

## Article

### A new species of the genus *Neognathus* (Acari: Caligonellidae) from Iran

Alireza Nazari<sup>1\*</sup>, Mohammad Khanjani<sup>2</sup> & Karim Kamali<sup>1</sup>

*1* Department of Entomology, Science and Research Branch, Islamic Azad University, Tehran, Iran; E-mail: Nazariazad@yahoo.com

*2* Department of Plant Protection, College of Agriculture, Bu Ali-Sina University, Hamadan, Iran, E-mail: Khanjani@basu.ac.ir

\* Corresponding author

#### Abstract

A new caligonellid mite species of the genus *Neognathus*, *N. rijabicus* **sp. nov.**, is described and illustrated from females collected in wheat litter in Kermanshah province, Iran.

**Keywords:** Caligonellidae, mite, adult, female, Kermanshah province.

#### Introduction

*Neognathus* Willmann, 1952, is a rather small genus belonging to the family Caligonellidae of the superfamily Raphignathoidea, comprising 12 described species at present, namely, *N. insolitus* Willmann, 1952 (Germany), *N. terrestris* (Summers & Schlinger, 1955) (USA), *Neognathus spectabilis* (Summers & Schlinger, 1955) (USA), *N. orientalis* Soliman, 1971 (Egypt), *N. cinis* Chaudhri, Akbar & Rasool, 1979 (Pakistan), *N. eupalopus* Meyer & Ueckermann, 1989 (South Africa), *N. davei* Meyer & Ueckermann, 1989 (South Africa), *N. jielui* Hu & Yu, 1995 (China), *N. linanensis* Hu, 1995 (China), *N. harteni* Ueckermann, 2008 (South Africa), *N. ozkani* Akyol & Koç, 2012 and *N. ueckermanni* Bagheri, Doğan & Haddad Irani-Nejad, 2010 (Iran). Ueckermann & Khanjani (2003) and Doğan & Ayyildiz (2003) reported *N. terrestris* from Iran and Turkey, respectively.

#### Material and Methods

During a survey of different climatic region in west of Iran, one new species of *Neognathus* was collected from wheat litter in wheat farm, Rijab, Kermanshah province, Iran. For extraction of mites, the samples were processed through Berlese funnels for at least 24 hours. The collected mites were transferred into vials with 70% alcohol, then were sorted under a stereomicroscope and *Neognathus* mites preserved in small vials of 70% alcohol and few drop glycerin. Permanent slides made using Hoyer's medium. The mounted specimens were identified using a phase contrast microscope and the illustrations prepared by using an ocular grid. The new species was distinguished as different with help of existing keys and literature of Summers & Schlinger (1955), Soliman (1971), Chaudhri *et al.* (1979), and Meyer & Ueckermann (1989). The setal

