

## Article

### A new oribatid mite of the genus *Ramusella* (Acari: Oppiidae) from Iran

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#### Abstract

A new species of oribatid mite of the family Oppiidae, *Ramusella* (*Ramusella*) *iranica* **sp. nov.**, is described from Iran. The new species is characterized by the radiate sensillus, with ten long ciliae on its head; barbed notogastral setae and five pairs of genital setae. An identification key to the Iranian species of *Ramusella* (*Ramusella*) is given.

**Key words:** Oribatida, Oppiidae, *Ramusella*, new species, Iran

#### Introduction

The genus *Ramusella* was established by Hammer (1962) with *Ramusella puertomonttensis* Hammer, 1962 as the type species. *Ramusella* (*Ramusella*) has been represented, until now, by 20 species and one subspecies (Subías 2004, online version 2011). According to the identification key by Balogh & Balogh (1992), the main diagnostic characteristics of the nominal subgenus are: nine pairs of notogastral setae; five pairs of genital setae; three pairs of muscle sigillae between the interlamellar setae; fusiform, ciliate or pectinate sensillus; para-anal position of *iad* fissure and geniculate rostral setae.

In the course of a study on the species diversity of oribatid mites of Shiraz city, the capital of Fars province, southern Iran, one species belonging to *Ramusella* (*Ramusella*) was found. *Ramusella* (*R.*) *iranica* **sp. nov.** is described here as a species new to science. Prior to this study there were five records of this subgenus from Iran: *Ramusella* (*R.*) *clavipectinata* (Michael, 1885); *Ramusella* (*R.*) *sengbuschi tokyoensis* (Aoki, 1974); *Ramusella* (*R.*) *sengbuschi* s. str. Hammer, 1968; *Ramusella* (*R.*) *curtipilus* Hammer, 1971 and *Ramusella* (*R.*) *puertomonttensis* Hammer, 1962 (Haddad Irani-Nejad 2003; Akrami and Subías 2007).

## Results and discussion

Family Oppiidae Sellnick, 1937

### *Ramusella* (*Ramusella*) *iranica* sp. nov. (Figs. 1–5)

#### *Type material*

Holotype (female): Badjgah village, Shiraz, Fars province, southern Iran, soil of bermudagrass (*Cynodon dactylon* (L.)), 29° 32' N, 52° 35' E, 1810m above sea level, 5-IX-2009, M. Behmanesh leg. Three paratypes (two females; one male): one specimen, soil of wheat (*Triticum aestivum* L.), 11-IV-2007, S. Bozorgmanesh leg., other data the same; one specimen, soil of alfalfa (*Medicago sativa* L.), 11-IV-2009, other data the same; one specimen, Kaftarak village, Shiraz, Fars province, southern Iran, soil of alfalfa, 29° 30' N, 52° 50' E, 1409m above sea level, 18-XI-2009, M. Behmanesh leg. The type specimens are deposited in the Acarological Collection, Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, Iran. Measurements are given in micrometers ( $\mu\text{m}$ ).

#### *Diagnosis*

The new species differs from other members of the genus by the body size, 292–313  $\times$  125–147; lamellar and translamellar lines well developed; radiate sensillus, its head with ten long ciliae; barbed notogastral setae; five pairs of genital setae; leg tibia I with two short solenidia,  $\phi_1$  slightly longer than  $\phi_2$ .

#### *Description*

*Measurements.* Holotype: body length 313, width of notogaster 128; paratypes (n=3): body length 292–307 (mean 298), width of notogaster 125–147 (mean 138).

*Prodorsum* (Figs. 1 & 2). Rostrum rounded in dorsal view; rostral setae (*ro*) long, geniculated, situated far from each other on the dorsolateral sides of the rostrum, barbed unilaterally; lamellar (*le*), interlamellar (*in*) and exobothridial (*ex*) setae almost equal in length, shorter than *ro*, finely barbed, bilaterally in former two and unilaterally in latter; sensilli (*ss*) long, radiate, head rounded with ten long barbs, barbs longer than length of sensillar head, its stalk thick with some sparse, short barbs; one muscle sigilla situated between each interlamellar seta and bothridium, and some sigillae anterior to each bothridium; lamellar and translamellar lines well developed.

