

Notes on taxonomy of *Lispe* Latreille (Diptera: Muscidae)К таксономии *Lispe* Latreille (Diptera: Muscidae)

N.E. Vihrev  
Н.Е. Вихрев

Zoological Museum, Lomonosov Moscow State University, Bolshaya Nikitskaya 6, Moscow 125009, Russia. E-mail: nikita6510@ya.ru  
Зоологический музей, Московский государственный университет им. М.В. Ломоносова, Большая Никитская ул., 6, Москва 125009, Россия.

KEY WORDS: *Lispe emdeni*, *Lispe scalaris*, *Lispe angustipalpis*, Muscidae, Diptera, new species, new synonym.

КЛЮЧЕВЫЕ СЛОВА: *Lispe emdeni*, *Lispe scalaris*, *Lispe angustipalpis*, Muscidae, Diptera, новый вид, новый синоним.

ABSTRACT. *Lispe emdeni* sp.n. is described from Western India. Two new synonyms are proposed: for *Lispe angustipalpis* Stein, 1920 (= *Lispe fuscipalpis* Malloch, 1929 syn.n.) and for *Lispe scalaris* Loew, 1847 (= *Lispe persica* Becker, 1904 syn.n.). A short review of several other *Lispe* species related to the above mentioned ones is given. A correction to the designation in previous article [Vihrev, 2011a] is added.

РЕЗЮМЕ. *Lispe emdeni* sp.n. описан из западной Индии. Установлено 2 новых синонима: для *Lispe angustipalpis* Stein, 1920 (= *Lispe fuscipalpis* Malloch, 1929 syn.n.) и для *Lispe scalaris* Loew, 1847 (= *Lispe persica* Becker, 1904 syn.n.). Дан краткий обзор других видов *Lispe*, родственных трем вышеупомянутым. Также добавлена коррекция ошибки, допущенной в предыдущей статье [Vihrev, 2011a].

## Introduction

Hennig's [1960] monograph is still the best source on the taxonomy of *Lispe* Latreille, 1796. Apart from everything else, Hennig offered a subdivision of this large genus onto 6 species-groups and several species with uncertain relation. His subdivision mostly seems well-founded, partly not enough so, but anyway this is better than two hundreds of species without any order. Recently I proposed to add one more *Lispe leucospila* species-group for two Palaearctic-Oriental species and several Afrotropical ones of uncertain taxonomic status [Vihrev, 2011b]. The present taxonomic notes deal with several *Lispe* species which probably are not closely related to each other. *L. persica* Becker, 1904 belongs to Hennig's small *Lispe scalaris* species-group which becomes even smaller after the here proposed treatment of *L. persica* as a new synonym of *L. scalaris*

Loew, 1847. For the here considered *L. angustipalpis* Stein, 1920 and two related species I propose a new *Lispe pumila* species-group (named so after the oldest species included). For the here described *L. emdeni* sp.n. I can only suppose the relation to another "group-less" species *L. nana* Macquart, 1835.

## Material and methods

The majority of the specimens studied are in the Zoological Museum of Moscow University (ZMUM) (in this case not indicated in the text).

Geographical coordinates are given in the Decimal Degrees format.

The following abbreviations for morphological structures are used: *f1*, *t1*, *f2*, *t2*, *f3*, *t3* — fore-, mid-, hind- femur or tibia; *ac* — acrostichal setae; *dc* — dorsocentral setae; *a*, *p*, *d*, *v* — anterior, posterior, dorsal, ventral seta(e); *prst* — presutural, *post* — post-sutural.

The abbreviation for the tarsi as *tar* followed by a pair of digits separated by a hyphen was proposed by Vihrev [2011a]: the first digit (1 to 3) gives the leg number and the second digit (1 to 5) the number of the tarsal segment. For example, *tar1-4* — 4-th segment of fore tarsus; *tar3-1* — hind basitarsus.

## Taxonomic part

*Lispe emdeni* Vihrev sp.n.

Figs 1–5.

