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**A NEW SPECIES OF THE GENUS *RHAPHIUM* (DIPTERA:
DOLICHOPODIDAE) FROM SAKHALIN ISLAND**

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Summary. *Rhaphium curvitorsus* Negrobov, Maslova et Selivanova, **sp. n.** is described from Sakhalin. The new species is similar to *Rh. firsovi* Stackelberg et Negrobov, 1976, but differs from the latter in morphology of apical segments of fore tarsi, in color of fore femora, and in morphology of hypopygium. A key to species and subspecies of *Rhaphium* estimated or known from Sakhalin and Kuril Islands is also provided.

Key words: Diptera, Dolichopodidae, taxonomy, new species, Sakhalin, Russia.

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Резюме. С Сахалина описан новый вид *Rhaphium curvitorsus* Negrobov, Maslova et Selivanova, **sp. n.** Новый вид близок *Rhaphium firsovi* Stackelberg et Negrobov, 1976, от которого отличается строением передних лапок, цветом передних бедер и морфологией гипопигия. Составлена определительная таблица видов и подвидов *Rhaphium*, известных или ожидаемых с Сахалина и Курильских островов.

INTRODUCTION

The genus *Rhaphium* Meigen, 1803 is included in the subfamily Rhapsiinae. There are more than 200 species of this genus in the world fauna (Grichanov, 2017; our unpublished data). Negrobov (1979) revised the genus in the Palearctic Region. Yang *et al.* (2011) reviewed the Chinese fauna, Negrobov *et al.* (2012) published a key to Siberian species, and Tang *et al.* (2016) published the last key to Chinese species. Later three species were described from Inner Mongolia in China (Qilemoge *et al.*, 2019).

To date, the fauna the family Dolichopodidae of Sakhalin includes 27 species and 2 subspecies from 13 genera, of which 15 species and subspecies are endemic (Negrobov *et al.*, 2013). Three species and one subspecies from the genus *Rhaphium* have been described from Yuzhno-Sakhalinsk, namely *Rh. neolatifacies* Yang et Wang, 2006, *Rh. macalpini* Negrobov, 1986, *Rh. terminale igoriani* Negrobov, 1986, and *Rh. sachalinense* Negrobov, 1979 (Negrobov, 1976, 1979, 1986; Yang *et al.*, 2006).

The fauna the family Dolichopodidae of the Kuril Islands includes 23 species from 9 genera, of which 9 species are endemic (Negrobov *et al.*, 2013). Two species from the genus

Rhaphium of the Kuril Islands have been described, namely *Rh. gussakovskii* Stackelberg et Negrobov, 1976 from Iturup Island and *Rh. richterae* Negrobov 1977 from Kunashir Island (Negrobov; 1976, 1977).

In this paper a new species of the genus from Sakhalin is described. A key to males of species estimated or recorded from the Kuril Islands and Sakhalin is firstly provided.

DESCRIPTION OF NEW SPECIES

***Rhaphium curvitarisus* Negrobov, Maslova et Selivanova, sp. n.**

<http://zoobank.org/NomenclaturalActs/F2F9BECE-2787-47C6-8EDE-2DBEC3895E42>

Figs 1–5

TYPE MATERIAL, Holotype – ♂, **Russia**: Sakhalin, 41 km N Yuzhno-Sakhalinsk, village Pokrovka, 8.VII 1982 (Shamshev leg.). The type is deposited in the collection of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg.

DESCRIPTION. Male. Body length 2.7 mm, wing length 2.5 mm.

Face white with silver tint, its width in middle part approximately half as wide as postpedicel. Proboscis dark-brown. Palpus black. Frons green, shining without dusting. Antennae black. Postpedicel elongated triangular, with a pointed apex; its length longer than width. Arista located closer to top of postpedicel, without enlargement, covered with short hairs. The ratio of length and width of postpedicel to length of arista – 2.2: 0.9: 2.9. Postocular bristles yellow below.

Thorax green with metallic bronze shade. Mesonotum metallic shiny, pleura with grey dusting. Propleura with group of white hairs. 5 pairs of dorsocentral setae. Acrostichal setae arranged in 2 rows. Scutellum with 2 strong marginal bristles. Legs mostly yellow, bases of fore coxa, mid and hind coxae, most of fore femur, apical part of hind femur, apical segments of mid and hind tarsi dark. Coxae with long white hairs, mid coxa below with a group of black setae forming spike. Mid and hind femora with 1 strong preapical bristle. Fore tibiae with 4 anterodorsal setae. Fore basitarsus at base with 4 black ventral setae. 2nd tarsomere of fore tarsus curved ventrally, on apex ventrally thickened. 4th tarsomere of fore tarsus ventrally on apex thickened, on apex with black thick curved ventral seta and yellow transparent flat seta. 5th tarsomere of fore tarsus with group of long setae from dorsal and apical sides, their length is greater than diameter of joint. 5th tarsomere with dorsal process. black claws and white pulvillus. Relative length of fore tibia and 5 tarsomeres (from 1st to 5th) is 4.7: 2.4: 2.6: 0.9: 1.0: 0.9. Mid tibia with 4 anterodorsal, 1 posterodorsal and 3 anteroventral bristles. Mid basitarsus with long ventral setae. 2nd tarsomere of mid tarsus at base with 1 long and 1 short ventral setae. Relative length of mid tibia and 5 tarsomeres (from 1st to 5th) is 6.2: 3.3: 1.6: 1.5: 0.7: 0.5. Hind tibia not swollen, with 4 anterodorsal and 1 posterodorsal bristles. Hind basitarsus swollen. Relative length of hind tibiae and 5 tarsomeres (from 1st to 5th) is 7.4: 2.4: 2.6: 1.7: 1.1: 0.7.

