

On the erigonine genera *Hubertella* Platnick, 1989 and *Oia* Wunderlich, 1973 in the Himalayas (Aranei: Linyphiidae), with descriptions of two new species

О двух родах пауков-эригонин *Hubertella* Platnick, 1989 и *Oia* Wunderlich, 1973 из Гималаев (Aranei: Linyphiidae) с описанием ДВУХ НОВЫХ ВИДОВ

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КЛЮЧЕВЫЕ СЛОВА: таксономия, пауки, Arachnida, Erigoninae, новые виды, горная фауна.

ABSTRACT. The main somatic and genital diagnostic characters are summarized for the Himalayan genus *Hubertella* Platnick, 1989 and the Palaearctic East Asian genus *Oia* Wunderlich, 1973. Two new species, *Hubertella montana* sp.n. and *Oia kathmandu* sp.n., are described from Nepal. Both species are most similar to their Himalayan congeners, i.e. *H. thankurensis* (Wunderlich, 1983) and *O. sororia* Wunderlich, 1973, respectively, but are clearly distinguished by the structural details of the genitalia. A new diagnostic drawing of the palpal structure is provided for *H. thankurensis* for comparative purposes, based on the holotype.

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РЕЗЮМЕ. Для двух родов пауков-эригонин, гималайского *Hubertella* Platnick, 1989 и восточноазиатского *Oia* Wunderlich, 1973, приведены основные соматические и генитальные диагностические признаки. Два новых вида, *Hubertella montana* sp.n. and *Oia kathmandu* sp.n., описаны из высокогорий Непала. Оба вида наиболее близки к непальским представителям родов *H. thankurensis* (Wunderlich, 1983) и *O. sororia* Wunderlich, 1973, соответственно, однако хорошо отличаются деталями строения гениталий. Приведён сравнительный рисунок детали пальпы голотипа *H. thankurensis*.

Introduction

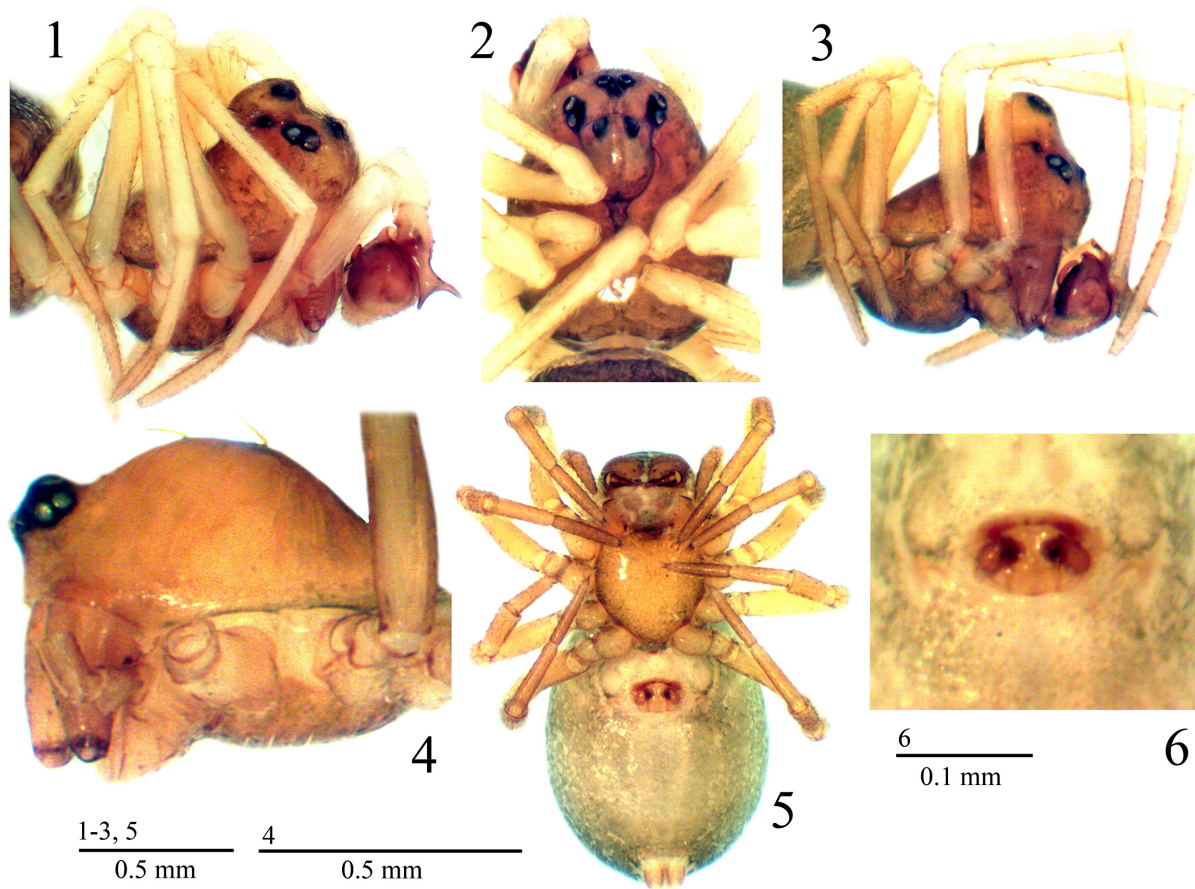
The monotypic genus *Hubertia* Georgescu, 1977 had been established for the Nepalese *H. orientalis* Georgescu, 1977 by Georgescu [1977], until that generic name, being preoccupied, was replaced with *Hubertella* Platnick, 1989 [Platnick, 1989]. In addition to the type species, the genus contains another Nepalese species, *H. thankurensis* (Wunderlich, 1983).

