



A New Species of the Family Quadropiidae and a New Subspecies of the Family Oppiidae (Acari, Oribatida) from Iran

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ABSTRACT

A new species of oribatid mites of the family Quadropiidae Balogh, 1983, *Quadropia* (*Coronoquadropia*) *iranica* n. sp., and a new subspecies of the family Oppiidae Sellnick, 1937, *Oppiella* (*Oppiella*) *nova mazandaranica* n. ssp. are described from Iran. The new species is recognized by a rectangular frontal appendage in the rostral region, in front of the transcostula, with distinct borders; large cristae on notogastral anterior margin with inner border smaller than outer border. This species was collected from the soil under forest trees, especially *Alnus* sp. Also, the new subspecies is distinguishable by a pair of great muscular impressions in the interlamellar region. This subspecies was collected from the soil of rice field, *Oryza sativa* L.

Key words: Acari, Oribatida, Quadropiidae, Oppiidae, new species and subspecies, Iran.

INTRODUCTION

At first, the family Quadropiidae Balogh, 1983 was represented by only a single genus, *Quadropia* Jacot, 1939 of which the type species was designated by Jacot as *Notaspis quadricarinata* Michael, 1885. Then, two genera, *Hexoppia* Balogh, 1958 and *Borhidia* Balogh and Mahunka, 1974 were added. Ohkubo (1995) proposed the genus *Coronoquadropia* with *Coronoquadropia parallela* Ohkubo, 1995 as the type species [Subías (2004) lowered the genus to the subgeneric rank, and synonymized the type species with *Oppia circumita* Hammer, 1961], which differs from *Quadropia* in having a frontal appendage in front of the transcostula. Most recently, Subías (2009) listed 23 species belonging to three genera of this family in his catalogue. In this paper we describe *Quadropia* (*Coronoquadropia*) *iranica* n. sp. as the first record of the family Quadropiidae from Iran.

The genus *Oppiella* Jacot, 1937 of the family Oppiidae has been represented by two subgenera and nine species (Subías, 2004). The main diagnostic characteristics discriminating this genus from the other genera of the subfamily Oppiellinae Seniczak, 1975 are the straight dorsosejugal

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suture, S-shaped cristae, protruding humeral processes in the anterior margin of the notogaster, and five pairs of genital setae. The subgenus *Oppiella* Jacot, 1937 is distinguished from the subgenus *Perspicuoppia* Pérez-Íñigo, 1971 by the rounded outer angle of the crista. *Oppiella* (*O.*) *nova* (Oudemans, 1902), with its three subspecies (Subías, 2009), is a cosmopolitan species and has considerable morphological variation. A new subspecies, *Oppiella* (*Oppiella*) *nova mazandaranica*, is described in this paper from Iran.

MATERIALS AND METHODS

In the course of a faunistic survey of oribatid mites of Mazandaran Province, Northern Iran, soil and litter samples were taken from the surface to a soil depth of 10 cm under forest trees and crop plants. Mites were extracted from the samples by Berlese-Tullgren funnels set over jars of 75% ethanol. Oribatid mites were removed, cleared in lactophenol and mounted in Hoyer's medium on microscopic glass slides. The slides were placed in an oven at 45°C for one week and then the specimens were examined using a light microscope.

RESULTS

Family Quadropiidae Balogh, 1983

Quadropia (*Coronoquadropia*) *iranica* n. sp.

(Figs. 1-2)

Measurement: Body length 177 µm and width 107 µm (n=2).

Prodorsum: (Fig. 1). Rostrum broadly rounded; rostral setae (*ro*) long, inserted on lateral margins of rostrum, situated far apart, extending beyond the tip of rostrum, slightly arched, finely barbed; costulae connected with a transcostula to each other; a rectangular frontal appendage with four borders present in rostral region, in front of transcostula, its borders strongly edged, posterior border clearly separated from transcostula; costulae well-developed, far apart and encircling bothridia posteriorly and adjacent to each other anteriorly, the length of costulae nearly half as long as total length of prodorsum; a concave transcostula connecting the terminal parts of costulae; lamellar setae (*le*) short, thin and smooth, inserted on tip of costulae, reaching the posterior border of frontal appendage; interlamellar setae (*in*) shorter than lamellar setae, thin and smooth; sensillus (*ss*) aciculate, with narrow stalk, its head covered with small spicules; bothridia round; exobothridial regions granulated; three pairs of muscle sigillae situated in interlamellar region, between costulae.