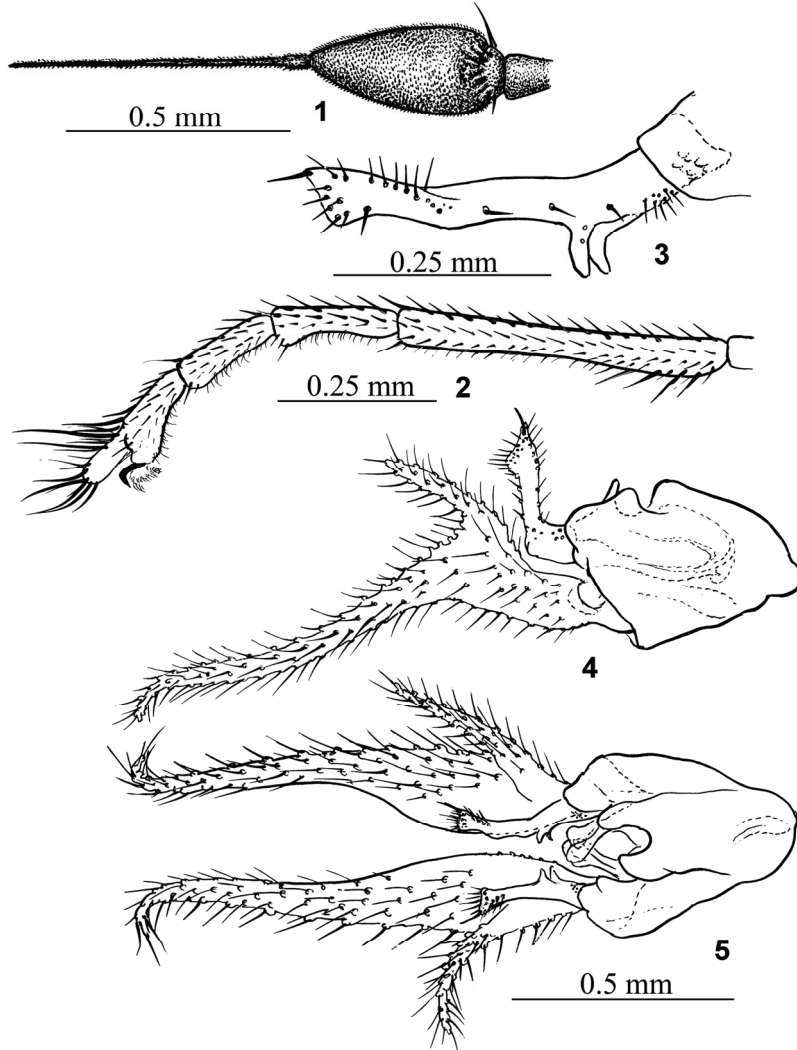
Wings not darkened, without spots. Costa at apex of subcostal vein without thickening. R_{4+5} and M_1 hardly convergent at tip of wing. M_1 weakly curved. Apical part of M_4 longer than posterior transverse vein (dm-m), their length ratio is 3.6: 1.5. Anal angle of wing obtuse. Lower calypter yellow with white hairs. Halter yellow.

Abdomen green, shiny, with bronze tint, with black hairs, below at base with white hairs. Hypopygium brown. Hypandrium oval, slightly longer than wide. Surstyli long, rhomboid at apex, with two long tooth-like processes at base. Cerci long, two times longer than epandrium, forked at base, with wide lateral lobe.

Female unknown.

ETYMOLOGY. The species is named for the curved segments of the fore tarsus.

NOTES. New species is similar to *Rh. firsovi* Stackelberg et Negrobov, 1976, known from Primorsky Krai (Russia) and Alaska (USA), but differs from the latter in morphology of apical segments of the fore tarsi, by color of the fore femur, and by morphology of hypopygium. In *Rh. firsovi*, fore femur yellow; 4th tarsomere of fore tarsus not widened, 5th tarsomere without group of long setae; surstyli straight (see Negrobov, 1979: figs 1761–1764), while in *Rh. curvitarisus* sp. n., fore femur mostly dark, 4th tarsomere of fore tarsus widened, 5th tarsomere with a group of long setae (Fig. 2), and surstyli as in Fig. 3.