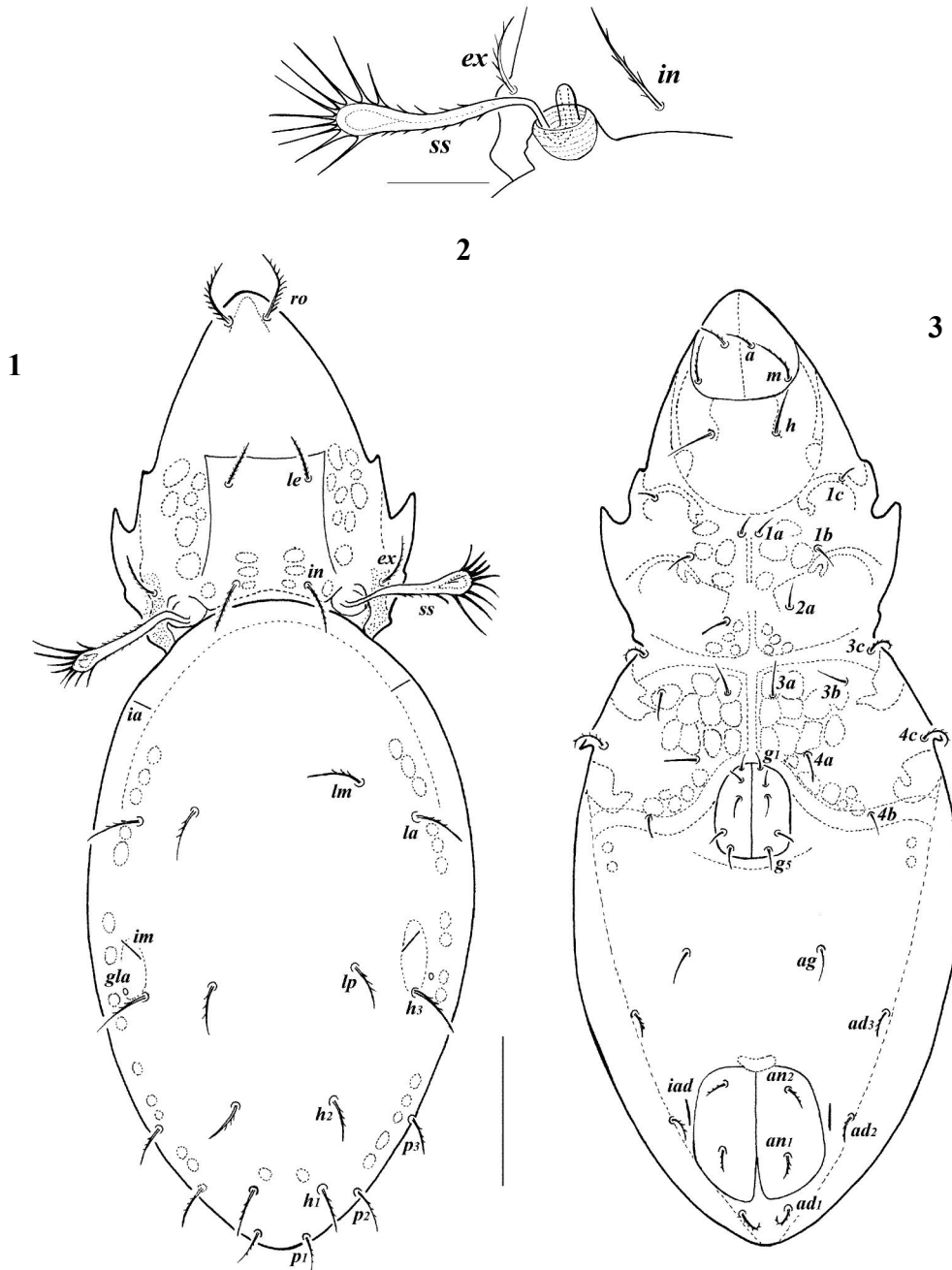
*Notogaster* (Figs. 1 & 3). Notogaster elongate, oval, broadly rounded anteriorly, but conspicuously narrowed posteriorly, dorsosejugal suture convex; nine pairs of notogastral setae long and distinctly barbed unilaterally, seta *c*<sub>2</sub> vestigial, seta *la* slightly posterior to *lm*; lyrifissures *ia*, *im*, *ip*, *ih*, *ips* (two latter are well visible in the ventral aspect) and opisthonotal gland (*gla*) opening well developed.

*Gnathosoma.* Gnathosoma as in congeners, hypostomal setae *h*, *m* and *a* moderately long, thin, *a* shorter than two others, *a* and *m* finely barbed, *h* smooth.

*Epimeral region* (Fig. 3). Epimeral region with a few muscle sigillae; epimeral setae mostly short, thin and smooth, only *3c* and *4c* finely barbed.

*Anogenital region* (Fig. 3). Anogenital plates with five pairs of genital setae (*g*<sub>1</sub>–*g*<sub>5</sub>) (three arranged on anterior half and others on posterior half of the plates), one pair of aggenital (*ag*), two pairs of anal (*an*<sub>1</sub>–*an*<sub>2</sub>) and three pairs of adanal setae (*ad*<sub>1</sub>–*ad*<sub>3</sub>); *ad*<sub>3</sub> situated in preanal position near *ag*, genito-aggenital setae smooth, ano-