MATERIAL. Holotype ♂, India, Rajasthan state, Jaipur env. (26.96°N 75.85°E), 21–22.III.2011, N. Vihrev.

Paratypes: 8 ♂♂, 3 ♀♀ with the same label as holotype; 7 ♂♂, 6 ♀♀, India, Rajasthan state, Sawai Madhopur env. (26.02°N 76.38°E), 26.II.2011, N. Vihrev (ZMUM); 3 ♂♂, Madhya Pradesh



Figs 1–5. *Lispe emdeni* Vikhrev sp.n., ♂: 1 — lateral view; 2 — dorsal view; 3 — fore tarsi; 4 — cerci; 5 — sternite 5.  
 Рис. 1–5. *Lispe emdeni* Vikhrev sp.n., ♂: 1 — вид сбоку; 2 — вид сверху; 3 — передние лапки; 4 — церки; 5 — 5-й стернит.

state, Jubblepore (= Jabalpur, H°23.2N 79.9E), 03.V.1905, E. Brunetti (Natural History Museum, London (BMNH))\*.

**DESCRIPTION.** Male (Figs. 1, 2). Body size 4–4.5 mm.

**Head.** Frontal triangle narrow, black, slightly shining; interfrontalia math black; fronto-orbital plates mostly black, slightly shining, but its anterior margin dusted as parafascial; face and parafacials densely dirty-yellow dusted. Occiput grey with a pair of black shining spots in upper 1/3. Fronto-orbital plates with 4 inclinate setae and an outer row of 5–6 proclinate setulae in posterior half. Antenna black, arista long plumose. Vibrissae weak, palpi wide, yellow.

**Thorax.** Pleura, humeral calli and notopleuron densely grey dusted. Disc of the scutum and scutellum subshining black, scutum with a pair of thinly dusted grey vittae mesad to dorsocentral rows and a pair of small dusted spots at posterior margin. 2(1)+4 *dc*, only the last one (6th) strong, 2nd and 5th — moderately strong; *prst ac* hairs in 3–4 rows. Meron with 1–4 setulae above hind coxa. Wing hyaline, cell  $R_{4+5}$  not narrowed at apex.

**Legs** black, densely grey dusted, only knees and basal half of posterior tibiae yellowish. *t1* without seta.

\*I had not personally examined specimens from BMNH, but a draft description of a new species was found in Emden's handwritten unpublished notes. Emden's detailed description leaves no doubts that my series from Rajasthan and Brunetti's specimens from neighbouring state Madhya Pradesh are conspecific.

Fore tarsus modified: *tar1-1* to *tar1-4* shortened and somewhat compressed, *tar1-1* on *p* surface with a flat apical process reaching the middle of *tar1-2* (Fig. 3). *f2* without strong setae except 1 apical *pd*. *t2* with submedian *p* seta. Hind coxa without seta on inner posterior surface. *f3* without *av* setae and with 1 *pv* at apex. *t3* with 1 *ad* and 1 *pd* setae.

**Abdomen** grey dusted with blackish trapezoid spots on tergites 3 to 5, pattern on tergite 3 rather vague. Grey median vitta interrupted at anterior margins of tergites and widened at posterior margins. Cercal plate with weak sclerotization (Fig. 4), sternite 5 with medial arrow-shaped process (Fig. 5).

**Female** differs from male as follows: body size 4–5 mm; fore tarsus unmodified; dusting of scutum more developed; abdominal spots vaguer.

**DIAGNOSIS.** *Lispe emdeni* sp.n. in my opinion is related to *Lispe nana* Macquart. The two species share the general habitus and general dusting pattern, leg chaetotaxy, structure of male aedeagus. These species may be easily separated as follows:

- *dc* 2+3 all strong. *prst ac* hairs in 2 rows. Meron bare above hind coxa. Disc of scutum mostly brownish dusted. Abdomen whitish dusted, with larger and clearly limited black spots. ♂ fore tarsus unmodified .....
- ..... *nana* Macquart
- 2(1)+4 *dc*, only the last one (6-th) strong, 2-nd and 5-th — moderately strong. *prst ac* hairs in 3–4 rows. Meron

with 1–4 setulae above hind coxa. Disc of scutum mostly subshining. Abdomen grey dusted, with smaller and more vague black spots. ♂ fore tarsus modified .....  
..... *emdeni* sp.n.

