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## NEW RECORDS OF LONG-LEGGED FLIES (DIPTERA, DOLICHOPODIDAE) FROM MOROCCO

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**Abstract.** This paper provides distributional records for 18 long-legged fly species (Diptera, Brachycera, Dolichopodidae) belonging to 12 genera in Morocco. Four of these species (*Diaphorus vitripennis* Loew, 1859, *Muscidideicus praetextatus* (Haliday, 1855), *Aphrosylus mitis* Verrall, 1912 and *Micromorphus aff. minusculus* Negrobov, 2000) are newly recorded in the fauna of Morocco. In addition, available data on geographical distribution for each species is presented.

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**Keywords:** Dolichopodidae, Morocco, new records.

## НОВЫЕ УКАЗАНИЯ ХИЩНЫХ МУХ-ЗЕЛЕНУШЕК (DIPTERA, DOLICHOPODIDAE) ИЗ МАРОККО

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**Аннотация.** В статье приведены новые данные о распространении в Марокко 18 видов мух-зеленушек (Diptera, Brachycera, Dolichopodidae) из 12 родов. Четыре вида — *Diaphorus vitripennis* Loew, 1859, *Muscidideicus praetextatus* (Haliday, 1855), *Aphrosylus mitis* Verrall, 1912 и *Micromorphus aff. minusculus* Negrobov, 2000 — впервые отмечаются в фауне страны. Даны также сведения о глобальном распространении каждого вида.

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**Ключевые слова:** Dolichopodidae, Марокко, новые указания.

## INTRODUCTION

Morocco is a part of the Mediterranean basin, bordered by the Atlantic Ocean, the Mediterranean Sea and the Sahara desert. Its territory can be divided into seven natural areas: the North (**Rif**), East of Morocco (**EM**), Atlantic Plains (**AP**), Middle Atlas (**MA**), High Atlas (**HA**), Anti Atlas (**AA**) and Sahara (Rankou et al. 2015; Kettani, Negrobov, 2016). Except for the southeast regions (pre-Saharan and desert areas), Morocco is very similar to the Iberian Peninsula in its climate and geography.

The dolichopodidae fauna of Morocco remained poorly studied until recently. Negrobov (1991) compiled a list of 44 species known from the country; however, several old records were lost. Kettani, Negrobov (2016) made a check-list of Moroccan long-legged flies comprising 63 species; however, several old and recent records were lost as well. Later 16 species previously unknown to occur in the territory were included by Ebejer et al. (2019). Several species might have been mistakenly reported by various authors or recorded based on female specimens only. Presence of such species in the Moroccan fauna must be confirmed. While working on a chapter for the forthcoming Catalogue of Diptera of Morocco, I have found descriptions of 90 species belonging to the family in numerous publications since 1805. Nevertheless, a total number of Moroccan species can reach 300. For example, the fauna of neighboring Spain contains nearly 200 species, and that of France includes nearly 400 species (Naglis, Bartak 2015; Grichanov 2017).

## MATERIAL AND METHODS

Material examined is deposited in the Finnish Museum of Natural History, Helsinki, Finland (MZH) and the Zoological Museum of Moscow State University, Moscow, Russia (ZMUM).

## RESULTS

18 species belonging to 12 genera, including four species new for Morocco, are discovered in collections of the two aforementioned institutions.

*Chrysotus albibarbus* Loew, 1857

**Type locality:** Turkey, “Kleinasien” (Anatolia).

**References:** Ebejer et al. 2019, **MA**, lac Aguelmame Afennourir (30 km SW of Azrou, 1 760m).

**Material examined:** 1♂, **AP**, Ait-Melloul, pr Oued Sous, 13–15.02.1961, Meinander [MZH].

**Distribution:** Palaearctic: Algeria, Egypt, France, Greece, Italy, Morocco, Russia (Blagoveshchensk), Spain (Canary Is.), Turkey.

*Diaphorus africanus* Parent, 1924

**Type locality:** Morocco, Tétouan, Tangier; Spain, d'Algeciras, Andalousie.

**References:** Parent 1924: 3, **Rif**, Tétouan, Tangier; Ebejer et al. 2019, **Rif**, Oued Siflaou (281m).

**Material examined:** 3♂, **AP**, Ouarzazate env., 1 100m, 31°13'37"N, 7°48'43"W & 30°58'12"N, 6°45'0"W, 12.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Morocco, Spain. New for the AP region.

*Diaphorus vitripennis* Loew, 1859

**Type locality:** unknown.

**Material examined:** 1♂, **AP**, Ait-Melloul, pr Oued Sous, 27.02–2.03.1961, Lindberg [MZH].

**Distribution:** Palaearctic: Afghanistan, Algeria, Austria, France, Hungary, Italy, Kazakhstan, Portugal, ?Romania, Russia (Orenburg, Vladivostok), Switzerland, Turkey (Buharkent, Kars), Uzbekistan. New for Morocco.