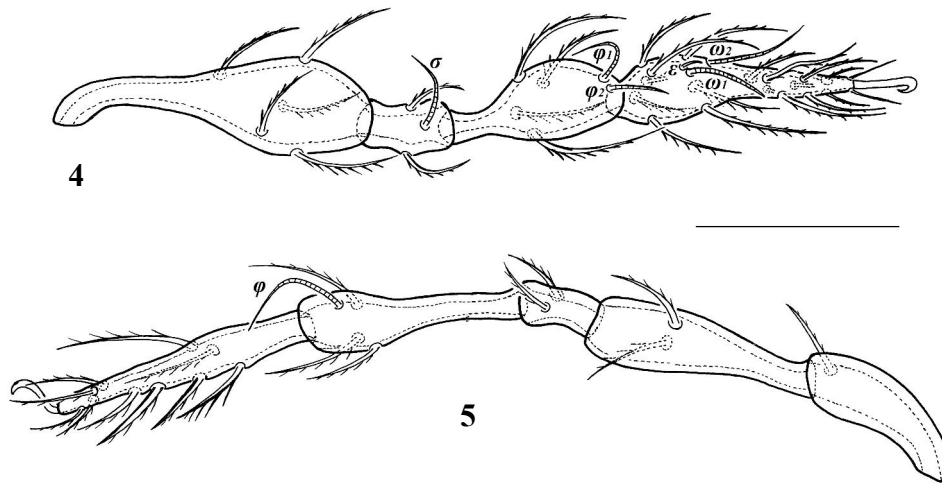
adanal setae finely barbed; anogenital region smooth with two small sigillae situated posterolaterad of each epimeral seta 4b; *iad* fissures in para-anal position and adjacent to anal plates.



**Figures 1–3.** *Ramusella (Ramusella) iranica* sp. nov. 1. Dorsal view of idiosoma and gnathosoma; 2. Sensillus; 3. Ventral view of idiosoma and gnathosoma (legs and palps not shown). Scale bar 50  $\mu$ m (Figs. 1, 3), 20  $\mu$ m (Fig. 2).

*Legs* (Figs. 4 & 5). Leg setation as in congeners. All setae on podomeres (except famulus) barbed. Formula of leg setation including famulus (trochanter to tarsus): I (1-5-2-4-20); II (1-5-2-4-12); III (2-3-1-3-11); IV (1-2-2-3-10) and the

formula of solenidia: I (1-2-2); II (1-1-2); III (1-1-0); IV (0-1-0). On tarsus I solenidion  $\omega_1$  slightly shorter than  $\omega_2$ ; famulus  $\varepsilon$  short and slender, situated proximal to  $\omega_1$ , tibia I with two short solenidia,  $\varphi_1$  slightly longer than  $\varphi_2$ , genu I with solenidion  $\sigma$  slightly longer than dorsolateral setae; tibia IV with solenidion  $\varphi$  also slightly longer than tibial setae.



**Figures 4–5.** *Ramusella (Ramusella) iranica* sp. nov. 4. Leg I (trochanter not shown); 5. Leg IV. (Scale bar 25  $\mu$ m).

*Etymology*

The specific epithet is derived from the country of origin, Iran.

*Remarks*

The new species resembles the Moroccan species, *R. (Ramusella) paillei* (Mahunka, 1980) in the shape of the sensillus and having barbed notogastral, anal and adanal setae, but it can be easily distinguished from the new species by having four pairs of genital setae, longer notogastral, epimeral and ano-adanal setae, barbed epimeral and aggenital setae, less radiate sensillus with thin and narrow stalk, and smaller body length (270–277), but larger body width (147–169).

Subías (2004) put *Oppia paillei* Mahunka, 1980 in the subgenus *Ramusella (Insculptoppiella)*, but because of its radiate sensillus, we consider it in the subgenus *Ramusella (Ramusella)*.

**Identification key to the Iranian species of *Ramusella (Ramusella)***

- 1. Sensillus fusiform, ciliate .....2
- Sensillus radiate or with pectinate or clavate head .....4
- 2. Interlamellar setae long, as long as lamellar setae.....
- ..... *R. (R.) curtipilus* Hammer, 1971
- Interlamellar setae short, shorter than lamellar setae .....3
- 3. Head of sensillus with very short ciliae.....
- ..... *R. (R.) sengbuschi tokyoensis* (Aoki, 1974)

- Head of sensillus with long ciliae ..... *R. (R.) sengbuschi* s. str. Hammer, 1968
- 4. Sensillus radiate, with ten long barbs ..... *R. (R.) iranica* **sp. nov.**
  - Sensillus pectinate or clavate .....5
- 5. Sensillus long, with pectinate fusiform head, with very long ciliae.....
  - ..... *R. (R.) puertomonttensis* Hammer, 1962
  - Sensillus short, with pectinate claviform head, with short barbs.....
    - ..... *R. (R.) clavipectinata* (Michael, 1885)

### Acknowledgement

This study was partly supported by the project "Fauna of oribatid mites of Shiraz, Fars province" funded by Shiraz University which is greatly appreciated.


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Received: 20 June 2011

Accepted: 5 July 2011

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## چکیده

گونه جدیدی از کنه‌های اربیاتید خانواده Oppiidae با نام *Ramusella (Ramusella) iranica* **sp. nov.** از ایران توصیف می‌شود. این گونه جدید با داشتن سنسیلوس شعاعی با ۱۰ مژک بلند در نوک آن؛ موهای روی نوتوگاستر دارای مژک‌های ریز و پنج جفت موی جنسی مشخص می‌شود. کلید شناسایی گونه‌های زیرجنس *Ramusella (Ramusella)* ایران ارایه شده است.