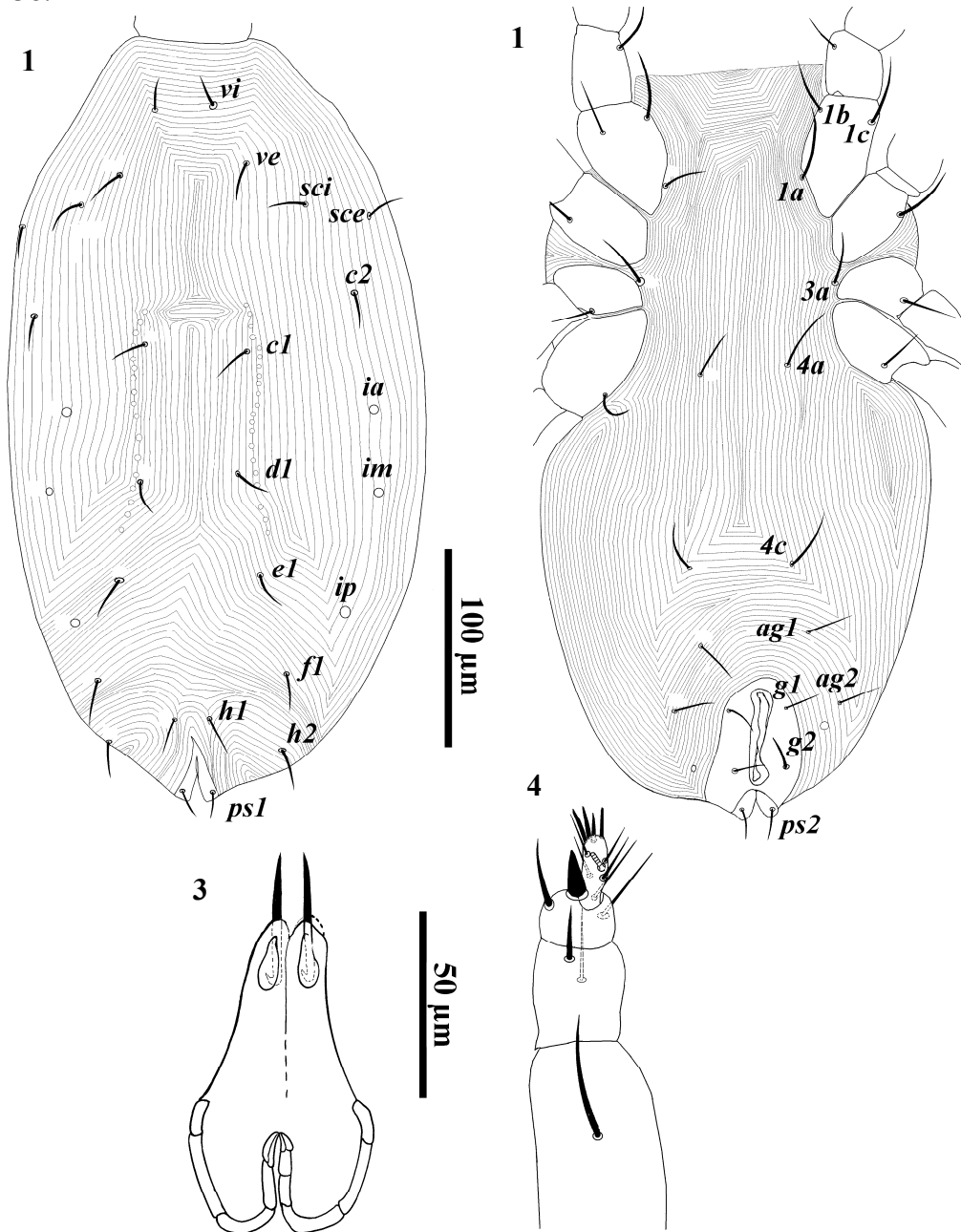
nomenclature of Kethley (1990) and Grandjean (1944) has been followed. All measurements are given in micrometer ( $\mu\text{m}$ ).

