

## ***Grandjeanella kamalii* sp. nov. (Acari: Erythraeidae) from Iran with a key to world species**

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### **Abstract**

*Grandjeanella kamalii* sp. nov. (Acari: Erythraeidae) is described from larvae as free-living on *Phaseolus vulgaris* L. (Fabaceae) from Uromieh, Iran. A key to world species of *Grandjeanella* Southcott, 1961 is presented.

**Key words:** Acari, Erythraeidae, new species, *Grandjeanella*, Iran

### **Introduction**

Seven species of the genus *Grandjeanella* are known as larvae in the world: *G. westraliensis* (Womersley, 1934), *G. pangela* Southcott, 1996, *G. shepherdae* Southcott, 1996, *G. charadrea* Southcott, 1996 all from Australia, *G. multisetosa* Zhang & Goldarazena, 1996 and *G. haitlinger* Goldarazena & Zhang, 1997 both from Spain and *G. bella* Zhang, 1996 (in Zhang & Goldarazena 1996) from Iran.

In this paper we describe the larva of *Grandjeanella kamalii* sp. nov. from Iran. The terminology and abbreviations are adapted from Goldarazena and Zhang (1998) and Haitlinger and Saboori (1996). Measurements are given in micrometers.

***Grandjeanella kamalii* sp. nov. (Figs. 1-11)***Description*

Holotype larva slightly engorged; idiosoma elongate; dorsal surface with about 120 weakly barbed setae (Fig. 1); setae at posterior margin of idiosoma somewhat longer than other scutalae (AL somewhat shorter than PL). Anterior sensillae (AM) short and barbed in distal half; posterior sensillae (S) distinctly longer than AM and barbed in distal half. Bases of AM placed behind AL bases (Fig. 3). One eye on each side: cornea 20 across.

Ventral surface of idiosoma with weakly barbed sternalae *Ia* between coxae I; 2 pairs of weakly barbed setae between coxae I and II; 56 weakly barbed setae between coxae II and III; behind coxae III about 43 weakly barbed setae. NDV = 120 + 99 = 219. Coxae I - III each with 1 barbed seta (Fig. 2).

Gnathosoma elongate with 2 pairs of nude hypostomalae. Palpal femur with 2 weakly barbed setae; genu and tibia each with 2 weakly barbed setae; palptarsus bearing 8 setae including solenidion and distal eupathidium (Figs. 4-5). Palpal tibial claw bifurcate. An accessory claw on palptibia thick and pointed apically (Fig. 5).

Leg setal formula: Leg I: Ta - 1 $\omega$ , 1 $\epsilon$ , 2 $\zeta$ , 8N, 13B; Ti - 2 $\phi$ , 1 $\kappa$ , 13N; Ge - 1 $\sigma$ , 1 $\kappa$ , 11 N; TFe - 8N; BFe - 5N; Tr - 2N (Figs. 6 & 9). Leg II: Ta - 1 $\omega$ , 2 $\zeta$ , 5N, 17B; Ti - 2 $\phi$ , 13N; Ge - 1 $\sigma$ , 1 $\kappa$ , 9N; TFe - 5N; BFe - 5N; Tr - 2N (Figs. 7 & 10). Leg III: Ta - 1 $\zeta$ , 5N, 17B; Ti - 1 $\phi$ , 10N, 3B; Ge - 9N; TFe - 5N; BFe - 5N; Tr - 2N (Figs. 8 & 11).

