

A new species of *Systemus* LOEW (Diptera: Dolichopodidae) from Israel

[Eine neue Art der Gattung *Systemus* LOEW (Diptera: Dolichopodidae) aus Israel]

by
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| Abstract | <i>Systemus vasilii</i> spec. nov. from Israel is described. A check list of known species and a key to West Palearctic species of <i>Systemus</i> are published |
| Key words | Diptera, Dolichopodidae, <i>Systemus</i> , Palearctic Region, Israel, key, new species, new record, check list |
| Zusammenfassung | <i>Systemus vasilii</i> spec. nov. aus Israel wird beschrieben. Eine Check-Liste der <i>Systemus</i> -Arten sowie ein Bestimmungsschlüssel der Westpaläarktischen Spezies der Gattung wird gegeben. |
| Stichwörter | Diptera, Dolichopodidae, <i>Systemus</i> , Paläarktis, Israel, Bestimmungsschlüssel, neue Art, neuer Nachweis, Check-Liste |

Introduction

The old genus *Systemus* LOEW, 1857 has attracted recently attention of a number of scientists. Several new Palearctic (NEGROBOV & SHAMSHEV 1985, MACGOWAN 1997; OLEJNÍČEK & KOZÁNEK 1997), Australian (BICKEL 1986) and Neotropical (NAGLIS 2000) species have been described. I have seen one further yet undescribed species from southern China in P. GROOTAERT's collection (Institut Royal des Sciences naturelles de Belgique). The genus is also present in the Nearctic Region, but yet unknown from the Afrotropics. *Systemus* was kept within the subfamily Rhabhiinae for a long time. Following ROBINSON (1970), NEGROBOV (1991) regarded the genus in Systeminae. BICKEL (1986) and EVENHUIS (1994) placed the genus in the subfamily Medeterinae. KASSEBEER (1998) has studied types of the European species; he has confirmed synonymy of *S. pallipes* and *S. pallidus* and raised *S. tener* from synonymy. Six of nine known Palearctic species have been described from Europe. The last key to British species of *Systemus* has been published by MACGOWAN (1997) and a key to Asian species by OLEJNÍČEK & KOZÁNEK (1997). For ecology and biology of some Palearctic species see papers of KRIVOSHEINA (1973), VAILLANT (1978), PÄRVU (1991) and ANDERSSON (1999).

The author of this paper has had the possibility to examine Swedish specimens of *S. bipartitus*, *S. leucurus*, *S. pallipes*, *S. scholtzii* and *S. tener* in the Zoological Museum of Lund University. I have also collected *S. bipartitus* and *S. pallipes* on tree trunks in apple orchard near Velikie Luki (Pskov Region, Russia) in mid-June, 1997.

In the collection of the Department of Zoology of the Tel-Aviv University [TAU], I have found a new species of the genus *Systemus*. Description of *Systemus vasilii* spec. nov. from Israel is given in this paper. Male paratype has been placed after alkalisiation into glycerol and mounted on a pin in a cavity of polymer film covered with a piece of adhesive tape. The relative lengths of the podomeres are representative ratios and not measurements. Holotype and paratype of the new species are deposited in the Department of Zoology of the Tel Aviv University, Israel [TAU].

List of known species

Genus *Systemus* Loew, 1857

Systemus LOEW, 1857 – LOEW 1857: 34. Type species: *Rhaphium adpropinquans* LOEW, 1857 [= *Rhaphium pallipes* VON ROSER, 1840] (design. by FOOTE, COULSON & ROBINSON 1965: 517).