Notogaster: (Fig. 1). Notogaster circular; anterior notogastral margin straight with large cristae, the inner border of cristae shorter than the outer, extending for a distance equal to half the length of notogaster, reaching to setae *lm*; setae *la* situated adjacent to the middle of the outer border of cristae; notogastral groove longer than outer border of notogastral cristae, extending beyond the setae *h*₃; nine pairs of notogastral setae short and smooth, setae *c*₂ situated on outer border of notogastral cristae, setae *lm* posterior to *la*; latero-opisthosomal gland (*gla*) opening developed, situated posteromedially to notogastral groove.

Ventral side: (Fig. 2). Surface of epimeral region with a few round muscle sigillae; apodemata

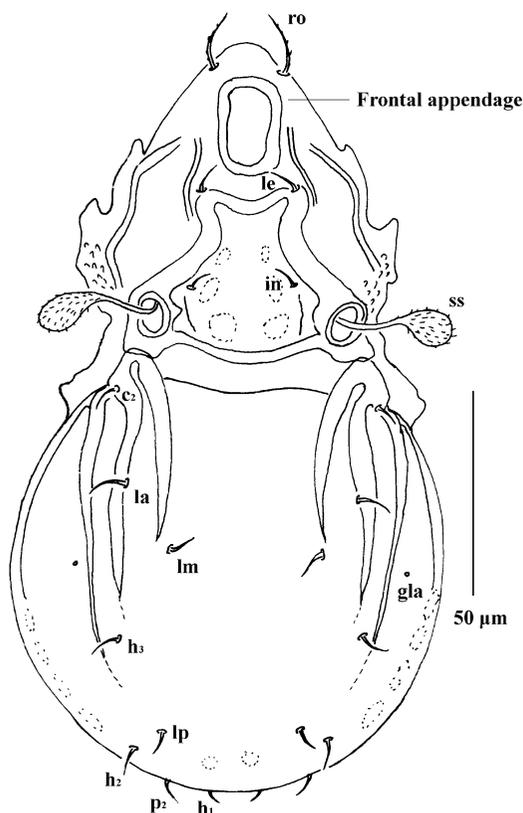


Fig. 1. *Quadroppia (Coronoquadroppia) iranica* n. sp. Dorsal view of holotype

I, *II*, *Sj* and *IV* well developed; internal borders of epimera 3+4 near to each other; epimeral setae minute and smooth; surface of ventral and also anal and genital plates smooth, only one circular sigilla situated posterolaterad of each apodema *IV*. Genital aperture slightly smaller than anal aperture, interspace between them about the length of the former one; five pairs of genital setae relatively short and smooth, g_1 - g_3 and g_5 arranged close to inner border and g_4 to outer border of plate, one pair of aggenital setae (*ag*) situated lateroposterior to genital aperture, two pairs of anal and three pairs of adanal setae present; setae ad_1 postanal, ad_2 and ad_3 in adanal position; adanal lyrifissures *iad* absent.

Material examined: Two specimens (holotype and one paratype): Royan road to Firoozkola, after Kodir, Mazandaran Province, Iran, soil of forest trees, especially *Alnus* sp., 36°30'N, 51°05'E, 1630 m. above sea level, 10-IV-2004, M. A. Akrami leg. The specimens are deposited in the Department of Plant Protection, Shiraz University, Shiraz, Iran.

Etymology: The specific name “*iranica*” refers to Iran.

Remarks: *Quadroppia (Coronoquadroppia) iranica* n. sp. is similar to *Q. (C.) michaeli*

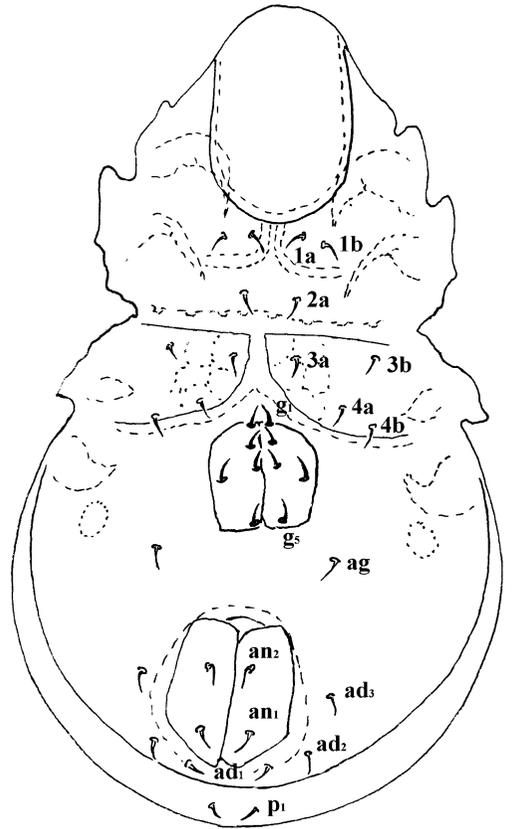


Fig. 2. *Quadroppia (Coronoquadroppia) iranica* n. sp. Ventral view of holotype.

