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## FOUR NEW SPECIES OF THE GENUS *THINOPHILUS* WAHLBERG, 1844 (DIPTERA: DOLICHOPODIDAE) WITH NEW RECORDS AND A KEY TO SPECIES KNOWN FROM INDIA AND ADJACENT REGIONS

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**Summary.** Four new species from India, *Thinophilus calangutensis* sp. n., *T. poinguinimensis* sp. n., *T. sambharensis* sp. n., and *T. somnathensis* sp. n., are described and illustrated. The new species differ from other similar congeners in the morphology of the male cercus and surstylus, as well as in the male secondary sexual characters on the legs. Four species are new for the fauna of India, two new for Malaysia, two new for Sri Lanka, and two species new for Thailand. An identification key to 11 species of *Thinophilus* known from India and adjacent countries is also provided.

**Key words:** Hydrophorinae, *Thinophilus*, taxonomy, new species, fauna, new records, identification key, Oriental region.

**И. Я. Гричанов. Четыре новых вида рода *Thinophilus* Wahlberg, 1844 (Diptera: Dolichopodidae) с новыми указаниями и определительной таблицей видов, известных из Индии и сопредельных регионов // Дальневосточный энтомолог. 2023. N 472. С. 1-17.**

**Резюме.** Приведены описания и иллюстрации четырех новых для науки видов из Индии: *Thinophilus calangutensis* sp. n., *T. poinguinimensis* sp. n., *T. sambharensis* sp. n. и *T. somnathensis* sp. n. Новые виды отличаются от других близких представителей рода морфологией церок и сурстилей гипопигия самца, а также вторичными половыми признаками на ногах самцов. Четыре вида являются новыми для фауны Индии, два для Малайзии, два для Шри-Ланки и два вида для Таиланда. Приведена определительная таблица 11 видов рода *Thinophilus*, известных из Индии и сопредельных стран.

## INTRODUCTION

Species of *Thinophilus* Wahlberg, 1844 (Dolichopodidae: Hydrophorinae) are confined mainly to sea coastlands and fresh and salt lake shores in warm and torrid regions of the Earth. With about 140 described species all over the world, the genus is very diverse in tropical and subtropical bands of the Old World, but being yet insufficiently studied (Negrobov *et al.*, 2016; Grichanov, 2018; Grootaert, 2018). The Oriental, or Indomalayan, fauna is the richest with about 55 species, but it was never revised as a whole. The eastern Oriental species prefer mangrove regions and often have locally restricted distribution range (Grootaert & Meuffels, 2001; Evenhuis & Grootaert, 2002; Grootaert *et al.*, 2015; Grootaert, 2017, 2018; Samoh *et al.*, 2017, 2019; Ramos *et al.*, 2018, 2020).

Identification keys are available for *Thinophilus* species from China (Yang *et al.*, 2011; Grootaert *et al.*, 2015), Thai-Malay Peninsula (Samoh *et al.*, 2017), and Singapore and adjacent regions (Grootaert, 2018). A key to Oriental freshwater species has been provided by Grootaert (2017).

Only four species of *Thinophilus* were known from India, i.e. widely distributed *T. diminuatius* Becker, 1922, *T. indigenus* Becker, 1902, and *T. tessellatus* Becker, 1922, and also *T. trimaculatus* Parent, 1934, described from a female and never recorded again (Grichanov, 2022). None species was found in Pakistan, Butan, Sri Lanka, Myanmar and easternmost states of India. Only *T. indigenus* was reported from Nepal.

In this paper, four new species of the genus *Thinophilus* from India are described, new records are given for known species, and an identification key to western Oriental species is provided.

## MATERIAL AND METHODS

Types of new species and other material examined are housed at the Zoological Museum of Moscow State University, Moscow, Russia (ZMUM). Specimens were studied and photographed with a ZEISS Discovery V-12 stereo microscope and an AxioCam MRc5 camera. Preparations of the male genitalia were photographed with a ZEISS AxioStar stereo microscope and an AxioCam ICc3 camera, and are stored in glycerol in a microvial attached to the insect pin. Morphological terminology and abbreviations follow Cumming & Wood (2017) and Grichanov & Brooks (2017). The

lengths of the podomeres are given in millimeters. Body length is measured from the base of the antenna to the tip of abdominal segment 6. Wing length is measured from the base to the wing apex. New distribution records presented in this paper are marked with an asterisk (\*).

## RESULTS

### Key to species of *Thinophilus* known from India, Sri Lanka, Nepal and Bangladesh

1. Mesonotum with four strong dorsocentrals with posterior bristle stronger and 3 bristles of equal length, and small hair-like seta anteriorly ..... 2
  - Mesonotum with at least five dorsocentrals, gradually or greatly decreasing in length anteriorly; body usually longer than 3 mm ..... 3
2. Mid tibia with 2 very long ventral bristles in middle; antennal postpedicel triangular with basodorsal arista-like stylus (Fig. 1); body: 2.7 mm ..... *T. calangutensis* **sp. n.**
  - Mid tibia without ventral bristles; antennal postpedicel rounded with middorsal arista-like stylus (Fig. 2); body: 2.7 mm ..... *T. somnathensis* **sp. n.**
3. All coxae black; mesonotum with posterior pair strong and 7–9 small dorsocentrals ..... 4
  - Fore coxa yellow on at least distal half; mesonotum with 5–6 dorsocentrals gradually decreasing in length anteriorly ..... 6
4. Mesonotum with matt black prescutellar spot (Parent, 1934: 306); male unknown; body: 3 mm (India: Uttar Pradesh) (this species is known by female only) .....
  - ..... *T. trimaculatus* Parent, 1934
  - Mesonotum without matt black prescutellar spot ..... 5
5. Male fore tibia and tarsus with long ventral hairs (Becker, 1922: Fig. 22); body: 6–6.5 mm .....
  - ..... *T. tessellatus* Becker, 1922
  - Male fore tibia and tarsus without long ventral hairs (Fig. 3); body: 3.4 mm .....
    - ..... *T. poinguinimensis* **sp. n.**
6. Mesonotum with distinct black prescutellar spot; male legs without rows of long bristles (Negrobov, 1979: figs 1371–1373); body: 2.5–3 mm ..... *T. indigenus* Becker, 1902
  - Mesonotum without black prescutellar spot; some podomeres variously ornamented ..... 7
7. Male mid tibia on distal half and hind tibia along full length with 2 ventral rows of long bristly hairs; male hind tibia with 2 dorsal rows of long sparse bristles (Becker, 1922: Fig. 24); body: 3–3.5 mm (India: West Bengal; China: Taiwan; the Philippines) .....
  - ..... *T. diminuatus* Becker, 1922
  - Male mid and hind tibiae without long bristles and hairs ..... 8
8. Fore basitarsus with ventral row of short but strong black spines, at least half as long as article diameter; fore tarsomere 4 with strong dorsal bristle, as long as or longer than tarsomeres 4 and 5 combined ..... 9
  - Fore basitarsus without ventral spines, with simple setulae only; fore tarsomere 4 with simple setae ..... 10
9. Fore coxa and all femora yellow; phallosoma extending behind apex of surstylus; surstylus with 2 strong apical teeth (Negrobov 1979: figs 1393–1396); body: 3.7–5.4 mm .....
  - ..... *T. spinatarsis* Becker, 1907
  - Fore coxa black on basal half; fore femur blackish; hind femur broadly black at apex; phallosoma not extending behind apex of surstylus; surstylus with 1 small apical tooth (Fig. 4); body: 5.8 mm ..... *T. sambharensis* **sp. n.**