Figs 1–5. *Rhapsium curvitarisus* sp. n. 1 – antenna; 2 – 1st-5th segments of fore tarsus, lateral view; 3 – surstyli, ventral view; 4 – hypopygium, lateral view; 5 – hypopygium, ventral view.

**Key to species and subspecies of *Rhaphium* estimated or recorded
from Sakhalin and Kuril Islands**

1. Mesonotum and abdomen with silver dusting. Fore basitarsus with a number of ventral black setae (Holarctic species recorded from Primorye and Japan) *Rh. dispar* Coquillett, 1898
- Mesonotum and abdomen without silver dusting. Fore basitarsus without a group of bristles 2
2. Face black or grey-black 3
- Face silvery white 6
3. Face wider than postpedicel (Sakhalin) *Rh. neolatifacies* Yang et Wang, 2006
- Face much narrower than width of the postpedicel 4
4. Cerci divided into two lobes (Sakhalin) *Rh. macalpini* Negrobov, 1986
- Cerci not divided into lobes 5
5. Surstyli short, their length approximately equal to width, at apex with two lateral processes (Holarctic species recorded from Primorye and Japan) *Rh. boreale* (Van Duzee, 1923)
- Surstyli long, more than 3 times longer than width, tapering to apex (Sakhalin) *Rh. terminale igoriani* Negrobov, 1986
6. Hind coxae with strong lateral setae. Surstyli with a group of long bristles (Primorsky Krai) *Rh. flavilabre* Negrobov, 1979
- Hind coxae outside with thin hairs. Surstyli without group long bristles 7
7. Mid coxae from below with a spike made of black setae (Sakhalin) *Rh. curvitarisus* sp. n.
- Mid coxae from below without spike 8
8. 5th tarsomere of fore tarsus without group of long setae (Kuril Islands: Kunashir) *Rh. richterae* Negrobov 1977
- 5th tarsomere of fore tarsus with group of long setae 9
9. Fore and mid femora and basal part of hind femur black. Cerci long, straight, longer than epandrium (Sakhalin) *Rh. sachalinense* Negrobov, 1979
- Femora yellow. Cerci short, curved, shorter than epandrium (Kuril Islands: Iturup) *Rh. gussakovskii* Stackelberg et Negrobov, 1976

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REFERENCES

- Grichanov, I.Y. 2017. Alphabetic list of generic and specific names of predatory flies of the family Dolichopodidae (Diptera), 2nd edition. *Plant Protection, News Supplements* 23: 442–455.
- Negrobov, O.P. 1976. New species of the genus *Rhaphium* (Dolichopodidae, Diptera) of Siberia and the Far East. *Zoologicheskij Zhurnal*, 55(6): 860–865. [In Russian]
- Negrobov, O.P. 1977. New species of the genus *Rhaphium* (Dolichopodidae, Diptera) of the fauna of the USSR. *Vestnik zoologii*. 1: 45–49. [In Russian]
- Negrobov O.P. 1979. Dolichopodidae. P. 475–530. In: Lindner E (Ed.) *Die Fliegen der Palaearktischen Region* 4 (5), *Lieferung* 322. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.

- Negrobov, O.P. 1986. Holarctic connections of the fauna of the dolichopodid family. P. 161–168. In: *Biogeography Bering Sector Subarctic: Materials of the X All-Union Symposium. Magadan, 1983*. Vladivostok. [In Russian]
- Negrobov, O.P., Barkalov, A.V. & Selivanova, O.V. 2012. *Rhaphium* Meigen, 1803 (Diptera, Dolichopodidae) from Taimyr Peninsular (Russia) with the description of a new species. *Zootaxa*, 3548(1):75–87.
- Negrobov, O.P., Selivanova, O.V., Maslova, O.O. & Chursina, M.A. 2013. Check-list of predatory flies of the family Dolichopodidae (Diptera) in the fauna of Russia. P. 49–93. In: Grichanov, I.Ya., Negrobov, O.P. (Eds). *Fauna and taxonomy of Dolichopodidae (Diptera)*. St. Petersburg.
- Qilemoge, Wang, M. & Yang, D. 2019. Three new species of *Rhaphium* from China, with an updated key to Chinese *Rhaphium* (Diptera, Dolichopodidae, Rhaphiinae). *ZooKeys*, 840: 87–99. DOI: <http://dx.doi.org/10.3897/zookeys.840.31602>
- Tang C., Wang, N. & Yang, D. 2016. *Rhaphium* (Diptera: Dolichopodidae: Rhaphiinae) from China with six new species. *Zootaxa*, 4162(3): 581–593. DOI: <http://dx.doi.org/10.11646/zootaxa.4162.3.11>.
- Yang, D, Zhu, Y.J., Wang, M.Q. & Zhang, L.L. 2006. *World catalog of Dolichopodidae (Insecta: Diptera)*. China Agricultural University Press, Beijing, 704 p.
- Yang, D., Zhang, L., Wang, M. & Zhu, Y. 2011. Dolichopodidae. In: *Fauna Sinica, Insecta, Volume 53*. Science Press, Beijing. 1912 pp. [In Chinese, with English summary]