Mahunka, 1977 and *Q. (C.) media* Gordeeva, 1983, in the shape of the internal borders of epimera 3+4, that are near to each other, but differs from them in a shorter inner branch of the notogastral cristae, also from *Q. (C.) michaeli* in a more wide frontal appendage and from *Q. (C.) media* in the sensillus being more globular.

Family Oppiidae Sellnick, 1937

Oppiella (Oppiella) nova mazandaranica n. ssp.

(Figs. 3-4)

Measurement: Body length 310 μm and width 160 μm (n=2).

Prodorsum: (Fig. 3). Rostrum with rounded protruding tip; rostral setae (*ro*) long, situated far from each other, finely barbed; lamellar setae (*le*) thin, smooth, setiform and shorter than rostral setae; interlamellar setae (*in*) nearly as long as rostral setae, thin and smooth; exobothridial setae (*ex*) medium length; sensillus (*ss*) long, fusiform, its head with six medium long pectinations;

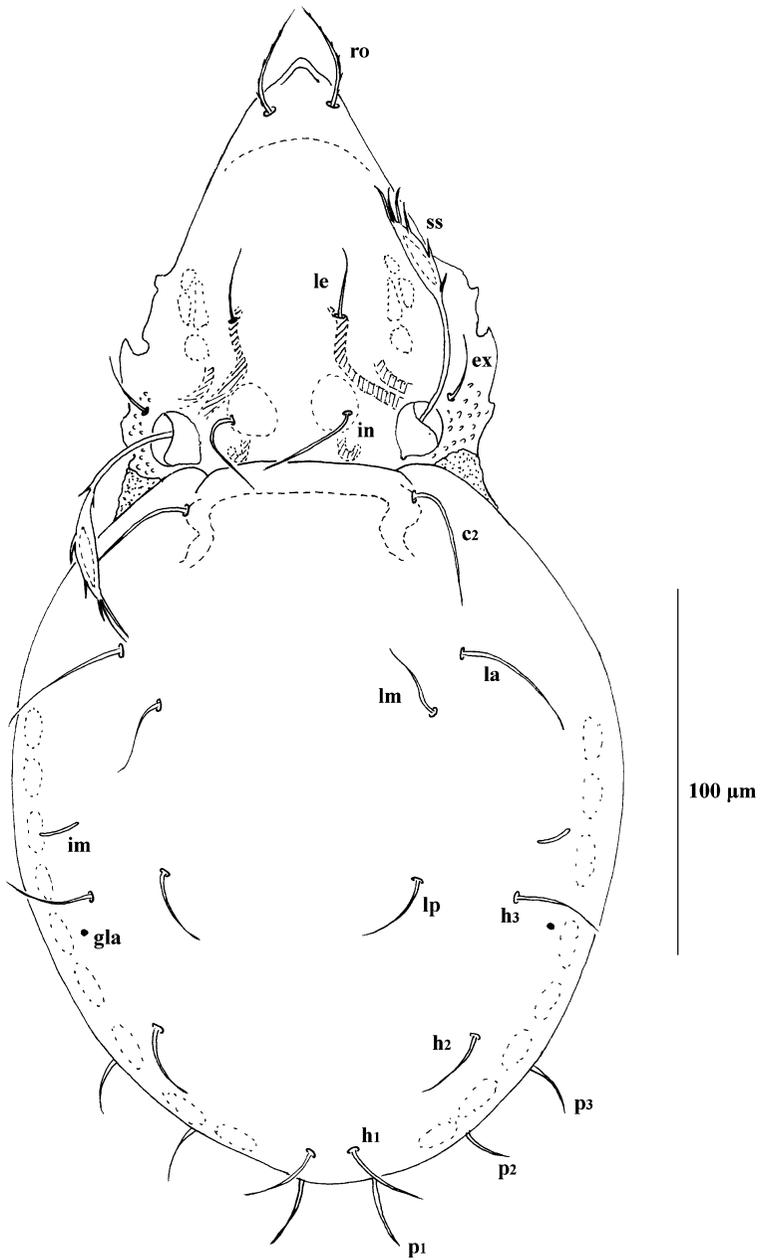


Fig. 3. *Oppiella (Oppiella) nova mazandarunica* n. ssp. Dorsal view of holotype.