## Results

### *Neognathus rijabicus* sp. nov. (Figs. 1–8)

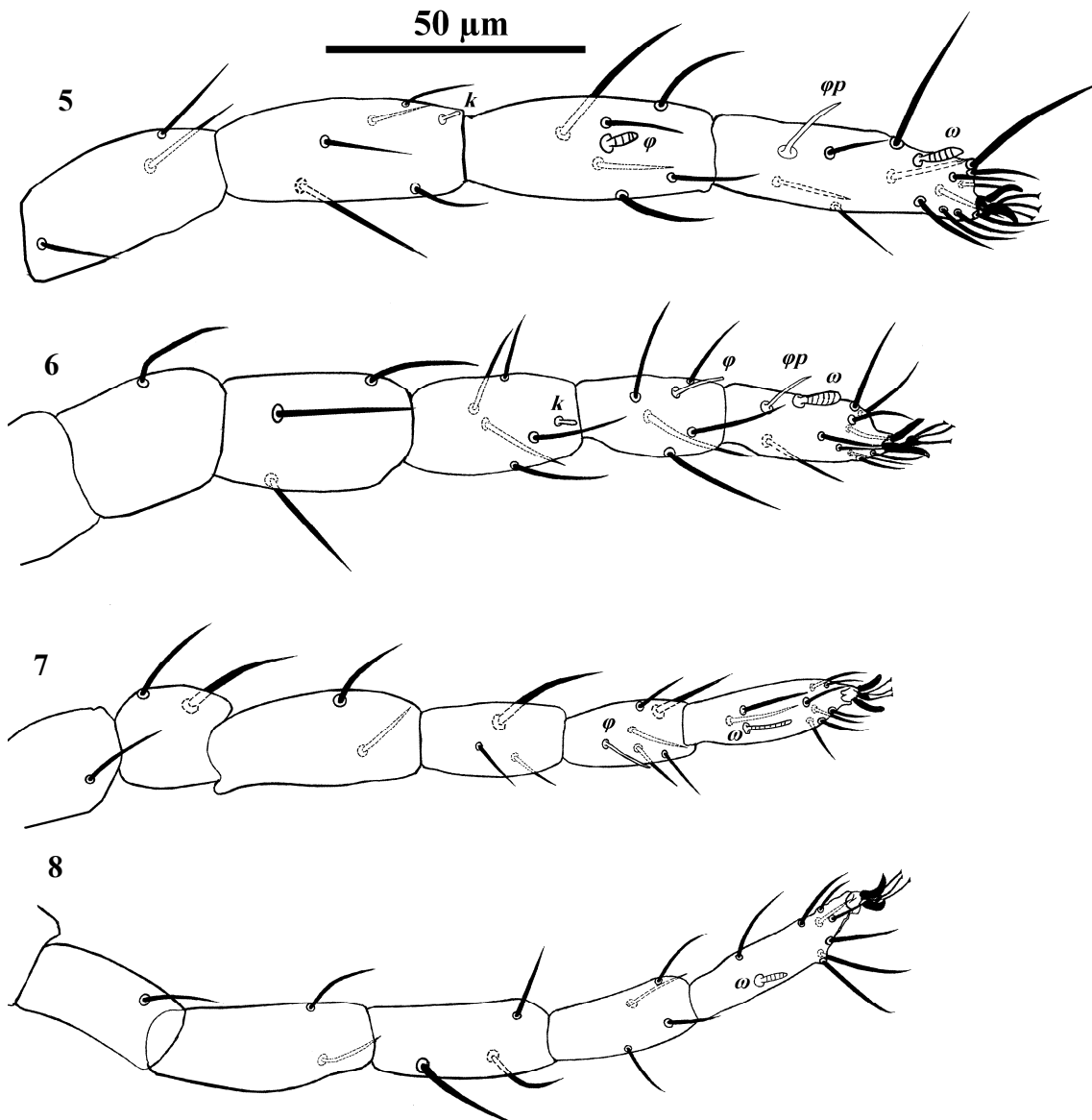
#### Female

female, length of body 450-471 (including gnathosoma), 308-316 (excluding gnathosoma), width 170-182, leg I 239-231, leg II 180-192, leg III 177-175 and leg IV 230-238.



**Figures 1–4.** *Neognathus rijabicus* sp. nov. (Female). 1. Dorsal view of idiosoma; 2. Ventral view of idiosoma; 3. Stylophore; 4. Palp.

*Gnathosoma*. Stylophore pear-shaped, proximal half bulbous; peritremes w-shaped, with 5-6 segments (Fig. 3). Palp tarsus bearing four distally eupatidia + one solenidion + four tactile setae, tibial claw of palpus about half as long as palptarsus; tibia with one well-developed claw + three tactile setae; genu with two tactile setae, femur with one setae (Fig. 4).



**Figures 5–8.** *Neognathus rijabicus* sp. nov. (Female). 5. Leg I; 6. Leg II; 7. Leg III; 8. Leg IV.

*Dorsum* (Fig. 1). Dorsal integument entirely with simple striae, mostly longitudinal but transverse posteriorly, eyes absent. Integument with three pairs of dorsolaterally cupules, *ia* posterolateral to setae *c*<sub>1</sub>, *im* lateral to setae *d*<sub>1</sub> and *ip* posterolateral to setae *e*<sub>1</sub> (Fig. 1). Anal covers dorsoventrally with two pair of setae (*ps*<sub>1-2</sub>) but seta *ps*<sub>1</sub> in dorsal position: a pair of setae dorsally and pair of setae subdorsally. All dorsal setae are simple, length of dorsal setae as follows: *vi* 11-11, *ve* 13-12, *sci* 15-16, *sce* 15-15, *c*<sub>1</sub> 16-15, *c*<sub>2</sub> 14-14, *d*<sub>1</sub> 16-15, *e*<sub>1</sub> 16-17, *f*<sub>1</sub> 18-17, *h*<sub>1</sub> 10-10, *h*<sub>2</sub> 16-15, *ps*<sub>1</sub> 11-10; distance

between setae: *vi-vi* 22-25, *ve-ve* 42-39, *vi-ve* 78-73, *sci-sci* 50-45, *ve-sce* 23-21 *ve-sci* 20-20, *sce-sce* 130-126, *sci-sce* 42-39, *sce-c2* 40-43, *c1-c1* 36-38, *c2-c2* 125-119, *c1-c2* 46-42, *d1-d1* 37-39, *c1-d1* 54-50, *e1-e1* 55-53, *e1-f1* 26-23, *e1-h1* 29-31, *f1-f1* 63-62, *h1-h1* 20-18, *h2-h2* 60-53, *h1-h2* 34-33, *f1-h1* 29-31, *f1-h2* 30-32.

*Venter* (Fig. 2). Ventral surface with striae, six pairs of setae, setae *1a* and *3a* not set on the coxal shields; coxae in two groups; length of ventral setae as follows: *1a* 15-16, *1b* 24-22, *1c* 22-21, *2c* 24-23, *3a* 24-24, *3c* 11-10, *4a* 24-22, *4b* 21-20, *4c* 22-23, *ag1* 20-21, *ag2* 19-18, *g1* 21-19, *g2* 15-14 and *ps2* 13-12.

