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Twelve new species of *Platypalpus* Macquart (Diptera: Hybotidae) from Morocco, with additional new records

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Abstract. Twelve species of *Platypalpus* Macquart are described as new to science from different regions in Morocco: *P. atlasensis* sp. nov., *P. brevicornoides* sp. nov., *P. ebejeri* sp. nov., *P. fatnae* sp. nov., *P. pauli* sp. nov., *P. imlilensis* sp. nov., *P. miroslavi* sp. nov., *P. moroccensis* sp. nov., *P. nigritellus* sp. nov., *P. rifensis* sp. nov., *P. shamshevi* sp. nov. and *P. taninensis* sp. nov. *Platypalpus albocapillatus* Fallén, 1815 and *P. boreoalpinus* Frey, 1943 are recorded here for the first time from the whole of North Africa, with the first report of *P. verbekei* Grootaert & Chvála, 1992 from Morocco. Some species newly recorded from new biogeographical areas within the country are also reported here. Descriptions and illustrations of new species are provided, as well as distributions of all species recorded from Morocco.

Keywords. *Platypalpus*, new species, new records, Morocco, North Africa.

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Introduction

Platypalpus Macquart, 1827 is widely known as the genus with the highest species diversity within the family Hybotidae Meigen, 1820 and is one of the most diverse genera in the entire Empidoidea Latreille, 1804 group (Grootaert & Shamshev 2014), making the genus very difficult to study and to identify properly (Zusková 1966; Plant 2012; Brighton 2019). Despite its megadiversity, it has not been divided into subgenera (Brighton 2019), even though several attempts have been made in this regard such by Engel (1939) and Collin (1961). However, a subdivision into natural species groups remains the best

option (Grootaert & Chvála 1992), and its splitting into eleven natural species groups by Chvála (1975) is still in use.

Several typical characters make it easy to distinguish the members of *Platypalpus* from other genera of Tachydromiinae Meigen, 1822: eyes separated in both sexes, bare; postpronotal lobe well differentiated; scutum usually distinctly longer than broad; mid leg raptorial, mid femur thickened and armed with rows of spine-like setae ventrally, mid tibia usually with more or less prominent apical spur; wing with veins A1 and CuA2 present (cell cup present) (Kustov *et al*. 2014). The genus is also characterized by a low degree of sexual dimorphism, as the differences between males and females within species are usually very slight or absent (Grootaert & Shamshev 2012).

Adults of *Platypalpus* can be found in diverse habitats (Sinclair & Cumming 2017), even in severely disturbed ones such as agricultural fields or home gardens (Barták & Kubík 2015), and this is due to their opportunistic predatory behavior (Barták & Kubík 2015), whereby they contribute significantly to regulating the density of prey populations, which mainly consist of many phytophagous Diptera including several important pests, in particular those of cereal crops (Grootaert & Shamshev 2006; Sinclair & Cumming 2017). Chvála (1975) pointed out that the ecological value of Tachydromiinae including *Platypalpus* as natural control agents of some dipteran pests in agricultural fields cannot be overlooked when they are present in great abundance, which has later been confirmed by several studies, including those by Kühne & Schrameyer (1994) from greenhouses, Steinborn & Meyer (1994) from potato fields, and the most recent by Hambäck *et al*. (2020) from apple orchards. *Platypalpus* is also recorded as a predator of certain hematophagous Diptera such as Simuliidae Newman, 1834 (Werner & Pont 2003). The prey of *Platypalpus* are not only Diptera, but also a number of small Hymenoptera (Grootaert & Meuffels 1984) and Hemiptera, including some pests such as *Psylla pyricola* Foerster, 1848 known as a pest of pear trees (Mcmullen & Jong 1970). Predation in species of *Platypalpus* usually takes place on horizontal surfaces such as the leaves of trees and shrubs, on which they walk back and forth (leaf runners) while waiting for their prey (Grootaert 1998); they suddenly pounce on their prey and pierce it with their strongly chitinized proboscis to suck out the body contents (Grootaert & Meuffels 1984).

Larvae of *Platypalpus* are known for only a few species. They live in soil and are also predaceous (Grootaert 1998). The predatory behavior of *Platypalpus* larvae was demonstrated by Cumming & Cooper (1993) for three species (*P. aequalis* Loew, 1864, *P. holosericus* Melander, 1924 and *P. melleus* Melander, 1928), which fed on small larvae of the pomace fly (*Drosophila melanogaster* Meigen, 1830) presented to them as prey.

Platypalpus includes about 600 species (Barták & Kubík 2016), recorded from all zoogeographical regions except Antarctica (Sinclair & Cumming 2017). Nearly 75% of these species have been reported from the Palaearctic and Nearctic regions (Grootaert & Shamshev 2014), possibly because the genus prefers to inhabit cold and temperate regions (De Freitas- Silva & Ale Rocha 2013), but also because the genus has been extensively studied in these regions, especially in the Palaearctic from where there are about 370 species known (Barták & Kubík 2016), thus constituting more than 60% of the species known worldwide. The majority of these Palaearctic records (263 species) have been recorded from Europe including the Mediterranean and certain adjacent areas (Kustov *et al*. 2014; Barták & Kubík 2016), and the number keeps increasing, as many new species have recently been described from there (Barták & Kubík 2016, 2018; Grootaert & Alexiou 2020; Grootaert *et al*. 2020, 2023; Kanavalová *et al*. 2021; Grootaert 2023).

In North Africa, *Platypalpus* has been recorded from all over the territory except Mauritania, although these records remain very poor and fragmentary, with a handful of studies conducted in this region. The

monograph by Grootaert & Chvála (1992) remains the main reference for the North African *Platypalpus* fauna. Morocco is not an exception to this, and *Platypalpus* is still very poorly known with only 24 species listed in the country, as summarized by Kettani *et al*. (2022) in the Catalogue of the Diptera of Morocco. The first occurrence of *Platypalpus* in Moroccan territory was reported by Séguy (1941) with *P. anomalicerus* Becker, 1902. Following Séguy's contribution, no one worked on the Moroccan *Platypalpus* fauna until Grootaert & Chvála (1992), who added eleven species to the Moroccan *Platypalpus* checklist (*P. alluaudi* Grootaert & Chvála, 1992, *P. approximatus* Becker, 1902, *P. asniensis* Grootaert & Chvála, 1992, *P. chillcotti* Chvála, 1981, *P. lyneborgi* Chvála, 1981, *P. ostiorum* Becker, 1902, *P. pallidiventris* Meigen, 1822, *P. pseudounguiculatus* Strobl, 1902, *P. riojaensis* Chvála, 1981, *P. turgidus* Becker, 1907 and *P. vockerothi* Chvála, 1981). Moroccan records of *Platypalpus* in the 2000s begin with Pârvu *et al*. (2006), who added *P. annulatus* Fallén, 1815, *P. calceatus* Meigen, 1822 and *P. nigritarsis* Fallén, 1816 from the Atlas Mountains. The latest additions, totaling nine species, were provided by Ebejer *et al*. (2019) with *P. anomalitarsis* Chvála & Kovalev, 1974, *P. chrysonotus* Strobl, 1899, *P. desertorum* Becker, 1907, *P. distichus* Grootaert & Chvála, 1992, *P. flavicornis* Meigen, 1822, *P. longicauda* Grootaert & Chvála, 1992, *P. obscuripes* Strobl, 1899, *P. pachycerus* Collin, 1949 and *P. pseudoexiguus* Strobl, 1909.