ETYMOLOGY. The new species is named in honour of Dr. F. van Emden.

#### *Lispe pumila* species-group

I propose to include 3 species in a new *Lispe pumila* species-group (named so after the oldest species included) that is: closely related to each other *L. angustipalpis* Stein, 1920 and *L. pumila* Wiedemann, 1824 and less obviously related *Lispe pygmaea* Fallén, 1825. These species share the following characters: palpi very narrow (for *Lispe*); katapisternal setae forming nearly equilateral triangle; sternite 5 with a pair of sclerites attached to its internal surface; similar habitats: the flies are found on grass vegetation near fresh water. *L. pumila* is common in the Oriental region, *L. angustipalpis* is also Oriental species, but less common and seems to be restricted in its distribution to the equatorial zone, *L. pygmaea* is a widespread and common Palaearctic species.

#### *Lispe angustipalpis* Stein, 1920

Figs 6, 8.

*Lispe angustipalpis* Stein, 1920: 60. Type locality: Java.

*Lispe fuscipalpis* Malloch, 1929: 155 — **syn.n.** Type locality: Vanuatu.

*Lispe pumiloides* Snyder, 1965: 265. Type locality: Micronesia, Pulau and Yap.

MATERIAL EXAMINED. 9 ♂♂, 7 ♀♀, Thailand: Phuket prov., 08.063°N 98.277°E, 18–26.II.2009, N.Vikhrev; 1 ♀, Phang Nga prov., Similan Isl. 4, 12.XII.2010, N. Vikhrev.

#### *Lispe pumila* Wiedemann, 1824

Fig. 7.

*Lispe pumila* Wiedemann, 1824: 51. Type locality: “India orient”.

MATERIAL EXAMINED. 95 specimens from: Cambodia: Kamput, Kep and Koh Kong prov.; India: Goa state; Myanmar: Shan state; Thailand: Bangkok, Chanthaburi, Chonburi, Phang Nga, Phuket and Rayong prov.

#### *Lispe pygmaea* Fallén, 1825

*Lispe pygmaea* Fallén, 1825: 94. Type locality: Sweden, Espe-rod.

MATERIAL EXAMINED. 170 specimens from: Azerbaijan; Egypt: Luxor reg.; Georgia; India: Rajasthan state; Israel; Mongolia: Uvs prov.; Morocco: Essaouira prov.; Kazakhstan: Atyrau, East Kazakhstan, Kyzylorda and West Kazakhstan reg.; Russia: Altay, Amur, Buryatia, Dagestan, Krasnodar, Kursk, Moscow, Nizhny-Novgorod, Novosibirsk, Omsk, Primorsky, S-Peterburg, Tver, Ulyanovsk and Zabaikalsky reg.; Tajikistan: Dushanbe reg.; Turkey: Adana, Antalya, Hatay, Kayseri, Konya, Mersin and Sakarya prov.; Turkmenistan: Dashoguz, Lebap and Mary prov.; Ukraine: Odessa reg.

DISCUSSION. According to Stein [1920], *L. angustipalpis* Stein was described from two females. The type material was reexamined by Pont [1970]. Pont has

found that the specimen collected in Batavia (=Jakarta) and stored in Berlin (Museum für Naturkunde der Humboldt-Universität zu Berlin) is actually a male, this specimen was designated as the lectotype. The female specimen collected in Wonosobo and stored in Amsterdam (Zoölogisch Museum, Universiteit van Amsterdam, from 2011 this material is stored in Leiden (Nederlands Centrum Biodiversiteit (NCB Naturalis), de Universiteit Leiden) was designated as the paralectotype. Due to the kind help of Dutch colleagues Ben Brugge and Joke van Erkelens female paralectotype of *L. angustipalpis* was photographed (Fig. 6). This image and Stein’s original description of *L. angustipalpis* leave no doubts that *L. angustipalpis* is conspecific to the specimens from Thailand in ZMUM, while the series from Thailand was compared with Malloch’s type material of *L. fuscipalpis* by A.C. Pont and found conspecific (A.C. Pont, pers. comm.).