10. Fore femur with irregular ventral erect setae, 1/3 as long as femur height; fore tibia with ventral row of strong setae, as long as tibia width (De Meijere, 1916: 255); body: 4–5 mm ..... *T. pectinipes* De Meijere, 1916  
 – Fore femur with regular ventral row of setae, half as long as femur height; fore tibia with ventral row of short simple setae, half as long as tibia width (Grootaert, 2018: fig. 33); body: 4–5 mm ..... *T. nitens* Grootaert et Meuffels, 2001

### New records and descriptions of new species

#### *Thinophilus comatus* Grootaert, 2018

*Thinophilus comatus* Grootaert, 2018: 425. Type locality: Singapore: Pulau Ubin, Chek Jawa.

MATERIAL EXAMINED. **Malaysia:** Sabah state, Beringgis beach, 5.79° N, 115.99° E, 19–26.II 2014, 3♂, N. Vikhrev leg.

DISTRIBUTION. \*Malaysia (Sabah), Singapore.

#### *Thinophilus indigenus* Becker, 1902

*Thinophilus indigenus* Becker, 1902: 48. Type locality: Egypt, Kairo, Assiur, Luxor, Assuan, Fayum, and Suez.

MATERIAL EXAMINED. **India:** Goa [state], Bendurdem, 15.124° N, 74.033° E, Salt river, 19.II–2.III 2009; 2♀, K. Tomkovich leg.; Goa [state], Talpon river, 15.0005° N, 74.00807° E, 12.II 2009, 1♀, K. Tomkovich leg.; Gujarat [state], Bhuj, 23.246° N, 69.662° E, 2–3.X 2012, 1♂, K. Tomkovich leg.; Rajasthan [state], Jaipur env., 26.96° N, 75.85° E, 21–23.II 2011, 1♂, 1♀, N. Vikhrev leg. **Malaysia:** Sabah state, Beringgis beach, 5.79° N, 115.99° E, 19–26.II 2014, 2♂, N. Vikhrev leg.; Pahang, 5 km SE Genting Sempah, 3.32° N, 101.82° E, 700 m, 25–29 XII 2019, 1♂, N. Vikhrev leg. **Sri Lanka:** Marawila, 7.440° N, 79.816° E, 26–31.XII 2012, 2♂, 1♀, N. Vikhrev leg.; Negombo, 7.23° N, 79.84° E, 16–18.XII 2012, 1♂, N. Vikhrev leg. **Thailand:** [Kanchanaburi province], Kanchanaburi, Kwai [=Khwaie Yai] river, 14.930° N, 99.522° E, 27–30.I 2014, 3♂, N. Vikhrev leg.; Phuket, northern part of Island, 15.II 2009, 1♂, N. Vikhrev leg.

DISTRIBUTION. Oriental: China (Hainan, Taiwan), India (Assam, Goa, \*Gujarat, Meghalaya, Odisha, \*Rajasthan, Uttar Pradesh), Nepal, Malaysia (Negeri Sembilan, \*Pahang, Sabah), Philippines (Manila, Oriental Mindoro, South Cotabato), \*Sri Lanka, \*Thailand (Kanchanaburi, Phuket); Afrotropical and Palaearctic Regions.

#### *Thinophilus nitens* Grootaert et Meuffels, 2001

*Thinophilus nitens* Grootaert & Meuffels, 2001: 346. Type locality: Thailand, Ranong, Wat Tapotaram.

MATERIAL EXAMINED. **India:** Rajasthan [state], Sambhar salt lake, 26.92° N, 75.19° E, 24.II 2011; 1♂, N. Vikhrev leg.; Rajasthan [state], Jaipur env., 26.96° N,

75.85° E, 21–23.II 2011, 2♂, N. Vikhrev leg.; Orissa [=Odisha state], Banigocha – Daspalla, 20.382° N, 84.771° E, 17–25.I 2014, 1♂, K. Tomkovich leg. **Malaysia:** Sabah state, Beringgis beach, 5.79° N, 115.99° E, 19–26.II 2014, 1♂, N. Vikhrev leg. **Thailand:** Chonburi [province], around Pattaya, 10–15.I 2006, 1♂, N. Vikhrev leg.; [Rayong province], near Khao-Chamao National Park, 22.XI 2006, 1♀, N. Vikhrev leg.

DISTRIBUTION. China (Yunnan), \*India (Odisha, Rajasthan), Malaysia (Pulau Tioman, \*Sabah), Singapore, Thailand (\*Chonburi, Ranong, \*Rayong).

### ***Thinophilus pectinipes* De Meijere, 1916**

*Thinophilus pectinipes* De Meijere, 1916: 255. Type locality: Indonesia, Java, Wonosobo, Semarang, and Grott Guwa Grengseng (Gunung Sewu, Djocja).

MATERIAL EXAMINED. **India:** Goa [state], Bendurdem, 15.124° N, 74.033° E, Salt river, 19.II–2.III 2009, 1♂, 2♀, K. Tomkovich leg. **Malaysia:** Sabah state, Beringgis beach, 5.79° N, 115.99° E, 19–26.II 2014, 1♂, N. Vikhrev leg. **Sri Lanka:** Marawila, 7.440° N, 79.816° E, 26–31.XII 2012, 1♂, N. Vikhrev leg. **Thailand:** Chonburi [province], around Pattaya, 10–15.I 2006, 1♂, N. Vikhrev leg.; [Chonburi province], S Pattaya, 13.XI 2006, 2♂, N. Vikhrev leg.; [Rayong province], near Khao-Chamao National Park, 22.XI 2006, 1♀, N. Vikhrev leg.; [Kanchanaburi province], Kanchanaburi, Kwai [=Khwaie Yai] river, 14.930° N, 99.522° E, 27–30.I 2014, 1♂, N. Vikhrev leg.