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| 1 <i>albimanus</i> WIRTH, 1952 | – WIRTH 1952: 240. Nearctic Region. |
| 2 <i>amazonicus</i> NAGLIS, 2000 | – NAGLIS 2000: 64. Neotropical Region. |
| 3 <i>apicalis</i> WIRTH, 1952 | – WIRTH 1952: 237. Nearctic Region. |
| 4 <i>australis</i> BICKEL, 1986 | – BICKEL 1986: 265. Australian Region. |
| 5 <i>beatae</i> NAGLIS, 2000 | – NAGLIS 2000: 65. Neotropical Region. |
| 6 <i>bipartitus</i> (LOEW, 1850) | – LOEW 1850: 114 (<i>Rhaphium</i>). Palearctic Region. |
| 7 <i>californicus</i> HARMSTON, 1968 | – HARMSTON 1968: 16. Nearctic Region. |
| 8 [†] <i>ciliatus</i> MEUNIER, 1907 | – MEUNIER 1907: 222. Baltic amber. |
| 9 <i>curryi</i> BICKEL, 1986 | – BICKEL 1986: 267. Australian Region. |
| 10 <i>eucercus</i> STEYSKAL, 1970 | – STEYSKAL 1970: 107. Nearctic Region. |
| 11 <i>flaviatus</i> NAGLIS, 2000 | – NAGLIS 2000: 62. Neotropical Region. |
| 12 <i>leucurus</i> LOEW, 1859 | – LOEW 1859: 14. Palearctic Region. |
| 13 <i>mallochi</i> MACGOWAN, 1997 | – MACGOWAN 1997: 24. Palearctic Region. |
| 14 <i>minutus</i> (VAN DUZEE, 1913) | – VAN DUZEE 1913: 116 (<i>Neurigona</i>). Nearctic Region. |
| 15 <i>nigriatus</i> NAGLIS, 2000 | – NAGLIS 2000: 60. Neotropical Region. |
| 16 <i>oregonensis</i> HARMSTON & MILLER, 1966 | – HARMSTON & MILLER 1966: 91. Nearctic Region. |
| 17 <i>pallipes</i> (VON ROSER, 1840) | – VON ROSER 1840: 55 (<i>Rhaphium</i>). Palearctic Region. |
| = <i>adpropinquans</i> (LOEW, 1857) | – LOEW 1857: 33. (<i>Rhaphium</i>). |
| = <i>pallidus</i> VAILLANT, 1978 | – VAILLANT 1978: 79. |
| 18 <i>rafaeli</i> NAGLIS, 2000 | – NAGLIS 2000: 61. Neotropical Region. |
| 19 <i>raptor</i> BECKER, 1922 | – BECKER 1922: 158. Neotropical Region. |
| 20 <i>rarus</i> NAGLIS, 2000 | – NAGLIS 2000: 66. Neotropical Region. |
| 21 <i>sachalinensis</i> NEGROBOV & SHAMSHEV, 1985 | – NEGROBOV & SHAMSHEV 1985: 77. Palearctic Region. |
| 22 <i>scholtzii</i> (LOEW, 1850) | – LOEW 1850: 34 (<i>Rhaphium</i>). Palearctic Region. |
| = <i>alpinus</i> VAILLANT, 1978 | – VAILLANT 1978: 77. |
| 23 <i>shannoni</i> WIRTH, 1952 | – WIRTH 1952: 240. Nearctic Region. |
| 24 <i>slovaki</i> OLEJNÍČEK & KOZÁNEK, 1997 | – OLEJNÍČEK & KOZÁNEK: 127. Palearctic Region. |
| 25 <i>tener</i> LOEW, 1859 | – LOEW 1859: 13. Palearctic Region. |
| 26 <i>utahensis</i> HARMSTON & MILLER, 1966 | – HARMSTON & MILLER 1966: 92. Nearctic Region. |
| 27 <i>vasilii</i> GRICHANOV, spec. nov. | – Palearctic Region. |