The present work contributes to some extent to addressing the gaps in taxonomic research on the *Platypalpus* fauna of Morocco and North Africa as a whole. In addition to the description of twelve species new to science, three species are recorded here for the first time from Morocco, including two species recorded for the first time from the whole of North Africa, increasing the total of Moroccan hybotid fauna from 54 species (Kettani *et al*. 2022; Zouhair & Kettani 2022; Zouhair *et al*. 2022) to 69 species. Many other species previously recorded in Morocco are newly reported from new areas within the country, extending their range.

Material and methods

The bulk of material used in this study was collected by the third author (KK) and her students between the years of 2012 and 2023. The rest of the material was sampled by the first author (LZ) between 2019 and 2023. Collecting was mainly carried out by sweep nets and Malaise traps.

A total of 103 positive sites among the hundreds of sampling sites were prospected in the main regions in Morocco: Rif (western, central and eastern parts), Eastern Morocco, Atlantic Plain, Middle Atlas, High Atlas and Anti-Atlas (Fig. 1, Table 1), covering a wide range of habitats from diverse ecosystems (e.g., forests, mountains, hills, meadows, plains, riverbanks, agricultural fields, marshes, peat bogs), targeting the different seasons of the year. Most of the sites belong to protected areas such as the National Park of Talassemtane (NPTL) and the Project of Natural Park of Bouhachem (PNPB) in the Rif, the National Park of Tazekka (NPTZ) and the National Park of Ifrane (NPIF) in the Middle Atlas, and the National Park of Eastern High Atlas (NPEHA) and the National Park of Toubkal (NPTB) in the High Atlas.

The vouchers for most of the *Platypalpus* species treated in this paper are deposited in the collections of the Royal Belgian Institute of Natural Sciences (RBINS) in Brussels (Belgium), and the rest of the material is deposited at the Laboratory of Ecology, Systematics and Conservation of Biodiversity (LESCB) in University Abdelmalek Essaadi in Tétouan (Morocco). Specimens are preserved in 70% alcohol, with the exception of some specimens of the new species, which were dried from alcohol to obtain good observations of certain characters for the description, especially the dusting of the thorax. Specimen drying was carried out following the method described by Barták (1997) and redescribed by Barták & Kubík (2016), which consists of soaking the specimens for 24h in a mixture of formalin (40%) with ethanol (96%), then 24h in a mixture of ethanol (96%) with ethylacetate and the last 24h in

pure ethylacetate. The samples were transferred from the last solution to soft paper to dry off and then mounted on cards.

Identification of all specimens was based both on external morphological characters and on male genitalia to confirm their identity. To facilitate observations, the male terminalia were macerated in 10% KOH for 24h. Species were identified using the keys in Chvála (1975, 1989) and Grootaert & Chvála (1992). Morphological terminology and abbreviations follow Grootaert & Shamshev (2014). The species groups of *Platypalpus* are cited according to Grootaert & Chvála (1992).

All illustrations of the male terminalia given in this paper were made by the second author (PG) from the holotypes, using a camera lucida attached to a stereo microscope. All new species were photographed in alcohol from the holotypes, with the exception of two species (*P. ebejeri* sp. nov. and *P. imlilensis* sp. nov.) which were photographed from paratypes from the sites 8 and 69, respectively. Most of the species were photographed with a Kern ODC-2-BA-e-1910 camera attached to a Kern OZO 553 stereo microscope. Body and wing measurements of new species were taken in alcohol.

The following abbreviations are used in some illustrations of the male terminalia of new species:

hy = hypandrium
lc = left cercus
lel = left epandrial lamella
rc = right cercus
rel = right epandrial lamella
rs = right sursytlus