The detailed description of *L. angustipalpis* (as *L. pumiloides*) is given in Snyder [1965], but the published keys for Oriental *Lispe* do not mention *L. angustipalpis* (or *L. fuscipalpis* or *L. pumiloides*) and give somewhat erroneous information on *L. pumila*, so I offer below my own key for the species of the *Lispe pumila* species-group.

1. 2+3 *dc*, all strong. *t3* without *av* seta. Meron bare above hind coxa. Abdominal tergites 3 to 5 with obscure spots in male, hardly distinct spots in female. Male fore coxa simple ..... *pygmaea* Fallén  
— 2+4 *dc* 4 anterior pairs very weak, hardly distinct. *t3* with *av* seta. Meron with 2–4 hairs above hind coxa. Abdominal tergites 3 to 5 with contrasting black spots in both sexes. Male fore coxa behind with a characteristic bunch of long wavy hairs ..... 2
2. Palpi black(ish). Spots on abdominal tergites 3 to 5 large and reaching posterior margin of tegites. Scutum black-ish, only thinly dusted, with wider vittae .....  
..... *angustipalpis* Stein  
— Palpi yellow. Spots on abdominal tergites 3 to 5 smaller and not reaching posterior margin of tegites. Scutum densely grey dusted, with narrow obscure vittae .....  
..... *pumila* Wiedemann

#### *Lispe scalaris* species-group

*Lispe scalaris* species-group was proposed by Hennig [1960: 412] for *Lispe scalaris* Loew, *Lispe persica* Becker, *Lispe nubilipennis* Loew, 1873 and *Lispe elegantissima* Stackelberg, 1937. Hennig indicated the following group characters: *ac* setulae in 2 rows distinctly separated from scutal setulae; lower katapisternal seta weak, hairlike; similar leg chaetotaxy (*t1* without setae, *t2* with 1 *p*, *t3* 1 *ad* seta only); similar abdominal pattern (though more or less developed in different species); similarity of male terminalia. It may be added that *Lispe scalaris* species-group includes the smallest *Lispe* species with body size about 4 mm and that the distribution of the group is restricted to the arid zone of the Palaearctic region.



Figs 6. *Lise angustipalpis* Stein, paralectotype ♀, lateral (a) and dorsal (b) view (photo by Joke van Erkelens).  
Рис. 6. *Lise angustipalpis* Stein, паралектотип ♀, вид сбоку (a) и сверху (b) (фото Joke van Erkelens).



Figs 7–8. *Lise* spp. ♀: 7 — *L. pumila* Wiedemann; 8 — *L. angustipalpis* Stein.  
Рис. 7–8. *Lise* spp. ♀: 7 — *L. pumila* Wiedemann; 8 — *L. angustipalpis* Stein.



Figs 9–11. *Lise* spp.: 9 — *L. scalaris* Loew, ♂; 10 — *Lise elegantissima* Stackelberg, ♀; 11 — *L. nubilipennis* Loew, ♀.  
Рис. 9–11. *Lise* spp.: 9 — *L. scalaris* Loew, ♂; 10 — *Lise elegantissima* Stackelberg, ♀; 11 — *L. nubilipennis* Loew, ♀.

*Lispe scalaris* Loew, 1847  
Fig. 9.

*Lispe scalaris* Loew, 1847: 28. Type locality: Turkey, Smirna (Izmir).

*Lispe persica* Becker, 1904: 22 — **syn.n.** Type locality: S-E Iran, Sistan.

TYPE MATERIAL EXAMINED. 1 ♂, 2 ♀♀ syntypes of *L. persica*: Iran: Sistan (presently Sistan and Baluchestan Prov., 27°N 61°E), 21.V.1898, N. Zarudnyi (Zoological Institute, St.-Petersburg (ZIN)).