Systematic account

Systemus vasilii spec. nov

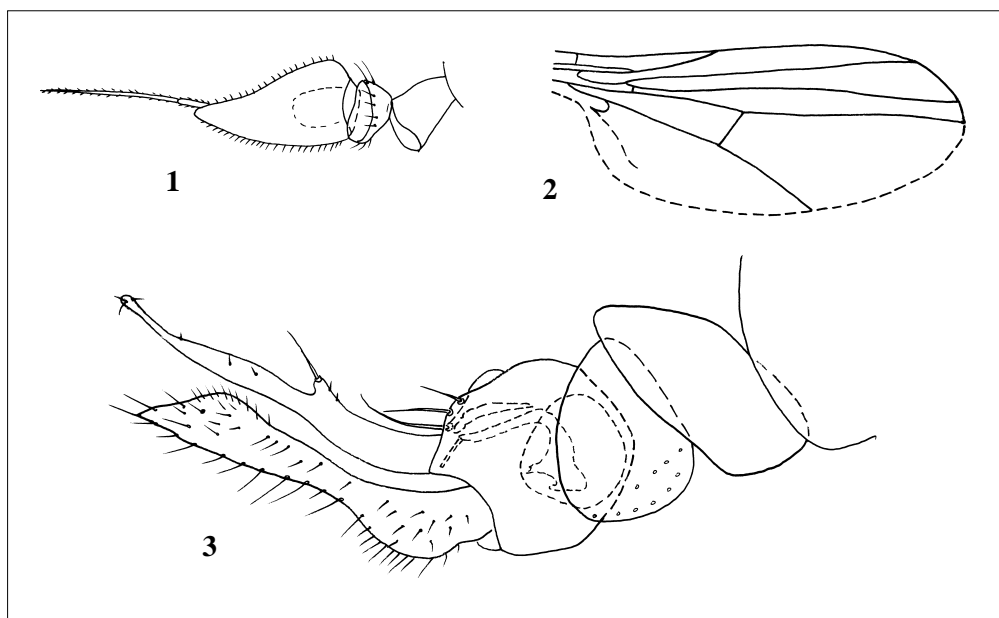
(Figs 1-3)

Material examined: Holotype ♂, Israel: 1,600 m, Mt. Hermon, 8.IX.1981, A. FREIDBERG, Malaise trap [TAU]. Paratype. 1 ♂, Israel: Carmel, 6.XI.1980, A. FREIDBERG [TAU].

Description

Length (mm): body 2.1, antenna 0.7, wing 2.2/0.8, hypopygium 0.6.

Male. Head: Vertex, frons, face dark metallic blue-green with thick whitish pruinosity; palpi yellow with strong apical seta; proboscis brownish, projecting anteriorly, keel-like; anterior eye facets slightly enlarged; single row of strong pale postoculars; antennal scape and pedicel yellow, postpedicel mostly black-brown, broadly yellow at base; pedicel short, with ring of apical setae; postpedicel large, tapering, nearly 2.5 times as long as basal width, densely pubescent; stylus short, bare. Length ratio of scape to pedicel to postpedicel to stylus, 6 : 2 : 15 : 14.



Figs 1-3: *Systemus vasilii* spec. nov. – 1: antenna; – 2: wing; – 3: hypopygium, left lateral view.

Thorax: Dorsum metallic blue-green with thin grey pruinosity; narrow bronze vitta between acrostichal setal rows; pleura blue-green with grey pruinosity; posterior third of mesonotum distinctly flattened; thoracic setae light-brown; 11-13 pairs of acrostichals of equal length; posterior two pairs offset laterad; 6 strong dorsocentrals, decreasing in size anteriorly; 2 pairs scutellars, laterals hairlike, about 1/4 length of medians; 1 pale proepisternal just above fore coxa, subtended dorsally by 2 hairs. **Legs** including coxae dirty-yellow, mid coxa externally, hind tibia at apex and distal tarsomeres darkened; fore and mid coxae with pale anterior setae; hind coxa with 1 strong pale lateral bristle; major leg setae black or brown; mid tibia with strong anterodorsal and posterodorsal at 1/5, an apical ring of 4 bristles; hind tibia with row of 3–4 short dorsal setae; length ratio of fore coxa to femur to tibia to tarsus (segments from first to fifth), 23 : 29 : 32 : 15 : 10 : 7 : 5 : 4; same ratio for mid leg, 15 : 35 : 39 : 21 : 11 : 8 : 6 : 5; same ratio for hind leg, 15 : 40 : 49 : 10 : 17 : 9 : 7 : 6. **Wing** simple: R_{2+3} and R_{4+5} diverging to wing apex; R_{4+5} and M_{1+2} slightly bowed outwards, distinctly convergent in third quarter of wing, then parallel to apex. M_{1+2} joining costa at wing apex. Ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} to *m-cu* to distal part of CuA_1 , 13 : 4 : 9 : 26. Crossvein *m-cu* straight, forming right angle with CuA_1 and acute inner angle with M_{1+2} longitudinal veins. Anal vein fold-like; anal lobe present; alula absent. Lower calypter yellow, with black setae. Halter yellow.