The genus *Oia* Wunderlich, 1973 was erected for the Nepalese *O. sororia* Wunderlich, 1973, with the Japanese *Cornicularia imadatei* Oi, 1964 joining it as a new transfer [Wunderlich, 1973]. Later, another species, *Oia breviprocessia* Song et Li, 2010, was described from the Henan Province, China by Song & Li [2010].

A recent study of material from the Himalayas of Nepal has revealed a couple of new species, one each in *Hubertella* and *Oia*. Their descriptions are the subject of the present paper.

Material and methods

This paper is based on the spider material taken by J. Martens, W. Schawaller and A. Ausobsky in India and Nepal, now kept in the Senckenberg Museum, Frankfurt am Main, Germany (SMF). Sample numbers are given in square brackets. All specimens are preserved in 70% ethanol and studied using a MBS-9 stereo microscope. A Levenhuk C-800 digital camera was applied for taking some pictures. The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are



Figs 1–6. Photographs of *Hubertella montana* sp.n., ♂ holotype (1–2), ♂ paratype (3), and *Oia kathmandu* sp.n., ♂ (4) & ♀ (5–6) paratypes from Omje Kharka. 1–4 — prosoma: 1, 3–4 — lateral view, 2 — dorsal view; 5 — body, ventral view; 6 — epigyne, ventral view.

Рис. 1–6. Фотографии of *Hubertella montana* sp.n., ♂ голотип (1–2), ♂ паратип (3) и *Oia kathmandu* sp.n., ♂ (4) & ♀ (5–6) паратипы из Омје Kharka. 1–4 — головогрудь: 1, 3–4 — вид сбоку, 2 — вид сверху; 5 — тело, вид снизу; 6 — эпигина, вид снизу.

given in millimeters. The chaetotaxy is given in a formula, e.g., 2.2.1.1, which refers to the number of dorsal spines on tibiae I–IV. Scale lines in the figures correspond to 0.1 mm unless indicated otherwise. The terminology of copulatory organs mainly follows that of Merrett [1963], Hormiga [2000] and Crosby & Bishop [1925].

The following abbreviations are used in the text and figures: a.s.l. — above sea level; DSA — distal suprategular apophysis sensu Hormiga [2000]; E — embolus; ED — embolic division; EP — embolus proper; Mt — metatarsus; R — radix; MT — median tooth of DSA; TmI — position of trichobothrium on metatarsus I; TP — tailpiece sensu Crosby & Bishop [1925]. Note: the tailpiece is a proximal, worm-shaped part of the radix.

Taxonomy

Hubertella Platnick, 1989

The generic name is a nom.n. for *Hubertia* Georgescu, 1977, praecoc.

Type species: *Hubertia orientalis* Georgescu, 1977, by original designation and monotypy.

REMARKS. The genus belongs to the subfamily Erigoninae and is characterized by the following combination of somatic and genital characters:

- 1) presence of a head elevation on the male carapace;
- 2) male carapace with a head elevation;
- 3) chaetotaxy formula: 2.2.1.1; each metatarsus with a trichobothrium, TmI 0.8–0.9;
- 4) a strongly modified male palpal tibia;
- 5) a very large median membrane, which holds and protects the distal part of the embolus;
- 6) a long and coiled embolus with a worm-shaped tailpiece.