ADDITIONAL MATERIAL. 1 ♂, Egypt: Cairo, XI (Nov?); 2 ♂♂, 1 ♀ Assuan, II (Febr?) (ZIN); 8 ♂♂, 5 ♀♀, India: Rajasthan state, Chambal R., 25.85°N 76.56°E, 26.II.2011, N.Vikhrev; 1 ♂, 2 ♀♀, Israel: Yeruham (30.99°N 34.90°E), 22.VII.1962, J.Kugler (Tel-Aviv University, Israel (TAUI)); 3 ♂♂, 2 ♀♀, Mash'abbesade (31.01°N 34.78°E), 21.VII.1986, A. Freidberg (TAUI); 1 ♂, Kinneret Lake env., 32.7°N 35.6°E, 27.XI.2011, N.Vikhrev; 1 ♂, 1 ♀, Morocco: Quarzazate prov., 29.85°N 5.61°W, 30.III.2011, A. Gusakov; 13 ♂♂, 4 ♀♀, Turkmenistan: Mary prov., Kushka env. (35.3°N 62.3°E), 20.V.1990, A.Ozerov; 2 ♀♀, Ahal prov., Tejen, 15.V.1969, A. Zhelochovtsev.

*Lispe elegantissima* Stackelberg, 1937  
Fig. 10.

*Lispe elegantissima* Stackelberg, 1937: 131. Type locality: Turkmenia, Tashaus.

TYPE MATERIAL EXAMINED. Holotype ♂ “Turkmenia, Tashaus” (presently Turkmenistan, Dashoguz, 41.9°N 59.9°E), 1937, A. Stackelberg in Zoological Institute St.-Petersburg (ZIN).

ADDITIONAL MATERIAL. 19 ♂♂, 34 ♀♀, Kazakhstan: Kyzylorda reg., pond near Syr Darya R., 45.757°N 62.312°E, 15–19.V.2011, K.Tomkovich; 2 ♂♂, 2 ♀♀, Tajikistan: «ièçîâüý Ääððä» (the lower reaches of Vakhsh R.) = Khatlon prov., approx. 37.5°N 68.5°E, 17.III.1944, A.Stackelberg (ZIN); 1 ♂, 9 ♀♀, Turkmenistan: Lebap prov., Chardzhou env., 25.IV.1990, A.Ozerov; 1 ♀, Ahal prov., Ashgabat env., 5.V.1990, A.Ozerov.

*Lispe nubilipennis* Loew, 1873  
Fig. 11.

*Lispe nubilipennis* Loew, 1873: 244. Type locality: Sarepta (Russia, Volgograd env., 48.52°N 44.51°E).

MATERIAL EXAMINED: 1 ♀, Russia: Astrakhan reg., Baskunchak L. env., fresh pond, 48.165°N 46.82°E, 3–6.V.2010, K. Tomkovich.

DISCUSSION. Hennig's [1960: 416] guidelines on separation of *L. scalaris* and *L. persica* may be summarized as follows:

- Pedicel entirely yellow. Tibiae yellow. Scutum densely dusted, only laterally partly shining. Tergites 3 and 4 with brown spots, spots on tergite 3 small.....  
.....*persica* Becker
- Pedicel only apically yellow. Tibiae darker. Scutum black, shining, dusted only on median part. Tergites 3 and 4 with large black spots.....*scalaris* Loew

I regard *L. persica* as a synonym of *L. scalaris* for the following reasons: the characters thought to be diagnostic vary gradually without clear border between the species (1); the key characters are often different among specimens collected on the same date and at the same

locality and there is not strict correlation between the characters (2); the male genitalia were found identical (3).

In my opinion the most likely explanation of the variability is the difference between freshly emerged and aged specimens: the dusting on thorax and abdomen becomes more worn-out in aged ones, so that spring specimens (Morocco, India and Turkmenistan) are densely dusted, whereas those collected in summer or autumn (Israel) are darker and more shining.

The *Lispe scalaris* species-group also included two less studied species: *L. elegantissima* Stackelberg known from Central Asia and *L. nubilipennis* Loew, so far known from 2 female specimens collected in lower reaches of the Volga River.