DISTRIBUTION. \*India (Goa), Indonesia (Java), \*Malaysia (Sabah), \*Sri Lanka, \*Thailand (Chonburi, Kanchanaburi).

### ***Thinophilus spinitarsis* Becker, 1907**

*Thinophilus spinitarsis* Becker, 1907: 315. Type locality: China: “O. Zaidam [=eastern Qaidam Basin], im nord-Osu; Tibet, Kurlyk am Fl. Baingol [=Korla city near Bayingol River]”.

MATERIAL EXAMINED. **India:** Gujarat [state], Jamnagar env., 22.541° N, 70.036° E, 13.X 2012, salt mangroves, 1♂, K. Tomkovich leg.

DISTRIBUTION. Afrotropical: Senegal; Oriental: China (Taiwan), \*India (Gujarat); Palaearctic: China (Tibet), Iran, Israel, Russia (Kherson), Turkmenistan, Tajikistan.

### ***Thinophilus tessellatus* Becker, 1922**

*Thinophilus tessellatus* Becker, 1922: 35. Type locality: China, Taiwan, Tainan; Bangladesh, Rajshahi, Bengal.

MATERIAL EXAMINED. **India:** Assam [state], Chapar env., Champamati river, 26.32° N, 90.46° E, 1–3.I 2014, 1♂, K. Tomkovich leg.; Goa [state], Poinquinim, 14.967–6° N, 74.085–6° E, 14–16.II 2009, pasture, 1♂, K. Tomkovich leg.; Orissa [=Odisha state], Banigocha – Daspalla, 20.382° N, 84.771° E, 17–25.I 2014,

1♂, K. Tomkovich leg.; Orissa [=Odisha state], Gop, 19.982° N, 86.016° E, 8–9.I 2014, 1♂, K. Tomkovich leg. **Thailand**: Chonburi [province], around Pattaya, 10–15.I 2006, 1♂, N. Vikhrev leg.; [Chonburi province], Pattaya, Jomtien, 4.XII 2007, 1♂, N. Vikhrev leg.; Rayong province, 12°50.1389' N, 100°43.9888' E, 22.XI 2006, 1♂, A.L. Ozerov leg.

DISTRIBUTION. Bangladesh, \*India (Assam, Goa, Odisha), China (Taiwan), \*Thailand (Chonburi, Rayong), Philippines (Mindoro).

NOTES. *Thinophilus tesselatus* was originally described from “Bengalen: Rajshai” (Becker, 1922) and was later included into catalogs as known from India. However, Rajshai (or Rajshahi) is a city in the present-day Bangladesh. So, the species is found here in India for the first time.

***Thinophilus calangutensis* Grichanov, sp. n.**

<https://zoobank.org/NomenclaturalActs/ECF8788A-1B5B-403F-AD35-33D259A7620A>

Fig. 1

TYPE MATERIAL. Holotype – ♂, **India**: Goa [state], Calangute, [15.54° N, 73.76° E], 18.I 2008, N. Vikhrev leg. (ZMUM).

NOTE. Terminalia of the holotype are dissected and stored in glycerin in microvial pinned with the specimens.

DESCRIPTION. MALE (Fig. 1A). *Head* (Fig. 1B): postcranium blackish blue, white pollinose; frons blue-green, whitish pollinose; face and clypeus bluish black, brownish grey pollinose; face under antennae slightly wider than height of postpedicel; clypeus about as long as epistoma, 1.5 times longer than wide; palpus (Fig. 1C) yellow, elongate-triangular, bearing sparse black bristly hairs; proboscis dark brown; 2 diverging ocellars; 1 vertical, 1 postvertical, much stronger and longer than, and not in row with upper postoculars; upper postoculars uniseriate, black; middle and lower postoculars multiseriate, white, long; antennal scape, pedicel and postpedicel blackish dorsally, yellow ventrally; postpedicel black distally (Fig. 1D); scape with scale-like inner projection; pedicel simple, convex on inner side; postpedicel triangular, with short pubescence, as long as high at base (15/14); arista-like stylus basodorsal, black, thick basally, shortly pubescent; length ratio of scape to pedicel to postpedicel to stylus, 0.11/0.08/0.15/0.49.

*Thorax*: metallic, dark greenish blue; mesonotum shining; pleura weakly pollinose; no acrostichals; 4 strong dorsocentrals with posterior bristle stronger and 3 bristles of equal length, and small hair-like seta anteriorly; scutellum with 2 strong marginals and 2 hair-like laterals; 4–5 upper and 4–5 lower, short white propleural bristles.

*Legs*: fore coxa yellow; mid and hind coxae black, yellow at apex; legs mostly yellow with tarsomeres 4–5 brownish black. Fore leg. Coxa with long white bristles; femur simple, almost glabrous ventrally, with few short hairs at base; tibia bearing 2 short dorsals, glabrous anteriorly on distal 1/4; tarsus simple with tarsomere 5 slightly widened, with elongate apicodorsal setulae; length of femur, tibia and tarsal segments

(in mm): 0.92/0.84/0.36/0.15/0.12/0.09/0.1. Mid leg. Coxa with white setae and 1 black bristle; femur with 3 black ventral setae at base, at most as long as femur height; tibia bearing 2 short anterodorsal, 2 short posterodorsal, 2 strong and long posteroventral bristles in middle, 4 apicals; tarsomere 5 inconspicuously thickened; length of femur, tibia and tarsal segments (in mm): 1.01/1.08/0.56/0.19/0.14/0.11/0.11. Hind leg. Coxa with 1 black exterior bristle; femur with 2–3 brown ventral setae at base, at most as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsal short bristles, 1–2 short ventrals, 2 apicals; tarsomere 5 inconspicuously widened; length of femur, tibia and tarsal segments (in mm): 1.24/1.26/0.34/0.33/0.19/0.14/0.14.