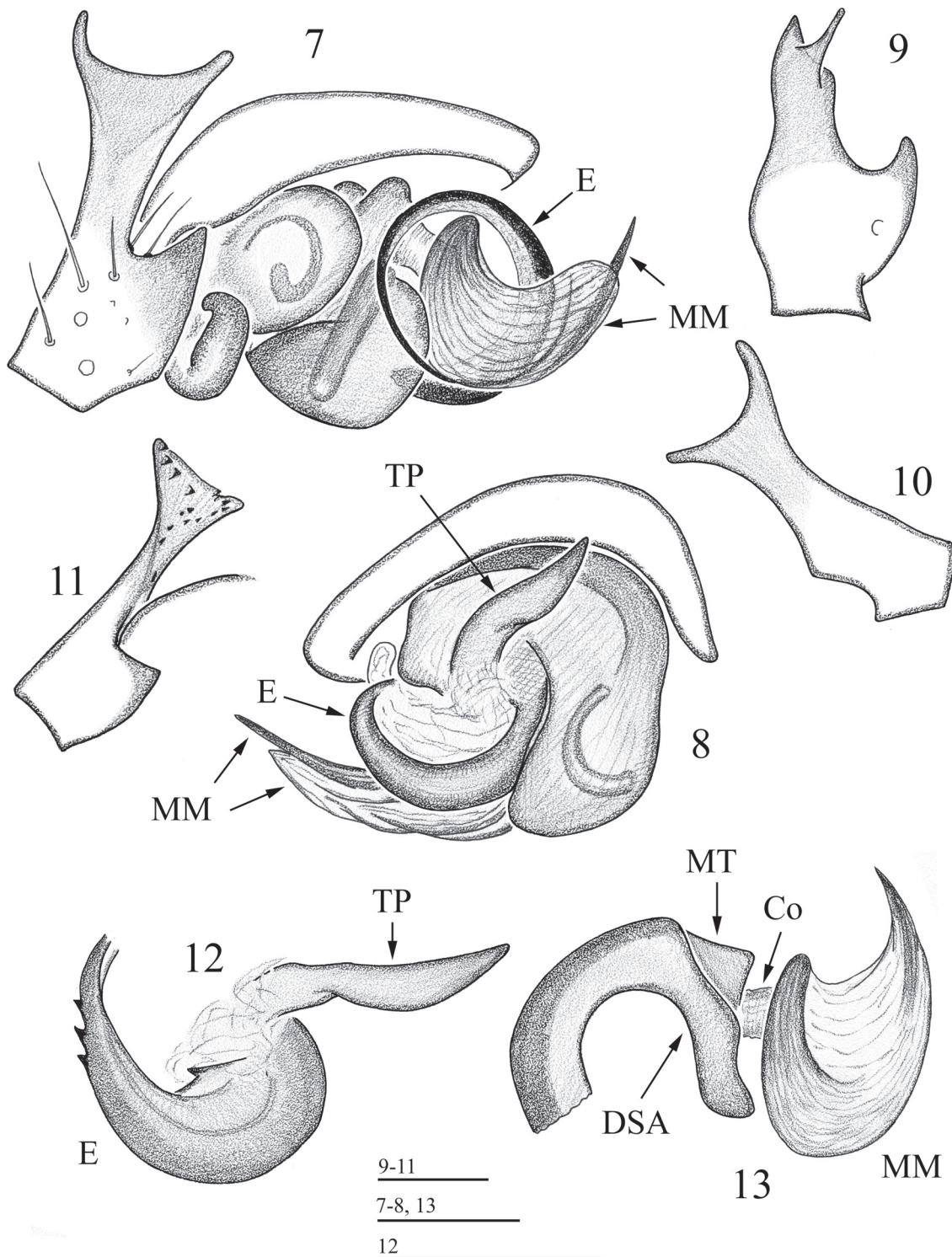
SPECIES INCLUDED: *H. orientalis*, *H. thankurensis* (Wunderlich, 1983) and a new species from Nepal described below.

DISTRIBUTION. Known only from the Nepal Himalayas.

Hubertella montana sp.n.

Figs 1–3, 7–10.