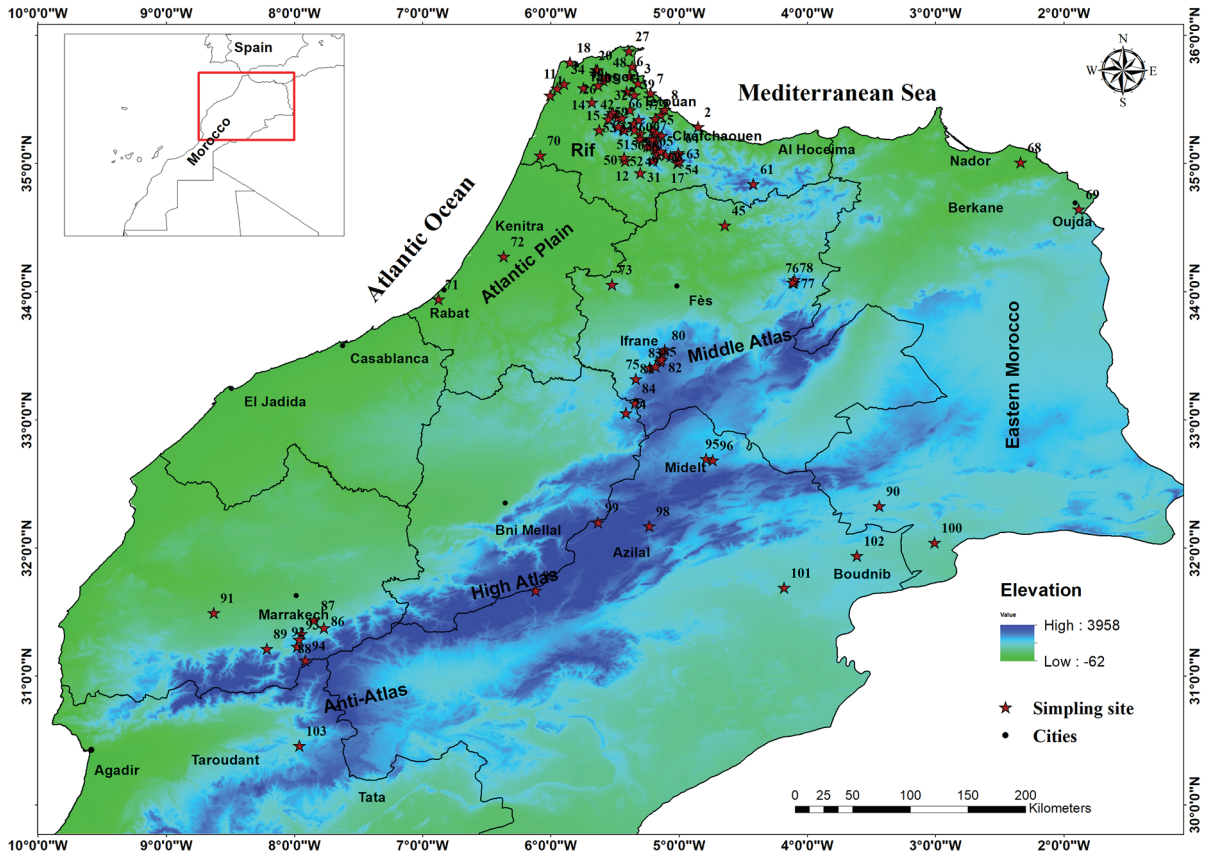

Fig. 1. Location of the studied sites in Morocco. Details on the individual sites are available in Table 1.

Table 1 (continued on next three pages). Localities with respective protected areas, altitudes and coordinates of the studied sites.

Site	Protected area, locality	Province	Altitude	Geographical coordinates	Habitat
Rif					
1. Beach of Briyech	Asilah	Asilah	0 m	33.532036° N, 6.006864° W	sandy dunes
2. Jnane Niche	Jnane Niche	Chefchaouen	4 m	35.287929° N, 4.855775° W	riverbank
3. Mallaliyen	Mallaliyen	Tétouan	10 m	35.625833° N, 5.323611° W	forest
4. Oued Mhannech	Tamouda	Tétouan	20 m	35.560283° N, 5.412212° W	riverbank
5. Amaghousse	Oued Laou	Chefchaouen	24 m	35.378055° N, 5.146666° W	hillside
6. Barrage Smir	M'diq	Tétouan	27 m	35.684786° N, 5.385147° W	banks of the dam
7. Ras Mazari	Azla	Tétouan	41 m	35.54974° N, 5.226502° W	pine forest
8. Oued Laou	Oued Laou	Tétouan	49.4 m	35.421567° N, 5.114183° W	riverbank
9. Oued Afertane	NPTL, Oued Laou	Tétouan	56 m	35.348889° N, 5.188333° W	riverbank
10. Oued Khemis	Khemiss Anjra	Fahs-Anjra	61 m	35. 6657647° N, 5.5071253° W	riverbank
11. Ain Jdioui	Ain Jdioui	Tanger	76 m	35.58813° N, 5.954424° W	grassland
12. Oued El Koub	PNPB, Ouezzane	Ouezzane	110 m	35.021583° N, 5.4222° W	riverbank
13. Etouirsa	Melloussa	Fahs-Anjra	151 m	35.731944° N, 5.651389° W	shrubs
14. Chamaa	Dar Chaoui	Tanger	190 m	35.47799° N, 5.68216° W	oak cork forest
15. Oued Azoumagh	PNPB, Bni Aarouss	Larache	202 m	35.261111° N, 5.626111° W	riverbank
16. Jbel Zemzem	Jbel Zemzem	Tétouan	216 m	35.757617° N, 5.369817° W	pine forest
17. Oued El kannar (Douar Assoul)	NPTL, El Kannar	Chefchaouen	220 m	35.00369° N, 5.013111° W	riverbank
18. Perdicaris	Perdicaris Parc	Tanger	223 m	35.790743° N, 5.853594° W	urban parc
19. Oued Tassikeste	Oulad Sidi Mansour	Chefchaouen	240 m	35.389856° N, 5.250144° W	riverbank
20. Tafoughalt	Melloussa	Fahs-Anjra	243 m	35.729167° N, 5.640556° W	marabout
21. Barrage Talembote	NPTL, Talembote	Chefchaouen	290 m	35.2338° N, 5.305024° W	banks of the dam
22. Rahbat Amlay	PNPB, Derdara	Chefchaouen	294 m	35170833° N, 5.3175° W	meadow
23. Oued Talembote (Usine électrique)	NPTL, Talembote	Chefchaouen	299 m	35.254861° N, 5.209267° W	riverbank
24. Douar El Hamma	Douar El Hamma	Chefchaouen	338 m	35.384722° N, 5.512778° W	meadow
25. Barrage Moulay Bouchta	Douar Taghbaloute	Tétouan	364 m	35.259942° N, 5.351560° W	banks of the dam
26. Rmel	Fahs Anjra	Fahs-Anjra	372 m	35.649278° N, 5.594833° W	forest
27. Tarsif	SIBE Jbel Moussa, Jbel Moussa	Tétouan	403 m	35.877195° N, 5.395411° W	mixed forest
28. Amghart	PNPB, Jbel Bouhachem	Larache	424 m	35.358883° N, 5.483233° W	mixed forest

Table 1 (continued). Localities with respective protected areas, altitudes and coordinates of the studied sites.