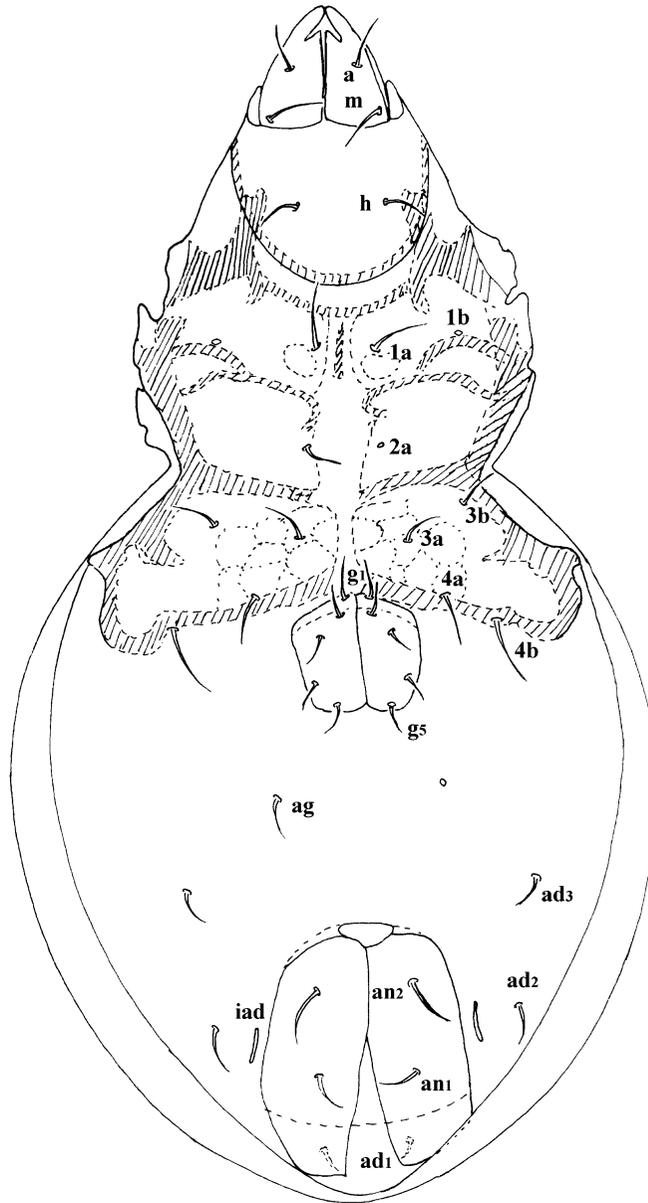


Fig. 4. *Oppiella (Oppiella) nova mazandarunica* n. ssp. Ventral view of holotype.

bothridia round; one pair of large and round muscular impressions situated between interlamellar setae and some sigillae situated anterior to each bothridium; costulae present.

Notogaster: (Fig. 3). Notogaster oval, dorsosejugal suture straight; crista present, its lateral branches S-shaped; ten pairs of notogastral setae thin and smooth, setae c_2 well developed, setae *lm* posterior to setae *la*; lyrifissures *im*, and latero-opisthosomal gland (*gla*) openings well developed.

Ventral side: (Fig. 4). Hypostomal setae *h*, *m* and *a* long and thin; epimeral region with a few muscle sigillae; apodemata *I*, *II*, *Sj* and *IV* well developed; epimeral setae thin and smooth; discidium well developed; genital plates with five pairs of setae, three arranged on anterior half and other two on posterior half of the plates; one pair of aggenital, two pairs of anal and three pairs of adanal setae; ano-genital region smooth; *iad* fissures para-anal.

Material examined: Two specimens (holotype and one paratype): Nowshahr, Mazandaran Province, Iran, wet soil of rice paddy field (*Oryza sativa* L.), 36°07'N, 51°30'E, 19 m. above sea level, 10- IV- 2004, M. A. Akrami leg. The specimens are deposited in the Department of Plant Protection, Shiraz University, Shiraz, Iran.

Etymology: The specific name “*mazandaranica*” refers to the region of the type locality of this subspecies, Mazandaran Province, Northern Iran.

Remarks: The stem of sensillus longer than its head and the presence of a pair of great muscular impressions in the interlamellar region discriminate the new subspecies from the nominate subspecies, *Oppiella* (*O.*) *nova*. The new subspecies also resembles to the South European species, *Oppiella* (*O.*) *nova palustris* Laskova, 1980, but is distinguished from it by having a pair of prodorsal muscular impressions in interlamellar region and shorter body size (443 × 244 μm in *Oppiella* (*O.*) *nova palustris*).

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