HOLOTYPE ♂ (SMF), NEPAL, Kathmandu Valley, Mt Phulchoki, 2475–2700 m a.s.l., *Quercus semeca*, 19.III.1980, leg. J. Martens & A. Ausobsky [No. 107].



Figs 7–13. Details of palpal structure of *Hubertella montana* sp.n., ♂ holotype (7–10), ♂ paratype (11, 12), and *H. thankurensis* (Wunderlich, 1983), ♂ holotype (13). 7, 8 — right palp, retrolateral and proximal views, respectively; 9–11 — palpal tibia: 9 — dorsal view, 10–11 — proximal and retrolateral views, respectively; 12 — embolus, partly; 13 — distal supratregular apophysis and median membrane.

Рис. 7–13. Детали строения пальпы *Hubertella montana* sp.n., ♂ голотип (7–10), ♂ паратип (11, 12), и *H. thankurensis* (Wunderlich, 1983), ♂ голотип (13). 7, 8 — правая пальпа, ретролатерально и проксимально, соответственно; 9–11 — голень пальпы: 9 — вид сверху, 10 — проксимально, 11 — ретролатерально; 12 — эмболюс (часть); 13 — дистальная супратегулярная апофиза и медиальная мембрана.

PARATYPE ♂ (SMF), Taplejung District, upper Tamur Valley, side valley, broadleaved forest, bamboo, near stream, 2450 m a.s.l., 19.V.1988, leg. J. Martens & W. Schawaller [No. 376].

TYPE MATERIAL EXAMINED: *Hubertia thankurensis* Wunderlich, 1983, ♂ holotype (SMF, No. 31710), NEPAL, Dhaulagiri, 26–27.V.1973, leg. J. Martens.

NAME. The specific name is a Latin adjective meaning a “mountain dweller”.

DIAGNOSIS. The new species is most similar to *H. thankurensis*, known from Dhaulagiri (3350 m a.s.l.), Nepal [Wunderlich, 1983], but is clearly distinguished by the bifurcated distal part of the palpal tibia (vs. pointed).

DESCRIPTION. Male holotype. Total length 1.93. Carapace modified, 0.88 long, 0.68 wide, greyish pale brown. Head part of carapace elevated as shown in Figs 1–3. Sulci small, round. Chelicerae 0.30 long, mastidion absent. Legs pale yellow. Leg I, 2.67 long (0.70 + 0.23 + 0.68 + 0.68 + 0.38), IV, 3.01 long (0.85 + 0.23 + 0.73 + 0.75 + 0.45). Chaetotaxy 2.2.1.1, spines very short, barely visible. Each metatarsus with a trichobothrium. TmI 0.90. Palp (Figs 7–10): tibia elongated, bifid distally, with a pointed outgrowth retrolaterally. Paracymbium relatively small, L-shaped. Distal supratergular apophysis relatively short, narrow, its median tooth triangular, broadened at base. Median membrane very large, semi-lunar, ending with a sclerotized stylet-shaped apophysis, similar to that of *H. thankurensis* (Fig. 7 cf. Fig. 13). Embolic division with a narrow, fusiform radix (= tail-piece sensu Crosby & Bishop [1925]); embolus long, forming a loop. Abdomen 1.08 long, 0.83 wide, grey.

VARIABILITY. The paratype is distinguished from the holotype by the shape of the head elevation of the carapace (Fig. 1 cf. Fig. 3), something that is quite common among linyphiids. The shape of the distal part of the palpal tibia is also slightly different: its apical branches are shorter and serrated in the paratype, vs. longer and more smooth in the holotype (Fig. 7 cf. Fig. 11). In view of high-level variability in isolated mountain populations, I consider these differences as reflecting infraspecific variations, either individual or populational.

Female unknown.

DISTRIBUTION. Known from the Kathmandu massif and the Taplejung District, Nepal.

Oia Wunderlich, 1973

Type species: *O. sororia* Wunderlich, 1973, by original designation.

REMARKS. The genus belongs to the subfamily Erigoninae and is characterized by the following combination of somatic and genital characters:

- 1) rather small linyphiids, total length 1.10–1.60 mm;
- 2) carapace prominent behind ocular area in both sexes, ocular area compact;
- 3) chaetotaxy formula: 0.0.0.0 (tibial spines completely reduced) or 1.1.1.1;
- 4) MtI–III each with a trichobothrium; TmI 0.43–0.65;
- 5) a strongly modified male palpal tibia carrying a special seta;
- 6) a well-developed distal supratergular apophysis;
- 7) a very small embolus proper;
- 8) a small ventral plate, short copulatory ducts, sub-spherical receptacles.