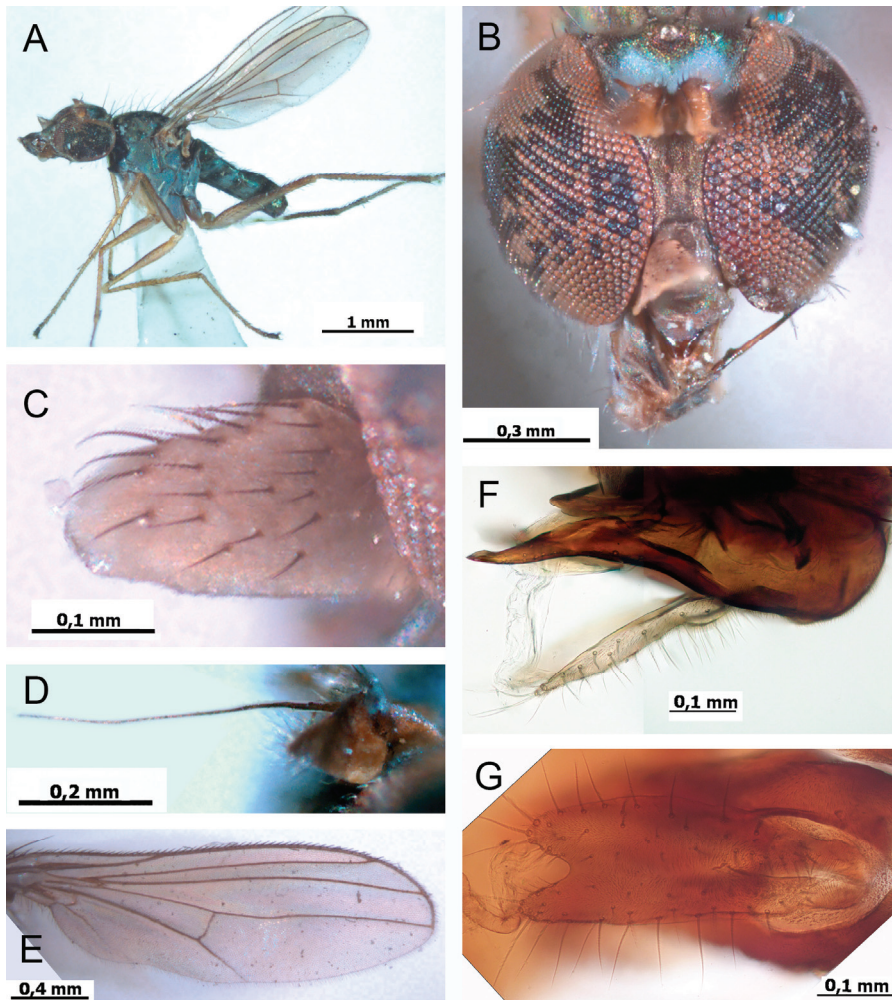


Fig. 1. *Thinophilus calangutensis* sp. n. (holotype): A – habitus; B – head; C – palpus; D – antenna; E – wing; F – hypopygium, lateral view, after maceration; G – cerci, dorsal view.

*Wing* (Fig. 1E): almost hyaline, without dark shades; veins yellow-brown, more yellowish at base; distal part of M1+2 convex; tip of R4+5 parallel with M1+2; ratio of part of costa between R2+3 and R4+5 to that between R4+5 and M1+2 (in mm), 0.31/0.18; crossvein dm-m straight; ratio of dm-m to distal part of M4, 0.18/0.33; anal vein distinct; halter yellow; lower calypter yellow, with white cilia.

*Abdomen*: dark green-blue, entirely grey dusted; setae and hind-marginal bristles on tergites black, short; sternites with short setae. Hypopygium (Fig. 1F) black, with yellow cercus covered with white bristles; epandrial lobe reduced; hypandrium fused with epandrium, short and broad, apically concave; phallosoma broad, not reaching apex of surstyli; phallus simple, broad; surstylus straight and narrow, pointed (lateral view), thickened at extreme apex, with several short dorsal and apical setae; cerci dorsally fused except apices, leaflike, with long marginal bristles (Fig. 1G).

MEASUREMENTS. Body length 2.7 mm; antenna length 0.7 mm; wing length 2.5 mm; wing width 0.7 mm.

FEMALE. Unknown.

DIAGNOSIS. *Thinophilus calangutensis* sp. n. is peculiar in its triangular antennal postpedicel with basodorsal arista-like stylus. It keys to *T. seticoxis* Becker, 1922 or *T. minutus* Samoh et al., 2017 (Yang et al., 2011; Samoh et al., 2017; Grootaert, 2017, 2018), differing from these species in mid tibia bearing two strong and long posteroventral bristles in middle and morphology of hypopygium.

ETYMOLOGY. The species is named after the town in the North Goa district of the Indian state of Goa, where the type was collected.

***Thinophilus somnathensis* Grichanov, sp. n.**

<https://zoobank.org/NomenclaturalActs/527C25DF-D510-437F-8F0B-804B68D53ABE>

Fig. 2

TYPE MATERIAL. Holotype – ♂, **India**: Gujarat [state], Somnath, 20.86° N, 70.41° E, 7.IX 2012, seaside, K. Tomkovich leg. (ZMUM). Paratypes – 2♂, same data as for holotype (ZMUM).

NOTE. Terminalia of the holotype are dissected and stored in glycerin in microvial pinned with the specimens.

DESCRIPTION. MALE (Fig. 2A). *Head* (Fig. 2B): postcranium greenish black, grey pollinose; frons bluish black, grey pollinose; face and clypeus black-violet, grey pollinose; face under antennae 1.3 times as wide as height of postpedicel; clypeus half as long as epistoma, about as wide as long; palpus yellow, bearing sparse black bristly hairs; proboscis black; 2 diverging ocellars; 1 vertical, 1 short postvertical, as long as uppermost postocular; upper postoculars uniseriate, black; middle and lower postoculars multiseriate, white, long; antenna mostly orange-yellow, darker dorsally; scape with scale-like inner projection; pedicel simple, convex on inner side; postpedicel (Fig. 2C) rounded, with short pubescence, slightly higher than long (15/12); arista-like stylus dorsal, black, thick basally, shortly pubescent; length ratio of scape to pedicel to postpedicel to stylus, 0.08/0.09/0.12/0.39.

*Thorax*: metallic bluish black, mesonotum brownish grey pollinose; pleura whitish pollinose; no acrostichals; 4 strong dorsocentrals with posterior bristle stronger and 3 bristles of equal length, and small hair-like seta anteriorly; scutellum with 2 strong marginals and 2 hair-like laterals; 2–3 upper and 2–3 lower, white propleural bristles of different length.