*Dolichopus signifer* Haliday, 1832

**Type locality:** Ireland, Roundstone Bay.

**References:** Parent 1929b, “Maroc”; Séguy 1930, **MA**, Ras El Ma.

**Material examined:** 2♂, **HA**, Oukaïmeden, 2 600 m, 31°12'0"N, 7°51'36"W, 13–16.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Afghanistan, Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Czech, Denmark, Finland, France, Germany, Georgia, Greece incl. North Aegean, Hungary, Iran, Ireland, Italy, Kazakhstan, Morocco, Netherlands, Norway, Poland, Portugal (Azores), Romania, Russia (Chechnya, Crimea, Kabardino-Balkaria, Krasnodar, Rostov, Voronezh), Slovakia, Spain, Sweden, Switzerland,

Tajikistan, Turkey (Burdur), Turkmenistan, UK, Ukraine (Odessa) and Uzbekistan.

***Muscidideicus praetextatus*** (Haliday, 1855)

**Type locality:** Germany, Rossbegh Point (Rossbach).

**Material examined:** 2♂, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Belgium, Denmark, Germany, France, Ireland, Netherlands, Portugal, Spain, UK. New for Morocco.

***Tachytrechus insignis*** (Stannius, 1831)

**Type locality:** Poland, "Breslau" (Wroclaw).

**References:** Séguy 1930, Rif, Tangier, HA, Aguerd el Had, Talekjount (1 000–1 100m); Vaillant 1956, HA, lac Tamhda (Anremer); Popescu-Mirceni 2012, AP, Merja Zerga.

**Material examined:** 2♂, AP, Essaouira env., 31°28'12"N, 9°45'36"W, 1–5.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Morocco, Netherlands, Poland, Romania, ?Russia, Slovakia, Spain, Sweden, Tunisia, Turkey (Erzurum, Kars), UK, Ukraine (Kharkiv).

***Tachytrechus planitarsis*** Becker, 1907

**Type locality:** Algeria, Biskra.

**References:** Vaillant 1950, HA, Touggourt; Grichanov 2009, 15 km SW Tazenakht.

**Material examined:** 2♂, AP, Ouarzazate env., 1100m, 31°13'37"N, 7°48'43"W, 12.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Egypt, Iran, Israel, Morocco, Saudi Arabia, Spain (Canary Is.), Tunisia, Turkmenistan; Afrotropical: Ethiopia.

***Aphrosylus mitis*** Verrall, 1912

**Type locality:** England, River Deben, Suffolk; Walton-on-Naze.

**Material examined:** 1♂, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: France, UK. New for Morocco.

***Aphrosylus* aff. *raptor*** Haliday, 1851

**Type locality:** Torouay, Dundrum Bay (E. I.) [England; Ireland].

**References:** Parent 1929a, AP, Mogador (as a variation of *Aphrosylus raptor* Haliday, 1851); Vaillant 1955; Negrobov 1979 (as a subspecies of *Aphrosylus raptor* Haliday, 1851); Kettani, Negrobov 2016 (as *Aphrosylus raptor* Haliday, 1851).

**Material examined:** 2♂, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: France, Ireland, Morocco, Portugal, Spain, UK.

***Aphrosylus temaranus*** Vaillant, 1955

**Type locality:** Morocco, Rabat.

**References:** Vaillant 1955, AP, Temara.

**Material examined:** 7♂, AP, Essaouira env., 31°28'12"N, 9°45'36"W, 1–5.05.2012, N. Vikhrev [ZMUM]; 3♂, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Morocco.

***Hydrophorus balticus*** (Meigen, 1824)

**Type locality:** Germany, Hamburg.

**References:** Boumezzough, Vaillant 1986, MA, Tizi n'Imdrhas (1 800 m), HA, Oued N'fis (650 m), AA, near Agadir N'oussbai (400 m).

**Material examined:** 1♂, HA, Aguelmous, 2050 m, 31°15'36"N, 7°24'40"W, 12.05.2012, N. Vikhrev [ZMUM]; 1♂, HA, Oukaïmeden, 2600 m, 31°12'0"N, 7°51'36"W, 13–16.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Afghanistan, Algeria, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iran, Ireland, Israel, Italy, Mongolia, Morocco, Netherlands, Norway, Poland, Romania, Russia (Adygea, Alania, Baikal, Chechnya, Kabardino-Balkaria, Karachai-Cherkessia, Krasnodar, Leningrad, Moscow, Voronezh, Yakutia), Slovakia, Spain, Sweden, Switzerland, Turkey (Antalya, Aydin, Denizli, Isparta, Kars, Mugla, Rize), UK, Ukraine; Afrotropical: South Africa, St. Helena.