SPECIES INCLUDED: *Oia breviprocella* Song et Li, 2010 (China), *O. imadatei* (Oi, 1964) (Japan), *O. sororia* Wunderlich, 1973 (Nepal), and a new species from Nepal described below.

DISTRIBUTION. The genus shows a typical East-Asian Palaearctic distribution pattern.

Oia kathmandu sp.n.

Figs 4–6, 14–18.

HOLOTYPE ♂ (SMF), NEPAL, Taplejung District, Omje Kharka, NW Yamputhin, natural mixed broadleaved forest, 2300–2500 m a.s.l., 1–6.V.1988, leg. J. Martens & W. Schawaller [No. 356].

PARATYPES: 1 ♂, 14 ♀♀ (SMF), 1 ♂, 3 ♀♀ (ZMMU), collected together with holotype; 16 ♀♀ (SMF), Taplejung District, above Yamputhin, left bank of Kabeli Khola, open forest, bushes, 1800–2000 m a.s.l., 27–29.IV.1988, leg. J. Martens & W. Schawaller [No. 352]; 1 ♂, 1 ♀ (SMF), Kathmandu District, Kathmandu Valley, Mt Phulchoki, 2475–2700 m a.s.l., *Quercus semeca*, 19.III.1980, leg. J. Martens & A. Ausobsky [No. 107].

TYPE MATERIAL EXAMINED: *O. sororia*, 1 ♂, 2 ♀♀, paratypes (SMF, No. 28328/3), NEPAL, Takkhola District, Nabrikot, 2700 m a.s.l., 5–13.XI.1969, leg. J. Martens.

NEW MATERIAL EXAMINED: *O. sororia*, 1 ♂ (SMF), NEPAL, Mustang District, Thaksang, 3150 m a.s.l., *Pinus excelsa* & *Abies* forest, Berlese funnels, 26–29.IV.1980, leg. J. Martens & A. Ausobsky [No. 157a].

NAME. The specific name is a noun in apposition referring to provenance.

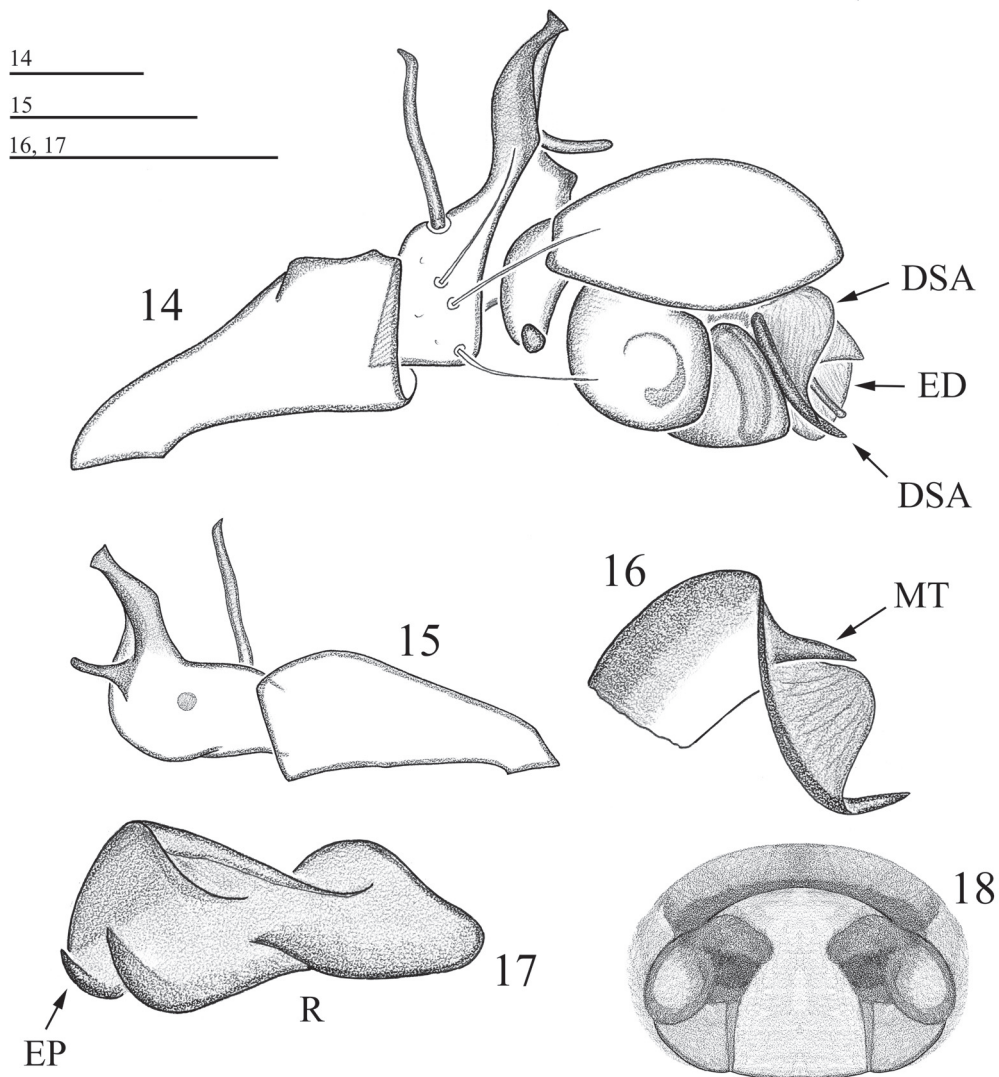
DIAGNOSIS. The new species is the largest among the known congeners and is most similar to the other Nepalese *O. sororia* Wunderlich, 1973, but clearly differs by the shape of the distal part of the palpal tibia (which in particular is much narrower), by the broad distal supratergular apophysis, which is claw-shaped apically, as well as by the rectangular, subquadrate epigynal plate in the female (vs. triangular).