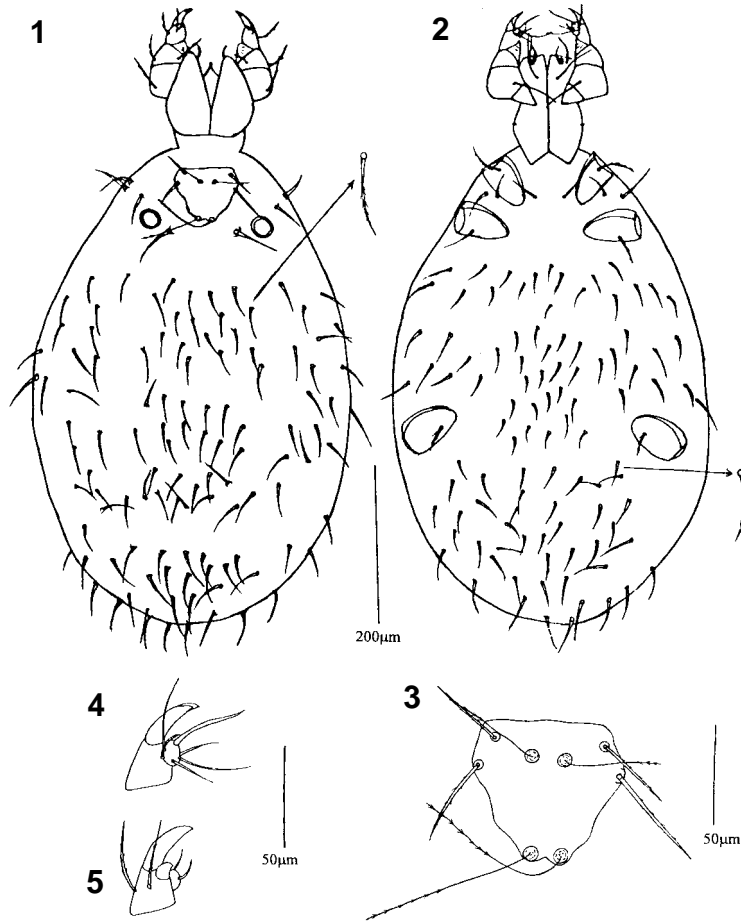
IP = 400 + 365 + 437 = 1202 holotype

IP = 396 + 374 + 446 = 1216 paratype

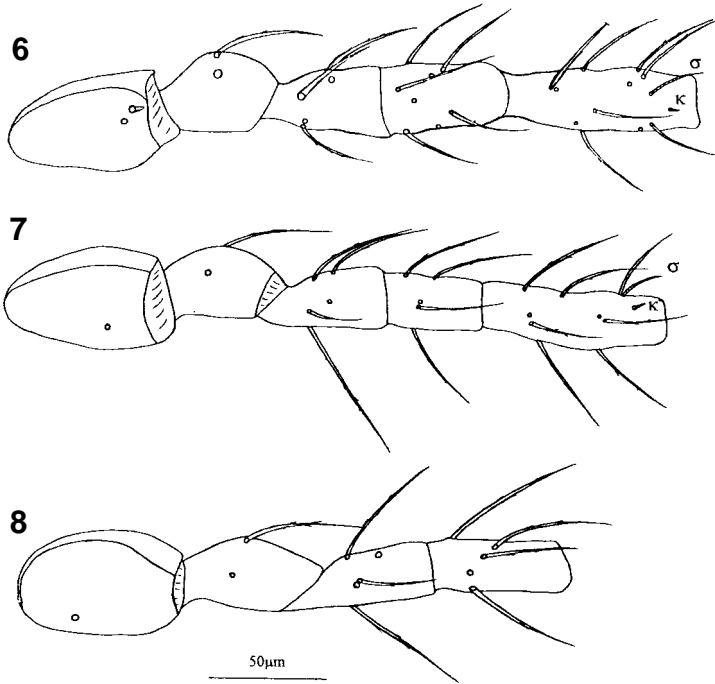
Measurements are given in Table 1.

*Etymology*

The species is named in honour of Dr. K. Kamali (Tarbiat Modarres University, Tehran, Iran), one of the most famous acarologists of Iran.



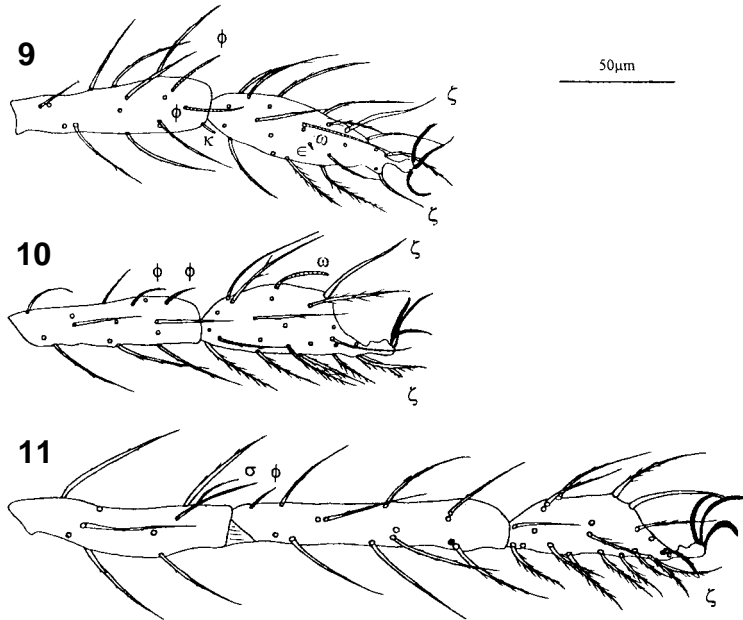
**FIGURES 1-5.** *Grandjeanella kamalii* sp. nov. (larva). 1, dorsal view of idiosoma and gnathosoma; 2, ventral view of idiosoma and gnathosoma; 3, scutum; 4, ventral view of palptibia and palptarsus; 5, dorsal view of palptibia and palptarsus.