The female holotype of *L. nubilipennis* was examined by Hennig [1960] who gave the following differences: dark pattern on wing indistinct, visible only at an acute angle of view but otherwise similar to that of *L. elegantissima* (1); abdomen laterally with separated black shining spots, not with uninterrupted black shining stripes as in *L. elegantissima* (2); anepisternum without black shining stripe which is present in *L. elegantissima* (3). The female specimen of *L. nubilipennis* I have fits Hennig's separation characters, but more material is necessary to clarify the situation.

ECOLOGY. According to my observations *L. scalaris* was found on the clay loam at banks of rivers, freshwater lakes or ponds, where it prefers sites rather remote from water where the clay is dried and forms a crust (= takyr/takir soil). All specimens of *L. elegantissima* and *L. nubilipennis* were collected in spring season near fresh water.

### Correction

I have to apologize for an unfortunate mistake in my previous paper on *Lispe* taxonomy [Vikhrev, 2011a, Fig. 2.]: sternite 5 of *Lispe draperi* Ségué, 1933 was attributed to *L. tentaculata* (De Geer, 1776) and vice versa. The correct illustration is given below (Fig. 12).

ACKNOWLEDGEMENTS. Taxonomy of *L. angustipalpis* was clarified due to the kind help of Dutch colleagues Ben Brugge and Joke van Erkelens. I thank Oleg Kosterin (Novosibirsk) who suggested several useful corrections. I thank Adrian Pont (Oxford), Andrey Ozerov (Moscow) and Dmitry Gavryushin (Moscow) for their help.

### References

- Hennig W. 1955–1964. Family Muscidae // Lindner E. (Hrsg.) Die Fliegen der Palaarktischen Region. Stuttgart: Schweizerbart. Lfg.63b. 1110 S.
- Pont A.C. 1970. The type-material of Oriental and Australasian Muscidae (Diptera) in the Zoological Museum, Amsterdam // Beaufortia. Vol.18. No.231. P.77–111.
- Snyder F.M. 1965. Diptera: Muscidae // Insects Micronesia. Vol.13. P.191–327.

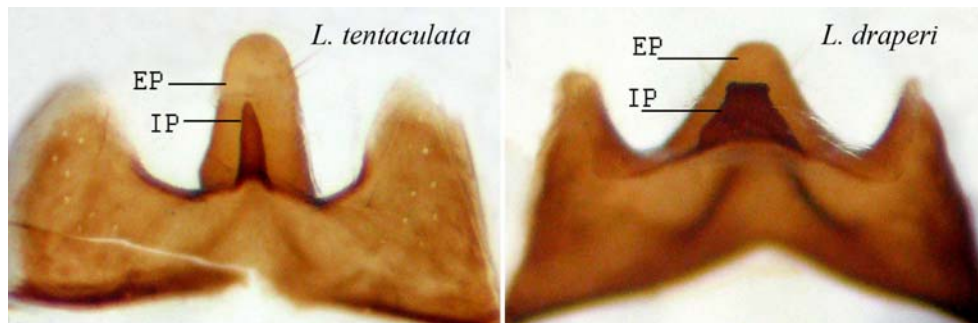


Fig. 12. Correct illustration to Vikhrev, 2011a, Fig. 2.

Рис. 12. Правильная иллюстрация к статье Vikhrev, 2011a, Fig. 2.

Stein P. 1920. Fauna Simalurensis, Anthomyidae. Einige Anthomyiden von der Insel Simalur bei Sumatra // Tijdschr. Entomol. Bd.62(Suppl.). S.40–46.

Vikhrev N. 2011a. Review of the Palaearctic members of the *Lispe tentaculata* species-group (Diptera, Muscidae): revised

key, synonymy and notes on ecology // ZooKeys. Vol.84. P.59–70.

Vikhrev N. 2011b. Taxonomic notes on the *Lispe leucospila* species-group (Diptera, Muscidae) // Russian Entomological Journal. Vol.20. No.2. P.215–218.