Site	Protected area, locality	Province	Altitude	Geographical coordinates	Habitat
Rif					
29. Oued Sifalaou	Sifalaou	Chefchaouen	445 m	35.193179 ° N, 5.307687° W	riverbank
30. Oued Farda	NPTL, Akchour	Chefchaouen	447 m	35.237° N, 5.176283° W	riverbank
31. Forest of Kourt (Oued Lmalha)	Bni Hmed	Chefchaouen	468 m	34.9283° N, 5.3048° W	oak cork forest
32. Oued Sahil	Dar Ben Karrich, Louta	Tétouan	504 m	35.417743° N, 5.386880° W	riverbank
33. Oued Tissegris	PNPB, Hmmadech	Tétouan	505 m	35.397° N, 5.522973° W	riverbank
34. Oued Taida	PNPB, Bni Idder	Tétouan	507 m	35.6225° N, 5.899166° W	riverbank
35. Kharrouba	Kharrouba	Chefchaouen	530 m	35.609333° N, 5.635167° W	forest
36. Oued Boumarouil	PNPB, Bni Hassan	Tétouan	550 m	35.312217° N, 5.354517° W	riverbank
37. Adrou	PNPB, Tazrout	Larache	580 m	35.375023° N, 5.543782° W	mixed forest
38. Oued Souk Elhad	NPTL, Bni Darkoul	Chefchaouen	613 m	35.057222° N, 5.069444° W	riverbank
39. Triwa	PNPB, Bni Hassan	Tétouan	654 m	35.534444° N, 5.3525° W	meadow
40. Douar Hammadech	PNPB, Tazrout	Larache	664 m	35.590277° N, 5.748333° W	vegetable garden
41. Chellal Akchour	NPTL, Akchour	Chefchaouen	680 m	35.218889° N, 5.138611° W	edges of the waterfall
42. Dayat Tazia	PNPB, Tazia	Larache	733 m	35.347778° N, 5.553333° W	peat bog
43. Amrah	NPTL, Machekralla	Chefchaouen	816 m	35.136667° N, 5.251944° W	forest
44. Zaouyet El Habtiyen	NPTL, Maggou	Chefchaouen	819 m	35.113611° N, 5.190278° W	edges of the waterfall
45. Lalla Outka	Lalla Outka	Taounate	844 m	34.519064° N, 4.645599° W	forest
46. El maounzel	NPTL, Talassemtane	Chefchaouen	844 m	35.073056° N, 5.1725° W	meadow
47. Douar Adder (Tasselt)	NPTL, Jbel Kelti	Chefchaouen	844 m	35.073056° N, 5.1725° W	meadow
48. Merja Sidi Lhaj Merzouk	Bni Salah	Chefchaouen	858 m	35.6756° N, 5.572° W	peat bog
49. Cascade Chrafate	NPTL, Chrafate	Chefchaouen	859 m	35.066701° N, 5.107394° W	edges of the waterfall
50. Achetta	Achetta	Chefchaouen	924 m	35.048117° N, 5.04256° W	meadow
51. Oued Tkaraa	PNPB, Beni Leit	Tétouan	959 m	35.267717° N, 5.430483° W	riverbank
52. Oued Machekralla	NPTL, Machekralla	Chefchaouen	981 m	35.135555° N, 5.2275° W	riverbank
53. Medchar Lemtahene	PNPB, Lemtahene	Tétouan	1024 m	35.270367° N, 5.43975° W	forest
54. Dbani	Bni Selmane	Chefchaouen	1046 m	35.06684° N, 5.009523° W	meadow
55. Zaouya	Bni Selmane	Chefchaouen	1100 m	35.071111° N, 5.006667° W	forest
56. Amsemlil	PNPB, Jbel Bouhachem	Tétouan	1102 m	35.260117° N, 5.431833° W	forest

Table 1 (continued). Localities with respective protected areas, altitudes and coordinates of the studied sites.

Site	Protected area, locality	Province	Altitude	Geographical coordinates	Habitat
Rif					
57. Oued Tanina	NPTL, Jbel Kelti	Chefchaouen	1195 m	35.340917° N, 5.31695° W	riverbank
58. Dayat Fifi	Fifi	Chefchaouen	1200 m	35.024722° N, 5.206944° W	peat bog
59. Merj Lkhayl	PNPB, Tayenza	Tétouan	1213 m	35.288889° N, 5.478055° W	forest path
60. Seguia Anssar Afeska	NPTL, Afeska	Chefchaouen	1293 m	35.169733° N, 5.185083° W	riverbank
61. Bni Bounsar	Jbel Tidghine	Al Hoceïma	1340 m	34.841929° N, 4.423233° W	mixed forest
62. Bouslimane	NPTL, Talassemtane	Chefchaouen	1350 m	35.0971° N, 5.14505° W	fir forest
63. Dayat Aanassar	Bab Berred	Chefchaouen	1397 m	35.019836° N, 4.999528° W	peat bog
64. Ametrasse	Armotah	Chefchaouen	1429 m	35.083852° N, 5.00842° W	meadow
65. Azilane	NPTL, Azilane	Chefchaouen	1668 m	35.194833° N, 5.210467° W	mixed forest
66. Maison forestière	NPTL, Talassemtane	Chefchaouen	1696 m	35.356389° N, 5.448611° W	fir forest
67. Sefihat Telj	NPTL, Sefihat Telj	Chefchaouen	1745 m	35.18515° N, 5.211767° W	mixed forest
Eastern Morocco					
68. Ain Chebak	Madagh	Berkane	5 m	35.009393° N, 2.338167° W	riparian vegetation
69. Oujda (Urban)	Oujda	Oujda	640 m	34.645407° N, 1.884733° W	periurban shrubs
Atlantic Plain					
70. Douar Louamra	Douar Louamra	Larache	26 m	35.065302° N, 6.085543° W	strawberry farm
71. Guiche Loudaya	Guiche Loudaya	Rabat	79 m	33.942503° N, 6.879453° W	oak cork forest
72. Forest of Maamora	Maamora	Rabat	82 m	34.277219° N, 6.3700° W	oak cork forest
Middle Atlas					
73. Dayat Zarhoun	Moulay Idriss Zarhoun	Meknès	475 m	34.057123° N, 5.525723° W	peat bog
74. Oued Oum Rbiaa	NPKH	Khénifra	1203 m	33.055383° N, 5.417917° W	riverbank
75. Ain Leuh	NPIF, Tiwirghine	Meknès	1300 m	33.3205786° N, 5.340932° W	spring edge
76. Chiker	NPTZ, Bab Boudir	Taza	1444 m	34.071667° N, 4.106944° W	forest
77. Boughayati	NPTZ, Boughayati	Taza	1471 m	34.0925° N, 4.103611° W	holm oak forest
78. Tazekka summit	NPTZ, Bab Boudir	Taza	1488 m	34.073611° N, 4.1175° W	forest
79. Zaouyat Ifrane	NPIF, Ain Leuh	Ifrane	1497 m	33.519541° N, 5.134591° W	cedar forest
80. Ain Vittel	Ifrane	Ifrane	1569 m	33.546180° N, 5.113036° W	spring edge
81. Oued Sidi Rached	NPIF, Sidi Rached, Azrou	Ifrane	1577 m	33.458139° N, 5.148344° W	riverbank

Table 1 (continued). Localities with respective protected areas, altitudes and coordinates of the studied sites.