DESCRIPTION. Male holotype. Total length 1.60. Carapace 0.73 long, 0.53 wide, prominent behind a very compact ocular area as shown in Fig. 4; pale brown, with a narrow grey margin. Sulci absent. Chelicerae 0.30 long, mastidion absent. Legs pale yellow. Leg I, 1.54 long (0.43 + 0.18 + 0.35 + 0.30 + 0.28), IV, 1.61 long (0.48 + 0.15 + 0.40 + 0.30 + 0.28). Chaetotaxy 0.0.0.0 (tibial spines totally reduced). Metatarsi I–III each with a trichobothrium. TmI 0.43. Palp (Figs 14–17): patella elongated and broadened distally. Tibia with an apical, slightly curved outgrowth and a narrow, finger-like apophysis retrolaterally. Paracymbium small, hook-shaped. Distal supratergular apophysis broad, claw-shaped apically, its median tooth stylet-shaped. Embolic division with a broad and flat radix and a short, indistinct embolus proper. Abdomen 0.90 long, 0.63 wide, grey.

Female. Total length 1.40. Carapace less prominent behind ocular area than in male, 0.63 long, 0.50 wide. Chelicerae 0.30 long, mastidion absent. Legs pale yellow. Leg I, 1.38 long (0.40 + 0.15 + 0.35 + 0.25 + 0.23), IV, 1.56 long (0.50 + 0.15 + 0.38 + 0.28 + 0.25). Tibial spines reduced. TmI 0.62. Abdomen 0.88 long, 0.60 wide. Epigyne (Figs 5, 6, 18): epigynal plate rectangular, subquadrate, copulatory ducts very short. Receptacles subspherical or bean-shaped. Body and leg coloration, and chaetotaxy as in male.

DISTRIBUTION. Known from the Kathmandu, Mustang and Taplejung districts, Nepal.

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Figs 14–18. Details of palpal structure and epigyne of *Oia kathmandu* sp.n., ♂ (14–17) & ♀ (18), paratypes from Omje Kharka. 14 — right palp, retrolateral view; 15 — patella and tibia, prolateral view; 16 — distal suprategular apophysis; 17 — embolic division; 18 — epigyne, ventral view.

Рис. 14–18. Детали строения пальпы и эпигина *Oia kathmandu* sp.n., ♂ (14–17) & ♀ (18), паратип из Омже Kharka. 14 — правая пальпа, ретролатерально; 15 — колено и голень пальпы, пролатерально; 16 — дистальная супратегулярная апофиза; 17 — эмболозный отдел; 18 — эпигина, вид снизу.

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