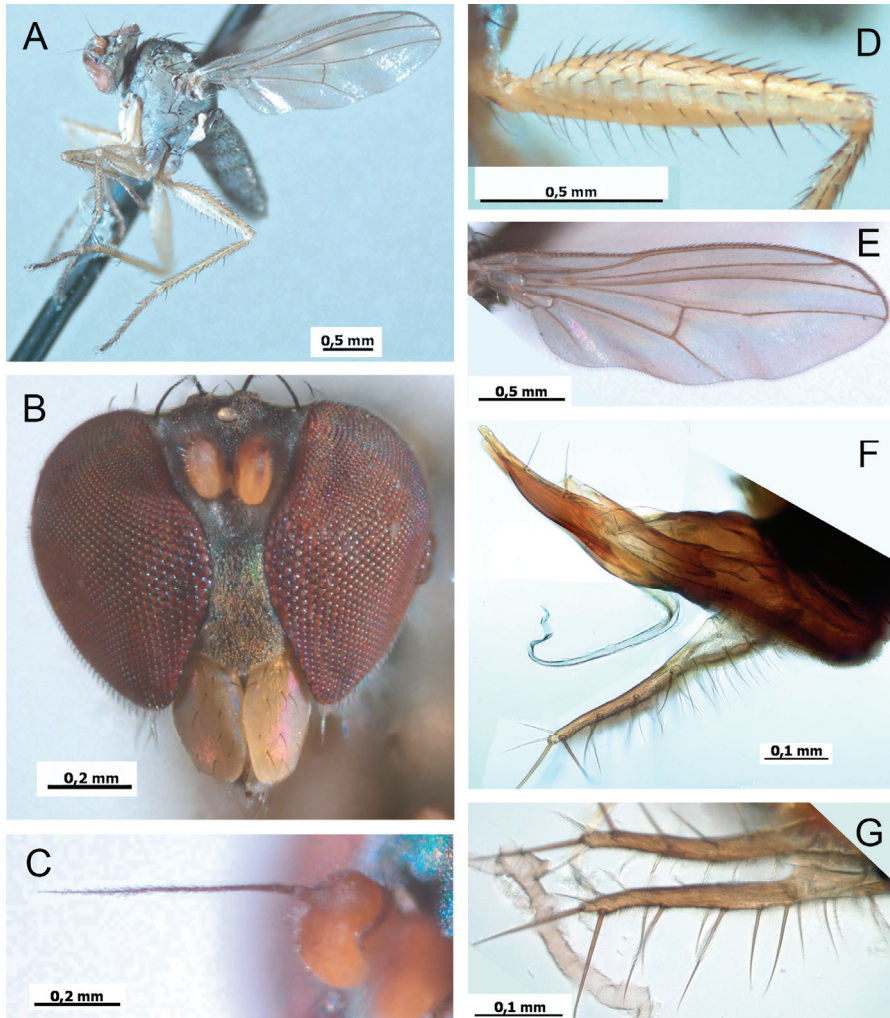


Fig. 2. *Thinophilus somnathensis* sp. n. (holotype): A – habitus; B – head; C – antenna; D – hind femur; E – wing; F – hypopygium, lateral view, after maceration; G – cerci, dorsal view.

*Legs:* fore coxa yellow; mid coxa black and hind coxa blackish brown, both yellow at apex; legs mostly yellow with tarsomeres 4–5 brownish black. Fore leg. Coxa with short sparse black setae, longer at apex; femur slightly swollen in basal half, with two ventral rows of few fine blackish hair-like setae in basal third, at most as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsals, elongate ventral and apical setulae, white microtrichia posteroventrally in distal half; tarsus simple, with white microtrichia ventrally and elongate setulae; tarsomere 5 slightly widened, with elongate apicodorsal setulae; length of femur, tibia and tarsal segments (in mm): 0.91/0.84/0.29/0.15/0.12/0.09/0.11. Mid leg. Coxa with short black setae and 1 black bristle; femur with posteroventral row of black setae in distal third, about as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsal, 4 apicals; tarsomeres 1–4 with short apicoventral setae; segment 5 inconspicuously thickened; length of femur, tibia and tarsal segments (in mm): 1.06/1.11/0.46/0.18/0.13/0.12/0.13. Hind leg. Coxa with 1 black exterior bristle; femur (Fig. 2D) slightly swollen, with 2 anterodorsal bristles and 2 ventral rows of hair-like black setae, about half as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsal bristles, 4 apicals; tarsomeres 1–4 with short apicoventral setae; segment 5 inconspicuously thickened; length of femur, tibia and tarsal segments (in mm): 0.99/1.05/0.25/0.22/0.16/0.1/0.13.

*Wing* (Fig. 2E): almost hyaline, without dark shades; veins yellow-brown, more yellowish at base; distal part of M1+2 convex; tip of R4+5 parallel with M1+2; ratio of part of costa between R2+3 and R4+5 to that between R4+5 and M1+2 (in mm), 0.31/0.16; crossvein dm-m straight; ratio of dm-m to distal part of M4, 0.19/0.41; anal vein distinct; halter yellow; lower calypter yellow, with brownish cilia.

*Abdomen:* bluish or greenish black, entirely grey dusted; setae and hind-marginal bristles on tergites black, short; sternites with short setae; sternite 5 with deep posterior emargination and 2 groups of elongate setae, including 4–5 setae, as long as sternite 6. Hypopygium (Fig. 2F) black, with brown cercus covered with black setae; epandrial lobe reduced; hypandrium fused with epandrium, short and broad, apically concave; phallosoma short and broad; phallus long, simple, narrow; surstylus straight and narrow, pointed (lateral view), with 2 long ventral bristles and few short setae at apex; cerci (Fig. 2G) dorsally separated, narrow, with long marginal bristles.

MEASUREMENTS. Body length 2.7 mm; antenna length 0.7 mm; wing length 2.6 mm; wing width 0.8 mm.

FEMALE. Unknown.

DIAGNOSIS. *Thinophilus somnathensis* **sp. n.** keys to *T. phollae* Hollis, 1964, *T. dongae* Grootaert, Tang et Yang, 2015, *T. minutus* Samoh, Satasook et Grootaert, 2017, or *T. minor* Grootaert, 2018 (Yang *et al.*, 2011; Grootaert *et al.*, 2015; Grootaert, 2017, 2018; Samoh *et al.*, 2017). It differs from these species in the morphology of hypopygium and following combination of characters: postvertical bristle short, as long as uppermost postocular; four strong dorsocentrals with posterior bristle stronger; fore coxa with short sparse black setae; fore femur slightly swollen in basal half, with two ventral rows of few fine blackish hair-like setae in basal third, at most as long as femur height; tibia bearing elongate ventral and apical setulae, white

microtrichia posteroventrally in distal half; tarsus simple, with white microtrichia ventrally; mid femur with posteroventral row of black setae in distal third, about as long as femur height; femur slightly swollen, with two anterodorsal bristles and two ventral rows of hair-like black setae, about half as long as femur height; abdominal sternite 5 with deep posterior emargination and two groups of elongate setae, including 4–5 long setae, as long as sternite 6.