Abdomen: Metallic blue-black, with dusting of grey pruinosity; posterior margin of first tergum with row of long light setae; 2nd-6th sterna membranous or only weakly sclerotised, somewhat recessed. **Postabdomen:** 7th segment forming short peduncle; 8th segment represented by sternum only, forming cap-like covering over hypopygial foramen on left side of epandrium; hypopygium dark brown with light-yellow surstyli and cerci; hypandrium concealed, simple; aedeagus bifurcated at apex; 2 epandrial setae and narrow epandrial lobe bearing strong apical seta; surstylus extremely narrow and long, more than 1.5 times longer

than epandrium, nearly straight, with several apical setulae and short midlateral angular projection bearing strong seta; cercus nearly as long as surstylus, widened basally and sub-apically, tapering at apex, covered with strong setae dorsally and bare along ventral surface except distal part.

Female unknown.

Distribution: Israel.

Etymology. The species is named for the Israeli entomologist, Dr. Vasilii KRAVCHENKO, who kindly accompanied me during my field trips in Israel.

Diagnosis. *S. vasilii* differs from other Palearctic species in having unusually long and narrow male cerci and surstyli, which are 1.5 times longer than epandrium. The new species is related to *S. tener*, differing in hind femur yellow or at most dirty yellow at apex, and CuA_1 3 times longer than *m-cu* (see key).

Key to West Palearctic species of *Systemus* LOEW

- 1 M_{1+2} and R_{4+5} veins strongly convergent, their tips separated by not more than 1/3 length of *m-cu* 2
- M_{1+2} and R_{4+5} veins gently convergent or parallel, their tips separated by more than half length of *m-cu* 5
- 2 Antennal scape and pedicel reddish yellow; hind margin of male wing rather strongly concave near apex, where there is an apical black spot 3
- Antennal scape and pedicel brown-black; male wing not noticeably concave on hind margin, without apical black spot 4
- 3 Postpedicel almost entirely black, occasionally with a trace of yellow at extreme base; mid tibia with only a pair of strong basodorsal bristles; male wing with apical spot small, not filling all of apical lobe, separated from wing tip by whitish area free of microtrichia *S. mallochi*
- Postpedicel broadly yellow or reddish brown basally; mid tibia with two pairs of strong dorsal bristles; male wing with apical spot large, entirely filling the apical lobe *S. scholtzi*
- 4 Mid tibia with long basal and median anterodorsal bristles in addition to general covering of short setulae *S. pallipes* (*pallidus* phenotype)
- Mid tibia with only basal long anterodorsal bristle in addition to general covering of short setulae *S. pallipes* (*pallipes* phenotype)
- 5 Antennal scape and pedicel clear yellow 6
- Antenna entirely black 7
- 6 Hind femur broadly black at apex; CuA_1 2 times longer than *m-cu*; male cerci and surstyli not longer than epandrium *S. tener*
- Hind femur yellow, at most dirty yellow at apex; CuA_1 3 times longer than *m-cu*; male cerci and surstyli 1.5 times longer than epandrium *S. vasilii*
- 7 Male postpedicel 2.5 times as long as high; hypopygium black, yellow at apex; female stylus only slightly longer than postpedicel; mid tibia dorsally with only two bristles at base; hind femur broadly black at apex *S. bipartitus*
- Male postpedicel 3-3.5 times as long as high; hypopygium entirely pale; female stylus almost twice as long as postpedicel; mid tibia dorsally with four bristles, two at base and two at middle; hind femur with only a dark dorsal streak at apex *S. leucurus*

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