Site	Protected area, locality	Province	Altitude	Geographical coordinates	Habitat
Middle Atlas					
82. Ras El ma	Ifrane	Ifrane	1606 m	33.470555° N, 5.138888° W	spring edge
83. Kharzouza forest	NPIF, Azrou	Ifrane	1618 m	33.409166° N, 5.2325° W	mixed forest
84. Lac Ouiouane	NPKH, Khénifra	Khénifra	1641 m	33.132816° N, 5.345033° W	lakeshore
85. Moudmame forest	NPIF, Azrou	Ifrane	1774 m	33.417777° N, 5.184722° W	cedar forest
High Atlas					
86. Ourika	NPTB, Ourika	Al Haouz	855 m	31.379431° N, 7.771717° W	olive grove
87. Timalizene	NPTB, Ourika	Al Haouz	936 m	31.4387° N, 7.848142° W	agricultural field
88. Tahannaout	NPTB, Ourika	Al Haouz	950 m	31.333958° N, 7.948572° W	forest
89. Amizmiz	Amizmiz	Al Haouz	991 m	31.215258° N, 8.218372° W	forest
90. Bni Tadjite	Bni Tadjite	100 km E of Errachidia	1121 m	32.328981° N, 3.440431° W	riverbank
91. Asni	Asni	Al Haouz	1164 m	31.495277° N, 8.631944° W	agricultural field
92. Ain Tafraout	Sidi Masali	Al Haouz	1238 m	31.232222° N, 7.981388° W	spring edge
93. Moulay Brahim	NPTB, Marrakech	Al Haouz	1250 m	31.286244° N, 7.967531° W	riverbank
94. Oued Imlil	NPTB, Imi Oughlad	Al Haouz	1386 m	31.125277° N, 7.918888° W	riverbank
95. Bouzmella	Bouzmella	Midelt	1440 m	32.698048° N, 4.792736° W	meadow
96. Oumnas	Oumnas	Al Haouz	1740 m	32.685761° N, 4.739589° W	forest
97. Tabant	Ait Bougmaz	Azilal	1869 m	31.6698° N, 6.1211° W	riverbank
98. Anfgou	Anemzi	Midelt	1949 m	32.171944° N, 5.235555° W	riverbank
99. Lac Tislit	NPEHA, Imilchil	Midelt	2119 m	32.200° N, 5.633333° W	lakeshore
Anti-Atlas					
100. Bouanane	Bouanane	150 km E of Errachidia	797 m	32.043056° N, 3.009167° W	alluvial plain
101. Aoufouss	Aoufouss	Errachidia	906 m	31.691366° N, 4.182787° W	riverbank
102. Boudnibe	Boudnibe	Errachidia	951 m	31.941056° N, 3.614407° W	riverbank
103. Taliouine	Taliouine	Taroudant	1014 m	30.460609° N, 7.964124° W	agricultural field

Results

Class Insecta Linnaeus, 1758
Order Diptera Linnaeus, 1758
Family Hybotidae Meigen, 1820
Subfamily Tachydromiinae Meigen, 1822
Genus *Platypalpus* Macquart, 1827

New species

Platypalpus albiseta group

Platypalpus miroslavi Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:2C60BA71-7F68-4F63-B6C6-C866A28AEB0D
Figs 2–3

Diagnosis

A black to brown species (3.0 mm long) of the *albiseta* group with one pair of long vertical bristles. Antennae blackish brown with white stylus, postpedicel elongate conical, about 4 × as long as wide at base and stylus longer than third segment (1.5–1.7 ×). Thorax with mesoscutum polished including postpronotal lobe (except for dusted margins of mesoscutum) and pleura subshining, leaving a large polished spot on katepisternum. Legs yellow with hind four coxae brownish, fore tibia, all tarsi, fore and mid femora dorsally and apical third of hind femora brownish to blackish brown. Mid tibia without spur. Hind femur slender with a row of pale posteroventral setae. Wings brown infuscate, with vein M_{1+2} and vein R_{4+5} convergent just before meeting wing margin.

Etymology

This species is dedicated to Dr Miroslav Barták, an expert on Hybotidae, in recognition for his assistance in providing some important literature used in this paper and useful advice on the curation of hybotid specimens.

Material examined

Holotype
MOROCCO – **Rif** • ♂; Etouirsa; 12 May 2019; sweep net; K. Kettani leg.; RBINS.

Paratypes
MOROCCO – **Rif** • 1 ♂; Azilane; 4 Jul.–13 Aug. 2013; Malaise trap; K. Kettani leg.; LESCB • 2 ♂♂, 2 ♀♀; Adrou; 14–15 Jul. 2015; Malaise trap; K. Kettani leg.; RBINS • 5 ♂♂, 6 ♀♀; same collection data as for preceding; LESCB • 1 ♂; Chellal Akchour; 25 Apr.–6 Jun. 2016; Malaise trap; K. Kettani leg.; LESCB • 1 ♂; Oued El Koub; 23 Apr. 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Chellal Akchour; 25 Apr.–6 Jun. 2016; Malaise trap; K. Kettani leg.; LESCB • 1 ♂; Amghart; 25 Jun.–20 Aug. 2019; Malaise trap; K. Kettani leg.; LESCB • 1 ♂; Tarsif; 7 Apr.–6 May 2021; Malaise trap; K. Kettani leg.; LESCB.

Description

Male
Length. Body: 3.0 mm; wing: 3.2 mm.

Head. Black in ground colour, occiput slightly greyish pollinose, covered with short brown setae, postocciput with long brown setae, one pair of long blackish verticals, a pair of long black anterior

ocellars. Gena slightly pollinose, with long yellow setae. Frons yellowish dusted, narrower than pedicel, somewhat broadened toward ocellar tubercle. Face yellowish dusted, narrower than pedicel. Clypeus shining, longer than upper part of face. Antennae blackish brown with white stylus (slightly blackish at extreme base), pedicel as long as deep, postpedicel elongate conical, about 4 × as long as wide at base, stylus densely pubescent and 1.5–1.7 × as long as postpedicel. Proboscis brown, shorter than head is high. Palpus yellowish brown, narrowly ovate, rather small, with scattered pale hairs and long dark subapical seta.

Thorax. With mesoscutum blackish brown, pleura brownish. Mesoscutum including postpronotal lobe polished (except for dusted margins of mesoscutum), pleura subshining, leaving a large polished spot on katepisternum. Scutellum subshining. Thoracic hairs long and pale. Postpronotal lobe with two long yellow setae and one minute yellow seta. Mesoscutum with 1 long notopleural, 1 moderately long postalar, 2 faint yellow prescutellars, 4 scutellars (apical pair long, cruciate, lateral pair very short), acrostichals biserial, widely separated, dorsocentrals uniserial.