ETYMOLOGY. The species is named after the town in the Indian state of Gujarat, where the type was collected.

***Thinophilus poinguinimensis* Grichanov, sp. n.**

<https://zoobank.org/NomenclaturalActs/05D95074-0A5B-4326-95E5-196DDD6E76D2>

Fig. 3

TYPE MATERIAL. Holotype – ♂, **India**: Goa [state], Poinguinim, 14.967-6° N, 74.085-6° E, 14–16.II 2009, pasture, K. Tomkovich leg. (ZMUM). Paratypes – 2♂, same data as for holotype (ZMUM).

NOTE. The holotype is mounted together with paratypes on the same pin. Terminalia of the holotype (on the top of the pin) are dissected and stored in glycerin in microvial pinned with the specimens.

DESCRIPTION. MALE (Fig. 3A). *Head* (Fig. 3B): postcranium dark green-blue, white pollinose; frons shining blue-violet; face and clypeus blue-violet, brownish pollinose, shining under antenna; face under antennae 1.3 times as wide as height of postpedicel; clypeus 1/3 as long as epistoma, 1.9 times wider than long; palpus yellow, bearing sparse black bristly hairs; proboscis black; 2 diverging ocellars; 1 vertical, 1 postvertical, much stronger and longer than, and not in row with upper postoculars; upper postoculars uniseriate, black; middle and lower postoculars multiseriate, white, long; antenna mostly black; scape, pedicel and postpedicel orange-yellow ventrally; scape with scale-like inner projection; pedicel simple, convex on inner side; postpedicel (Fig. 3C) rounded, with short pubescence, slightly higher than long (14/12); arista-like stylus dorsal, black, thick basally, shortly pubescent; length ratio of scape to pedicel to postpedicel to stylus, 0.09/0.07/0.12/0.55.

*Thorax*: metallic, mesonotum greenish blue-violet, grey pollinose, with shining median strip and scutellum, black lateral spot at notopleura and postalar black spot; pleura weakly pollinose; no acrostichals; 6 dorsocentrals decreasing greatly in length anteriorly; scutellum with 2 strong marginals and 2 hair-like laterals; 2–3 upper and 2–3 lower, black propleural bristles of different length.

*Legs*: coxae black, yellow at apex; legs mostly yellow; fore tibia dark at apex; tarsi gradually darkened toward segment 5. Fore leg. Coxa with short brown and black setae, longer at apex; femur slightly swollen in basal half, with two ventral rows of fine blackish hair-like setae, longer in distal half, at most as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsals; tarsus simple with tarsomere 5 slightly widened, with elongate apicodorsal setulae; length of femur, tibia and tarsal segments (in mm): 0.93/0.91/0.36/0.17/0.12/0.09/0.13. Mid leg. Coxa with short brown and

black setae; femur with two ventral rows of black setae, longer in distal half, about as long as femur height; tibia bearing 2 anterodorsal, 2 posterodorsal, 2 antero- and posterodorsal, 2 posterodorsal, 2 antero- and posteroventral bristles at distal 1/4, 4 apicals; tarsomere 5 inconspicuously thickened; length of femur, tibia and tarsal segments (in mm): 1.21/1.21/0.62/0.29/0.19/0.13/0.16. Hind leg. Coxa with 1 black exterior bristle; femur with 2 ventral rows of very short hair-like setae; tibia bearing 2 anterodorsal, 2 posterodorsal bristles, ventral row of 10–12 setae, as long as or slightly longer than width of tibia, 3 apicals; tarsomere 5 inconspicuously widened; length of femur, tibia and tarsal segments (in mm): 1.37/1.48/0.41/0.34/0.22/0.13/0.16.

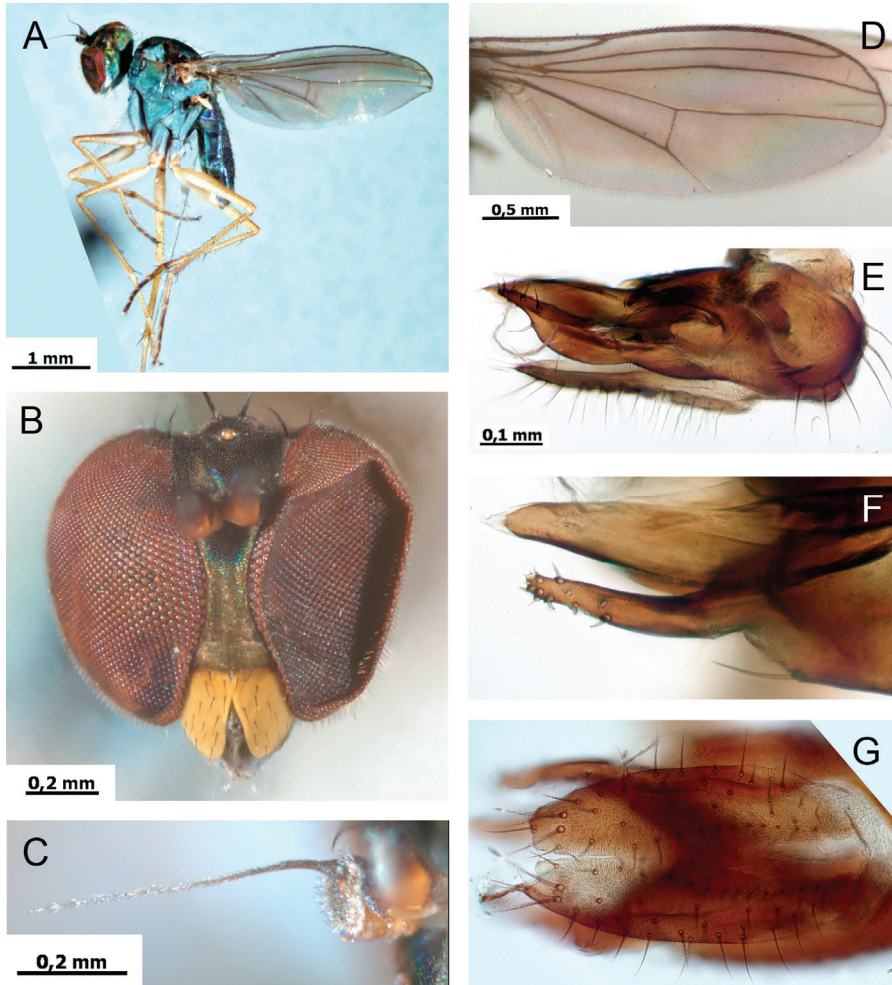


Fig. 3. *Thinophilus poinguinimensis* sp. n. (holotype): A – habitus; B – head; C – antenna; D – wing; E – hypopygium, lateral view, after maceration; F – phallosoma and surstylus, ventral view; G – cerci, dorsal view.

