphar Forest on 24.vii.1996 (Shahbaz), form unidentified host plant No. 12/96, paratypes 1 female, same collection data, 2 females, collected Jhang on 20.ix.1994 from “Citrus” Citrus sinensis. All deposited in the Acarology Research Laboratory, Department of Agric. Entomology, University of Agriculture, Faisalabad - Pakistan.

Remarks: Euseius altoraro, new species is closely related to Euseius lucidus, Faure due to most of body the characters but following characters separate these two species from each other.

1. Chalicer axial movable digit without teeth and fixed digit with 3 teeth in lucidus whereas movable digit with 1 tooth and fixed digit with 2 teeth in this new species.
2. Dorsal shield with 10 pairs pores in lucidus but 3 pairs pores in this new species.
3. Setae j3 and z4, longer than the distances to seta next in line in lucidus, but seta j3 and z4, smaller in this new species.
4. Peritreme crossing seta z2 in lucidus but much below seta s4 in this new species.
5. Shape of peritremal shield base varies in both the species.
6. Shape of spermatheca varies in both the species.
7. Euseius altoraro, new species. Euseius caudatus, new species. Euseius basidius, new species, Euseius demissus, new species. Euseius affinis, new species. Euseius affinis, new species is closely related to one another due to the absence of membranous fold between genital and ventral shields; serrate setae 28 and 26 anterior to seta S4 and S6 but the following characters separate Euseius altoraro, new species from above mentioned species.

1. Dorsal shield with variable number of pores in caudatus, basidius, demissus, affinis but 3 pairs pores in this new species.
2. The position of peritreme different in caudatus, basidius, demissus, affinis, but reaching much below seta s4 in this new species.
3. Shape of peritremal shield base differs in all the species. Shape of ventral shield varies from one another in all the species.

References