Legs. Yellow, except for hind four coxae brownish, fore and mid femora dorsally, fore tibiae, apical third of hind femora and all tarsi brownish to blackish brown. Coxae and trochanters with long yellow setae. Fore femur slender with rows of long, thin, pale anteroventral and posteroventral setae. Fore tibia rather slender, spindle-shaped, clothed with ordinary setulae. Mid femur slightly thicker than fore femur, with double row of black ventral spinules and row of long, thick, brown posteroventral setae. Mid tibia slender, without apical spur, covered with ordinary brown setulae. Hind femur slender with a row of pale posteroventral setae. Hind tibia slender, slightly shorter than femur, clothed with ordinary brown setulae.

Wings. Mainly brownish infuscate, with brownish veins. Costal setae very short and pale. Vein M_{1+2} and vein R_{4+5} convergent just before meeting wing margin. Crossveins m-cu and r-m not separated, bm slightly longer and broader than br. Vein Cu_2 rather sinuate. Vein Cu reaching wing border, recurrent in basal part. Anal vein distinct in basal part and evanescent in apical part. Squama yellowish with pale setae. Haltere whitish.

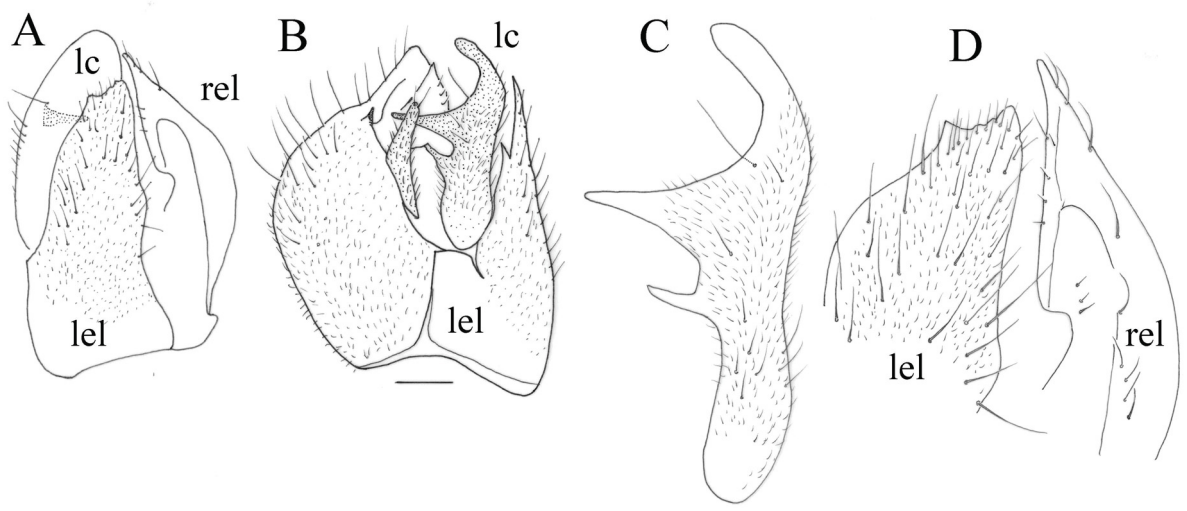

Fig. 2. *Platypalpus miroslavi* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Left epandrial lamella with border of right epandrial lamella, ventral view. **B**. Epandrium with cerci, dorsal view. **C**. Left cercus. **D**. Detail of tip of left and right epandrial lamellae. Scale bar = 0.1 mm.

Abdomen. With brown tergites, polished, covered with short, pale setae. Sternites brown with similar setation. Terminalia (Fig. 2) with left cercus very large, with an apical point and a lateral spine-like projection (Fig. 2C). Smaller basal projection is connection with right cercus. Right cercus very narrow, with a conical tip.

Female

Resembling male, except for the terminalia.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus albocapillatus* Fallén, 1815, but in the latter the stylus is as long as the postpedicel (Chvála 1973), while in the new species, the stylus is 1.5–1.7 × as long as the postpedicel. The legs in *P. albocapillatus* are mostly blackish including coxae, with knees and fore tibia towards the base brownish, or legs entirely brown in paler specimens, unlike the new species where the legs are yellow with four hind coxae, fore and mid femora dorsally, fore tibiae, apical third of hind femora and tarsi brownish, or blackish brown in dark specimens. The posteroventral setae of the fore femur in *P. albocapillatus* are black, while in the new species they are pale. The genitalia of both species are very different in all details (compare Chvála 1973: figs 7–8 or Chvála 1975: figs 289–291 with Fig. 2).

Fig. 3. *Platypalpus miroslavi* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, RBINS).

Platypalpus taninensis Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:883E5997-6B59-499A-A3B8-7777CAD75F1F
Figs 4–5

Diagnosis

A small black species (2.5 mm long) of the *albiseta* group, with one pair of long black verticals. Antennae blackish brown with white stylus, postpedicel elongate conical, about 4 × as long as wide at base, stylus densely pubescent, as long as third antennal segment. Thorax with mesoscutum polished, including postpronotal lobe (except for dusted margins of mesoscutum), pleura subshining, leaving a large polished spot on katepisternum. Legs blackish brown, except for fore coxa and trochanter whitish yellow, tip of fore femur and apical third of hind femora yellowish. Mid tibia without apical spur. Hind femur with long yellow anteroventral setae. Wings mainly brown infuscate with vein M_{1+2} conspicuously bowed before meeting wing margin and vein R_{4+5} rather straight.

Etymology

This new species is named after Oued Tanina, which drains the mountain of Jbel Kelti at the western Rif of Morocco, where the holotype was collected.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Oued Tanina; 22 Apr. 2021; sweep net; L. Zouhair leg.; RBINS.

Paratype

MOROCCO – **Rif** • 1 ♀; same collection data as for holotype; LESCB.

Description

Male

Length. Body: 2.5 mm; wing: 2.8 mm.

Head. Black in ground colour, occiput greyish pollinose, covered with short brown setae, one pair of long black verticals. Gena greyish pollinose with long brown setae. Frons greyish dusted, narrower than pedicel, somewhat broader toward ocellar tubercle. Face greyish dusted, narrower than pedicel. Clypeus polished, long, about as long as face. Antennae blackish brown with white stylus (slightly brownish at extreme base), pedicel as long as deep, postpedicel very elongate conical, about 4–5 × as long as wide at base, stylus densely pubescent, as long as postpedicel. Proboscis brown, shorter than head is high. Palpus brown, small with scattered pale hairs and long dark subapical setae.