*Legs* (Figs. 4–7). Chaetotaxy formulae of leg segments as follows (solenidia and other specialized setae in parentheses and not included in counting): coxae 2-1-1-1, trochanter 1-1-2-1, femora 3-3-2-2, genua 5( $\kappa$ )-5( $\kappa$ )-3-3, tibiae 5(2 $\phi$ )-5( $\phi$ )-5( $\phi$ )-4, tarsi 14(2 $\omega$ )-10(2 $\omega$ )-9( $\omega$ )-8( $\omega$ ), all setae smooth.

*Male*: Unknown

#### *Type Material*

The holotype female was collected by M. Khanjani, 4 April 2004, from wheat litter, Dalahoo, Rijab, Kermanshah province, Iran and one paratype female collected by A. Nazari, 25 March 2013, from Dalahoo, Kermanshah province. The holotype female is preserved as slide mounted specimen and deposited in the Arachnida Collection of ARC-Plant Protection Research Institute, Pretoria, South Africa and paratype female is deposited in the Acari collection of Bu-Ali Sina University, Hamedan, Iran.

#### *Remarks*

This species resembles *N. davei* Meyer & Ueckermann, *N. spectabilis* Meyer & Ueckermann and *N. terrestris* but it differs from them by: 1) The number of setae in the tibiae of the new species (including solenidia) 7-6-6-4 vs. in *N. davei* (including solenidia) 6-6-5-4. The setae on the tarsi of the new species (including solenidia) 16-12-9-9 vs. 16-10-9-9 in *N. davei*; 2) It differs from *N. spectabilis* (according to Swift, 1996 and Summers, 1957); setal formula of tibiae (including solenidia) 7-6-6-5 (tibia IV with a solenidion) vs. 7-6-6-4 (tibia IV without a solenidion) in new species, setal formula of femora 4-3-2-2 vs. 3-3-2-2 in new species; 3) Also, *N. terrestris* differs from the new species in that a solenidion on tarsus IV is absent vs. present in the new species. According to Summers (1957) tibia II is without a solenidion, but according to Doğan (2003) it is present, will like to follow Summers in this. The number of peritematal segments also differs considerably between these two species, the new species with 5-6 segments instead of 3-4. Tarsi III of *N. terrestris* is apparently also absent, Summers (1957) unfortunately do not describe leg IV, but according to Doğan (2003) tarsi III and IV no solenidion on tarsi III and IV and contains only 9 and 8 tactile setae respectively whereas the new species tarsi III and IV with solenidion plus 9 and 8 setae. The new species also resembles *N. ueckermanni* Bagheri *et al.*, 2010 in most features except: tarsus II with 10(2 $\omega$ ) vs. 9(2 $\omega$ ) in *N. ueckermanni*, with two pairs of aggenital setae vs. three pairs in *N. ueckermanni*, ventral setae *1a* and *3a* on soft cuticle vs. on endopodal shield in *N. ueckermanni*, cupules *ia* posterolateral to setae *c1*, *im* lateral to setae *d1* and *ip* posterolateral to setae *e1* in *N. rijabicus* vs. *ia* lateral to setae *c1* and at the same level, *im* located between *c1* and setae *d1* and *ip* lateral to setae *e1* and at the same level.

### Etymology

The species is named after the region “Rijab” of its origin.

### Acknowledgment

This paper is a part of Ph. D. thesis program in Agricultural Entomology and was supported by the Islamic Azad University, Scientific and Research Branch, Tehran, Iran. The authors would like to thank vice research of Islamic Azad University for financial support of this project.

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Received: 18 February 2013

Accepted: 17 April 2013

Published: 15 August 2013

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### گونه جدیدی از جنس *Neognathus* (Acari: Caligonellidae) از ایران

علیرضا نظری، محمد خانجانی و کریم کمالی

#### چکیده

گونه جدیدی از کنه های جنس *Neognathus* با نام *Neognathus rijabicus* **sp. nov.** از ایران توصیف می شود. این کنه از جنس ماده بوده و از خاک مزارع گندم استان کرمانشاه جمع آوری شد.

واژگان کلیدی: *Strunkobia*، گزارش میزبان، گزارش جدید، کرمان.

تاریخ دریافت: ۱۳۹۱/۱۱/۲۹

تاریخ پذیرش: ۱۳۹۲/۱/۲۸

تاریخ چاپ: ۱۳۹۲/۵/۲۴