***Hydrophorus nilicola*** Parent, 1927

**Synonym:** *Hydrophorus viridis nilicola* Parent, in Boumezzough, Vaillant 1986, 297

**Type locality:** Egypt, Abu-Rawash.

**References:** Boumezzough, Vaillant 1986, MA, Tizi n'Imdrhas (1 800 m), HA, Oued N'fis (650 m), AA, near Agadir N'oussbai (400 m).

**Material examined:** 1♂, AP, Essaouira env., 31°28'12"N, 9°45'36"W, 1–5.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Egypt, Iraq, Morocco.

*Machaerium maritimae* Haliday, 1832

**Type locality:** Sweden, Gottlandia, Bursviken.

**References:** Parent 1927, Rif, Tangier; Séguy 1930, Rif, Tangier; Kettani, Negrobov 2016, AP, Oued Bouregreg.

**Material examined:** 1♀, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Belgium, Denmark, France, Germany, Ireland, Morocco, Netherlands, Portugal, ?Russia, Spain, UK.

*Thinophilus indigenus* Becker, 1902

**Type locality:** Egypt, Kairo, Assiur, Luxor, Assuan, Fayum, and Suez.

**References:** Ebejer et al. 2019, AA, 14 km E of Rich (Errachidia, 1 278 m), Oued Laou (2 m).

**Material examined:** 1♂, AP, Ouarzazate prov., Tagounite env., 572 m asl., 29°51'5"N, 5°36'52"W, sands, YPT, 30–31.03.2011, A.A. Gusakov [ZMUM]; 1♂, AP, Essaouira env., 31°28'12"N, 9°45'36"W, 1–5.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Egypt, Iran, Israel, Mongolia, Morocco, Turkey; Oriental: China, India, Nepal, Malaysia, Philippines; Afrotropical: Angola, Benin, DR Congo, Cape Verde Is., Ethiopia, Gambia, Ghana, Madagascar, Namibia, Nigeria, Seychelles (Aldabra), South Africa, Swaziland, Tanzania, Yemen. New for the AP region.

*Thinophilus mirandus* Becker, 1907

**Type locality:** Algeria, "bei Hammam Salahin bei Biskra."

**References:** Negrobov 1971: 898, Rif, Tangier.

**Material examined:** 1♂, 1♀, AP, Ouarzazate prov., Tagounite env., 572 m asl., 29°51'5"N, 5°36'52"W, sands, YPT, 30–31.03.2011, A.A. Gusakov [ZMUM]; 2♂, AP, Ouarzazate env., 1 100 m, 31°13'37"N, 7°48'43"W, 12.05.2012, N. Vikhrev [ZMUM]; 1♂, 1♀, AP, Oualidia lagune, 32°44'46"N, 9°1'26"W, 30.04.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Iraq, Morocco, Spain; Afrotropical: Tanzania New for the AP region.

*Rhaphium brevicorne* Curtis, 1835

**Type locality:** England, Isle of Wight.

**References:** Vaillant 1956, AP, Rabat, HA, Oukaimeden; Kettani, Negrobov 2016, AP, Rabat.

**Material examined:** 1♂, HA, Oukaimeden, 1000 m, 31°18'36"N, 7°45'18"W, 16.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Belgium, France incl. Corsica, Germany, Greece, Iraq, Ireland, Israel, Italy, Lebanon, Morocco, Netherlands, North Aegean, Russia (Krasnodar), Spain incl. Canary Is., Sweden, Tajikistan, Turkey (Kizildere), UK.

*Campsicnemus magius* (Loew, 1845)

**Type locality:** Italy, Sicily.

**References:** Pârvu et al. 2006, AA, Lac Edehby, Ouarzazate.

**Material examined:** 2♂, 2♀, AP, Essaouira env., 31°28'12"N, 9°45'36"W, 1–5.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Algeria, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Czech, France, Germany, Hungary, Iran, Israel, Italy, Morocco, Netherlands, Romania, Russia (Astrakhan, Ekaterinburg, Kabardino-Balkaria, Krasnodar, Rostov, Yakutia), Spain, Tajikistan, Turkey (Korucuk), Turkmenistan, UK, Ukraine (Odessa), Uzbekistan; Afrotropical: St. Helena (?introduced). New for the AP region.

*Micromorphus* aff. *minusculus* Negrobov, 2000

**Type locality:** Ukraine, Odessa Prov., "Belgrad, Japug Lake" (Bolgrad, Yalpus Lake).

**Material examined:** 1♂, AP, Ouarzazate env., 1 100 m, 31°13'37"N, 7°48'43"W, 12.05.2012, N. Vikhrev [ZMUM].

**Distribution:** Palaearctic: Ukraine. New for Morocco.

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