Thorax. With mesoscutum black, pleura brown. Mesoscutum polished, including postpronotal lobe (except for dusted margins of mesoscutum), pleura subshining, leaving a large polished spot on katepisternum. Postpronotal lobe with 1 long, faint yellow seta and 1 short yellow seta. Mesoscutum with 1 long notopleural, 1 moderately long postalar, 2 pairs of long yellow prescutellars, 4 brownish scutellars (apical pair long and cruciate, lateral pair very short), acrostichals yellow, biserial, widely separated, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Blackish brown with fore coxa and trochanter whitish yellow, tip of fore femur and apical third of hind femora yellowish. Coxae and trochanters with yellow setae of different lengths. Fore femur thickened in basal two thirds, with a row of long pale posteroventral setae. Fore tibia rather spindle-shaped, clothed with ordinary pale setulae. Mid femur slightly thicker than fore femur, with double row of black ventral spinules and row of long, thick (spine-like), brown posteroventral setae. Mid

tibia slender, without apical spur, covered with ordinary setulae. Hind femur slender, with long yellow anteroventral setae. Hind tibia slender, slightly shorter than femur, clothed with ordinary brown setulae.

Wings. Mainly brownish infuscate, with brownish veins. Costa with one moderately long brown seta. Vein M_{1+2} conspicuously bowed before meeting wing margin, vein R_{4+5} rather straight. Crossveins m-cu and r-m not separated, bm slightly longer and broader than br. Vein Cu_2 rather sinuate, recurrent. Vein Cu reaching wing border, recurrent in basal part. Anal vein distinct in basal part and evanescent in apical part. Squama yellowish. Haltere whitish.

Abdomen. With brown tergites, polished, covered with short pale setae. Sternites paler brown, with similar setation. Male terminalia (Fig. 4) with left cercus very wide with a rectangular process (Fig. 4B–D). Right cercus narrower, bearing a tiny point at tip (Fig. 4D). Left epandrial lamella very narrow, lacking long setae on left border. Right border of right epandrial lamella also lacks usual long setae (Fig. 4A).

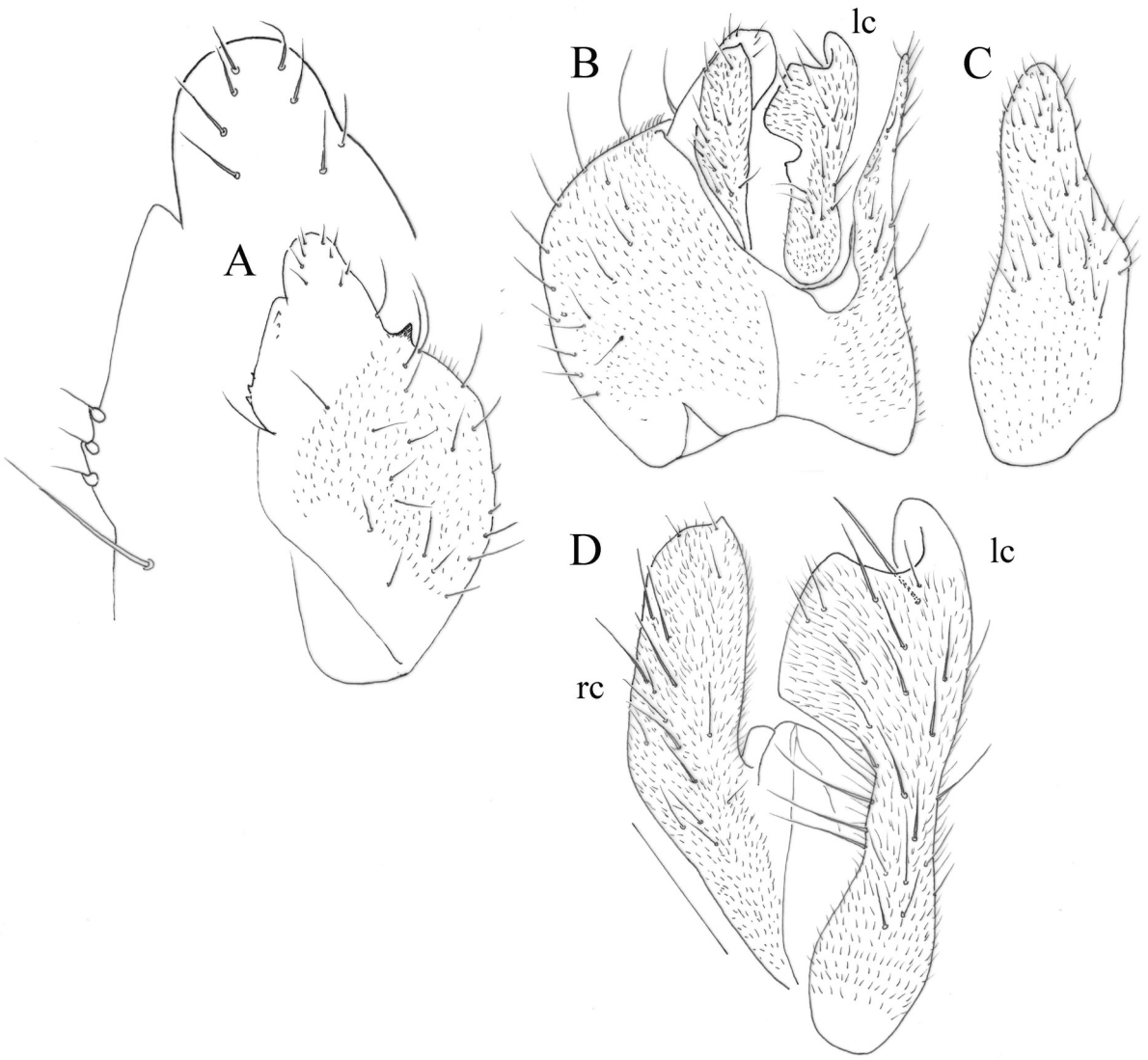

Fig. 4. *Platypalpus taninensis* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella with detail of apex. **B**. Epandrium, dorsal view. **C**. Left epandrial lamella. **D**. Cerci, dorsal view. Scale bar = 0.1 mm.

Female

Resembling male, except for the terminalia.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus albocapillatus* Fallén, 1815 (couplet 46). Compared to the description of *P. albocapillatus* in Chvála (1973), both species are very close; they share the majority of morphological characters, but they differ in some characters especially in the legs: in *P. albocapillatus* the legs are mostly blackish including the coxae, with the knees and fore tibia towards the base brown, or the legs are entirely brown in paler specimens, while in the new species the legs are blackish brown, but the fore coxa and trochanter are whitish yellow, with the tip of the fore femur and the apical third of the hind femora yellow. The posteroventral setae of the fore femur in *P. albocapillatus* are black, while in the new species they are pale. The genitalia of both species are completely different in all details (compare Chvála 1973: fig. 8 or Chvála 1975: figs 289–291 with Fig. 4).