*Wing* (Fig. 3D): almost hyaline, without dark shades; veins yellow-brown, more yellowish at base; distal part of M1+2 convex; tip of R4+5 parallel with M1+2; ratio of part of costa between R2+3 and R4+5 to that between R4+5 and M1+2 (in mm), 0.36/0.22; crossvein dm-m straight; ratio of dm-m to distal part of M4, 0.28/0.4; anal vein weak; halter yellow; lower calypter yellow, with brownish cilia.

*Abdomen*: mostly shining blue-violet, grey dusted laterally; setae and hind-marginal bristles on tergites black, short; sternites with short setae; sternite 5 with 2 groups of microspinules. Hypopygium (Fig. 3E) black with yellow cercus; epandrial lobe reduced; hypandrium fused with epandrium, short and broad, apically concave; phallosoma broad, narrow at apex, reaching apex of surstyli; phallus long, simple; surstylus (Fig. 3F) almost straight and broad (lateral view), narrow at apex, with 2 long dorsal bristles and several short ventral and apical setae; cerci dorsally adjoined, leaf-like, with long marginal bristles (Fig. 3G).

MEASUREMENTS. Body length 3.4 mm; antenna length 0.7 mm; wing length 3.2 mm; wing width 1.1 mm.

FEMALE. Unknown.

DIAGNOSIS. *Thinophilus poinguinimensis* **sp. n.** is remarkable in its antenna mostly black, and propleural bristles black; mesonotum with shining median strip and scutellum, black lateral spot at notopleura and postalar black spot. It keys to *pectinipes* De Meijere, 1916, *integer* Becker, 1922, *peninsularis* Parent, 1935 and *puniamoorthyae* Grootaert, 2018 (Yang *et al.*, 2011; Samoh *et al.*, 2017; Grootaert, 2017, 2018), well differing from these species in the morphology of hypopygium and above mentioned characters.

ETYMOLOGY. The species is named after the village in the Indian state of Goa, near the Goa-Karnataka border, and close to the Cotigao Wildlife Sanctuary, where the type was collected.

#### ***Thinophilus sambharensis* Grichanov, sp. n.**

<https://zoobank.org/References/B4C4440D-5D5B-4AED-81A3-922C6DE9C5BA>

Fig. 4

TYPE MATERIAL. Holotype – ♂, **India**: Rajasthan [state], Sambhar salt lake, 26.92° N, 75.19° E, 24.II 2011, N. Vikhrev leg. (ZMUM).

NOTE. Terminalia of the holotype are dissected and stored in glycerin in microvial pinned with the specimens.

DESCRIPTION. MALE (Fig. 4A). *Head* (Fig. 4B): postcranium blackish green, white pollinose; frons densely brownish grey pollinose, with violet spot under ocellar tubercle; face and clypeus greenish blue, brownish grey pollinose; face under antennae 2 times as wide as height of postpedicel; clypeus about half as long as epistoma, 1.5 times wider than long; palpus yellow, bearing sparse black bristly hairs; proboscis dark brown; 2 diverging ocellars; 1 vertical, 1 postvertical, much stronger and longer than, and not in row with upper postoculars; upper postoculars uniseriate, black; middle and lower postoculars multiseriate, white, long; antenna mostly yellow;