FIGURES 6-8. *Grandjeanella kamalii* sp. nov. (larva). 6, leg I, coxa- genu; 7, leg II, coxa-genu; 8, leg III, coxa-telofemur.

#### *Types*

The holotype (ARS-19970723-1a) and paratype (ARS-19970723-1b) larvae were collected by A. Atamehr as free-living forms on *Phaseolus vulgaris* L. (Fabaceae), 23 July 1997, from Uromieh, Iran. The holotype is deposited in the Acarological Collection, Zoological Museum, College of Agriculture, Tehran University, Karaj, Iran and the paratype is deposited in the Acarological Collection, Department of Entomology, College of Agriculture, Science and Research Branch, Islamic Azad University, Tehran, Iran.



**FIGURES 9-11.** *Grandjeanella kamalii* **sp. nov.** (larva). 9, leg I, tibia and tarsus; 10, leg II, tibia and tarsus; 11, leg III, genu-tarsus.

#### Remarks

*Grandjeanella kamalii* **sp. nov.** is similar to *G. multisetosa*, *G. bella* and *G. haitlingerii*. It differs from *G. multisetosa* by fD, fV, the number of normal setae on each tibia, and by the dorsal and ventral setae not being borne on platelets; from *G. bella* by the shape of the scutum, fD, fV and the number of normal setae on TFe, Ge and Ti; and from *G. haitlingerii* by fV, the number of normal setae on Ti, the number of eupathidia on the palptarsus, and longer legs I-III and IP.

**TABLE 1.** Metric data of *Grandjeanella kamalii* sp. nov. (larvae)

Characters	Holotype	Paratype	Characters	Holotype	Paratype
IL	440	297	Hy	~50	27?
IW	308	198	Ta I (L)	77	74
SD	58	61	Ta I (H)	24	21
W	66	66	Ti I	69	74
AW	44	47	Ge I	77	74
PW	60	60	TFe I	36	38
AA	14	14	BFe I	47	44
SB	13	14	Tr I	42	42
ISD	41	41	Cx I	52	50
AP	19	14	Ta II (L)	66	74
AL	36	36	Ta II (H)	18	24
PL	49	44	Ti II	63	74
AM	41	40	Ge II	69	66
S	77	69	TfeII	30	33
DS	30-36	30-36	Bfe II	41	36
PDS	41-44	38-41	Tr II	41	36
<i>1a</i>	25	22	Cx II	55	55
<i>1b</i>	41	46	Ta III (L)	77	74
<i>2b</i>	36	33	Ta III (H)	19	22
<i>3b</i>	22	22	Ti III	96	102
GL	192	124	Ge III	77	79
PaScFed	~38	~38	TFe III	41	44
PaScFev	49	44	BFe III	47	47
PaScGed	33	~22	Tr III	41	42
PaScGev	33?	33?	Cx III	58	58

**Key to world species of *Grandjeanella* (larva)**

1. Posterior sensillary setae located slightly behind middle of scutum, SD > W ..... 2
- Posterior sensillary setae located near posterior edge of scutum, SD < W ..... 5
2. TiIII/GeIII < 1.25 ..... 3
- TiIII/Ge > 1.25 ..... 4

- 3 AW < 60, terminal eupathidium at least twice as long as palpal tibial claw . . . . . *G. pangela*  
 - AW > 60, terminal eupathidium less than twice as long as palpal tibial claw . . . . . *G. shepherdae*  
 4 AW/ISD < 1.5 . . . . . *G. charadrea*  
 - AW/ISD > 1.5. . . . . *G. westraliensis*  
 5 fD < 50, fn BFe 4-4-4, fn TFe 9-9-8 . . . . . *G. bella*  
 - fD > 100 . . . . . 6  
 6 fD > 150, fn Ti 13-13-11 . . . . . *G. multisetosa*  
 - fD < 130 . . . . . 7  
 7 fV > 150, palptarsus with 2 eupathidia, IP > 1500. . . *G. haitlingeri*  
 - fV < 100, palptarsus with 1 eupathidium, IP < 1300 . . . . .  
 . . . . . *G. kamalii* **sp. nov.**

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