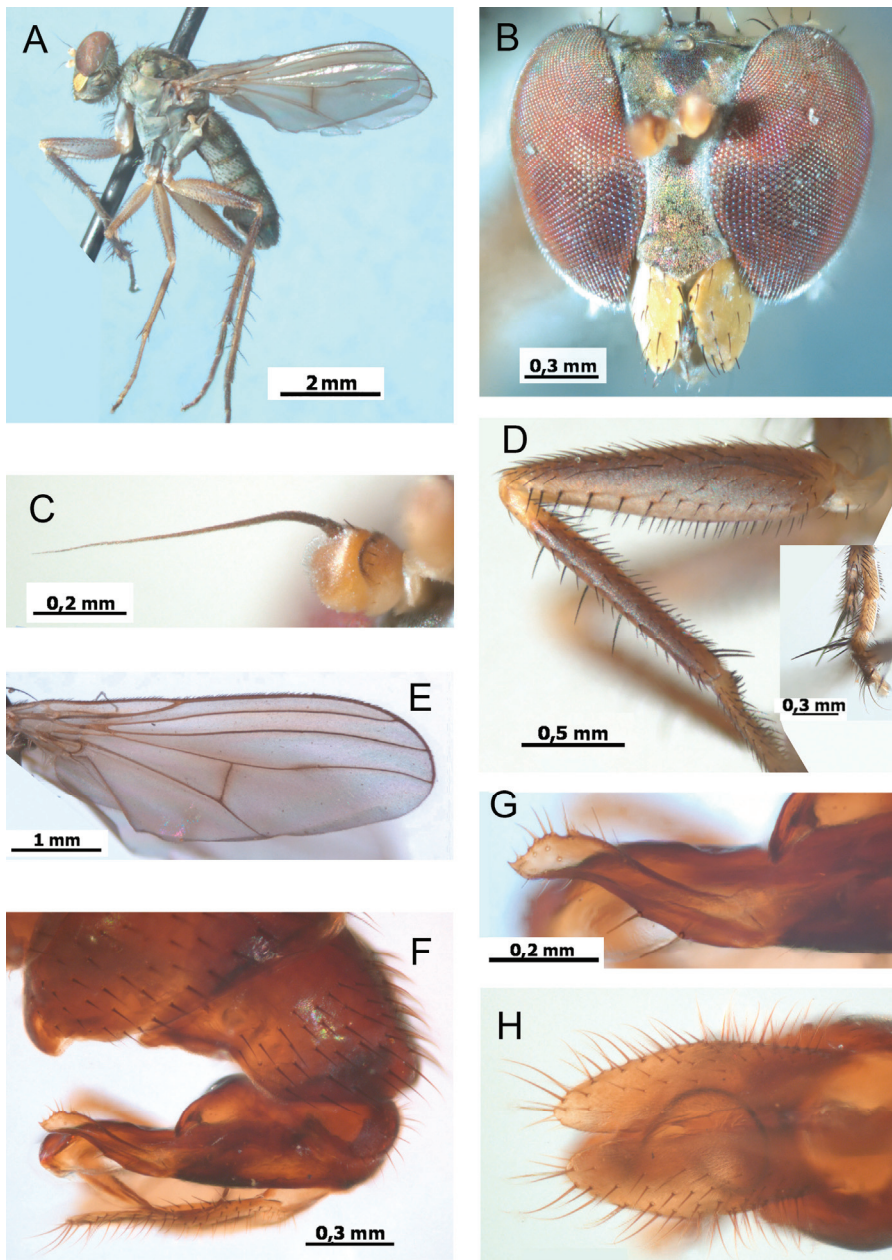


Fig. 4. *Thinophilus sambharensis* sp. n. (holotype): A – habitus; B – head; C – antenna; D – fore leg; E – wing; F – hypopygium, lateral view, after maceration; G – surstylus, lateral view; H – cerci, dorsal view.

pedicel brown dorsally and postpedicel brownish distally; scape with scale-like inner projection; pedicel simple, convex on inner side; postpedicel (Fig. 4C) rounded, with short pubescence, slightly higher than long (19/15); arista-like stylus dorsal, black, thick basally, shortly pubescent; length ratio of scape to pedicel to postpedicel to stylus, 0.09/0.13/0.15/0.67.

*Thorax*: metallic, whitish grey dusted; mesonotum dark blue-green; pleura bluish black; no acrostichals; 6 dorsocentrals decreasing in length anteriorly; scutellum with 2 strong marginals and 2 short laterals; 7–8 upper and 7–8 lower, white propleural bristles of different length.

*Legs*: fore coxa black in basal half, yellow in distal half; mid and hind coxae black, yellow at apex; fore femur mostly black, yellow at knee; fore tibia blackish brown; fore tarsus mostly dirty yellow with last segment black; mid leg mostly yellow with last tarsomere black; mid tibia partly brown; hind femur black dorsally on distal 1/3; hind tibia blackish brown; hind tarsus mostly black, brown ventrally. Fore leg (Fig. 4D). Coxa with long black bristles; femur swollen, with 2 ventral rows of short setae, with 5–6 posteroventral setae, as long as femur height; tibia slightly squeezed laterally, bearing 3 long anterodorsal, 3 short posterodorsal, 2 long spine-like apicoventral bristles and 2 ventral rows of short setae, longer at base; basitarsus slightly curved at base; tarsomeres 1–2 with ventral row of short spines, and with posteroventral row of setae, longer than width of segments; tarsomeres 3–4 with dorsal setae, 2 times longer than width of segments; tarsomere 4 with long dorsal bristle, nearly 4 times longer than width of segment; tarsomere 5 slightly widened, with elongate apicodorsal setulae; length of femur, tibia and tarsal segments (in mm): 1.63/1.42/0.58/0.29/0.21/0.18/0.22. Mid leg. Coxa with long black setae and 1 black bristle; femur with anteroventral row of short black setae, posteroventral row of short black setae, longer in distal half, posterior row of short setae in distal half; tibia bearing 3–4 anterodorsal, 3 posterodorsal, 4 apical bristles; segment 5 slightly flattened dorso-ventrally and widened; length of femur, tibia and tarsal segments (in mm): 1.72/1.93/0.95/0.29/0.23/0.18/0.24. Hind leg. Coxa with 1 black exterior bristle; femur with anteroventral row of short black setae, posteroventral row of somewhat longer black setae, about half as long as femur height, anterodorsal row of 5 bristles in distal half; tibia bearing 5 anterodorsal, 4 posterodorsal bristles, 3 ventrals, 2 apicals; segment 5 with elongate apicodorsal setulae; segment 5 inconspicuously widened; length of femur, tibia and tarsal segments (in mm): 2.31/2.48/0.62/0.51/0.32/0.24/0.25.

*Wing* (Fig. 4E): hyaline, with distinct dark shades on dm-m and M1+2; veins yellow-brown, more yellowish at base; distal part of M1+2 convex; tip of R4+5 parallel with M1+2; ratio of part of costa between R2+3 and R4+5 to that between R4+5 and M1+2 (in mm), 0.49/0.37; crossvein dm-m straight; ratio of dm-m to distal part of M4, 0.48/0.67; anal vein distinct; halter yellow; lower calypter yellow, with white cilia.

*Abdomen*: green-blue, entirely white dusted; setae and hind-marginal bristles on tergites black, short; sternites with short setulae; tergite 5 with rounded ventral projections. Hypopygium (Fig. 4F) black with brown-black appendages; cercus brownish,

black at base, with black bristles; epandrial lobe reduced; hypandrium fused with epandrium, short and broad, apically concave; phallosoma broad, rounded at apex, reaching apex of surstyli; phallus long, simple, apically coiled, hidden under phallosoma; surstylus (Fig. 4G) slightly curved, narrow, angular at apex (lateral view), with 2 long dorsal bristles and several short and long ventral and apical setae (Fig. 8F); cerci dorsally fused in basal half, elongate-ovate, with short bristles (Fig. 4H).

MEASUREMENTS. Body length 5.8 mm; antenna length 0.9 mm; wing length 5 mm; wing width 1.7 mm.

FEMALE. Unknown.

DIAGNOSIS. *Thinophilus sambharensis* **sp. n.** keys to *T. flavipalpis* (Zetterstedt, 1843), *T. setiventris* Grootaert et Meuffels, and *T. nigrilineatus* Grootaert, 2018 (Yang *et al.*, 2011; Grootaert, 2017, 2018; Samoh *et al.*, 2017). It differs from these species in the morphology of hypopygium and armament of fore tarsus. The new species is closest to the mainly Palaearctic *T. flavipalpis*, differing from the latter in lighter antenna and legs, shorter bristle on fore tarsomere 4, weaker curved fore basitarsus, different shape and setation of hypopygial surstylus (see Negrobov, 1979: Fig. 1366).

ETYMOLOGY. The species is named after the Sambhar salt lake in the Indian state of Rajasthan, near the Sambhar Lake Town, Jaipur district, where the type was collected.

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