This species can also be compared with *Platypalpus miroslavi* sp. nov. They both belong to the *albiseta* group. The two species are similar, but differ in several characters: the postpedicel is more elongate in *P. taninensis* sp. nov. than in *P. miroslavi*, the legs in *P. miroslavi* are yellow, including the coxae, except for the fore and mid femora dorsally, the fore tibiae, the apical third of the hind femora and all the tarsi are brownish to blackish brown, while in *P. taninensis* the legs are blackish brown, with the fore coxa, the tip of the fore femur and the apical third of the hind femora yellowish. The male terminalia of both species differ clearly especially in the shape of cerci (Figs 2B, 4B).

Fig. 5. *Platypalpus taninensis* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, RBINS).

Platypalpus longicornis group

Platypalpus moroccensis Grootaert & Zouhair sp. nov.
urn:lsid:zoobank.org:act:CE3431C5-DD27-439C-8FD1-24C65FC05867
Figs 6–7

Diagnosis

A small black species (2.5 mm long) of the *longicornis* group, with two pairs of long black verticals. Antennae black with postpedicel elongate, about 3.5–4 × as long as broad at base, stylus slightly longer than postpedicel. Mesoscutum including postpronotal lobe densely greyish dusted, pleura greyish dusted, leaving a polished spot on katepisternum. Legs yellow, all coxae whitish yellow, but fore tibia somewhat darker, mid femur with apical half only dorsally brownish, mid tibia brown, hind femur brown in apical half, hind tibia slightly dark apically, and tarsomere brown apically with four apical tarsi of all legs almost entirely brown. Mid femur lacking posteroventral setae. Mid tibia with a brown, flattened apical spur. Wings faintly brown infuscate with R_{4+5} and M_{1+2} parallel throughout.

Etymology

This new species is named *moroccensis* after the English name of the country where it was found.

Material examined

Holotype
MOROCCO – **Rif** • ♂; Oued Tissegris; 20 Apr. 2021; sweep net; L. Zouhair leg.; RBINS.

Paratypes
MOROCCO – **Rif** • 1 ♂; Bni Bounsar; 13–31 May 2018; Malaise trap; K. Kettani leg.; LESCB • 1 ♂; Azilane; 27 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 2 ♂♂, 3 ♀♀; Rmel; 24 Feb. 2020; sweep net; F.Z. Sliman leg.; LESCB • 1 ♂; Medchar Lemtahene; 9 Apr. 2022; sweep net; L. Zouhair leg.; LESCB.

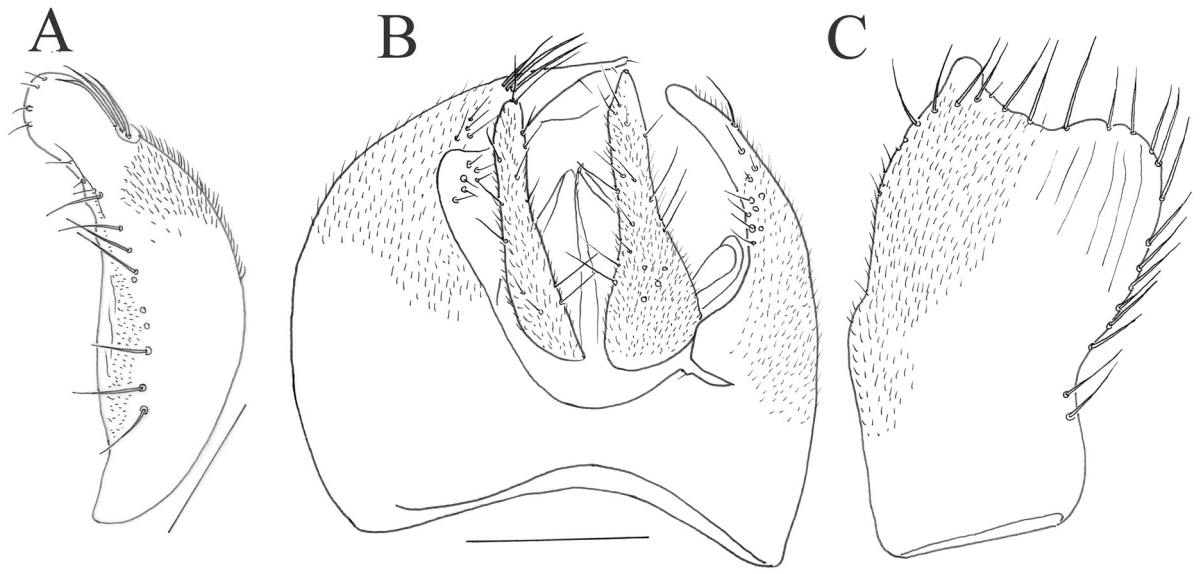

Fig. 6. *Platypalpus moroccensis* Grootaert & Zouhair sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

Description

Male

Length. Body: 2.5 mm; wing: 2.8 mm.

Head. Black in ground colour, occiput densely greyish pollinose with short pale setae, two pairs of long black verticals. Gena densely greyish pollinose with long pale setae. Ocellar tubercle greyish pollinose, with 2 moderately long black anterior setae and 2 short yellow posterior setae. Frons grey dusted, wide, in front a little wider than pedicel. Face densely grey dusted, narrower than pedicel. Clypeus longer than upper part of face, polished. Antennae entirely black, with pedicel as long as deep, postpedicel elongate, about 3.5 × as long as wide at base, stylus slightly longer than postpedicel. Proboscis black, shorter than head is high (¾ × height of head). Palpus pale yellowish brown, small, ovate, with scattered pale setulae and one long yellow subapical seta (Fig. 7C).

Thorax. Black. Mesoscutum including postpronotal lobe densely greyish dusted, pleura greyish dusted, leaving a polished spot on katepisternum. Postpronotal lobe with 1 short black seta. Mesoscutum with 1 notopleural, 1 long postalar, 4 black scutellars (apical pair long and cruciate, lateral pair short); acrostichals minute, yellow, biserial, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Yellow including coxae and trochanters (even pale yellow), with fore tibia somewhat darker, mid femur with apical half only dorsally brownish, mid tibia brown, hind femur brown in apical half, hind tibia slightly dark apically, tarsomere brown apically, four apical tarsi of all legs almost entirely brown (except yellowish base) (Fig. 7C), knee of fore femur has a small anterior black spot; knees of mid and hind femora with a small black anterior and posterior spot, apex of all trochanters with a small black spot. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur thickened in basal two thirds, a row of pale brown anterior setae present, half as long as femur is wide. Fore tibia

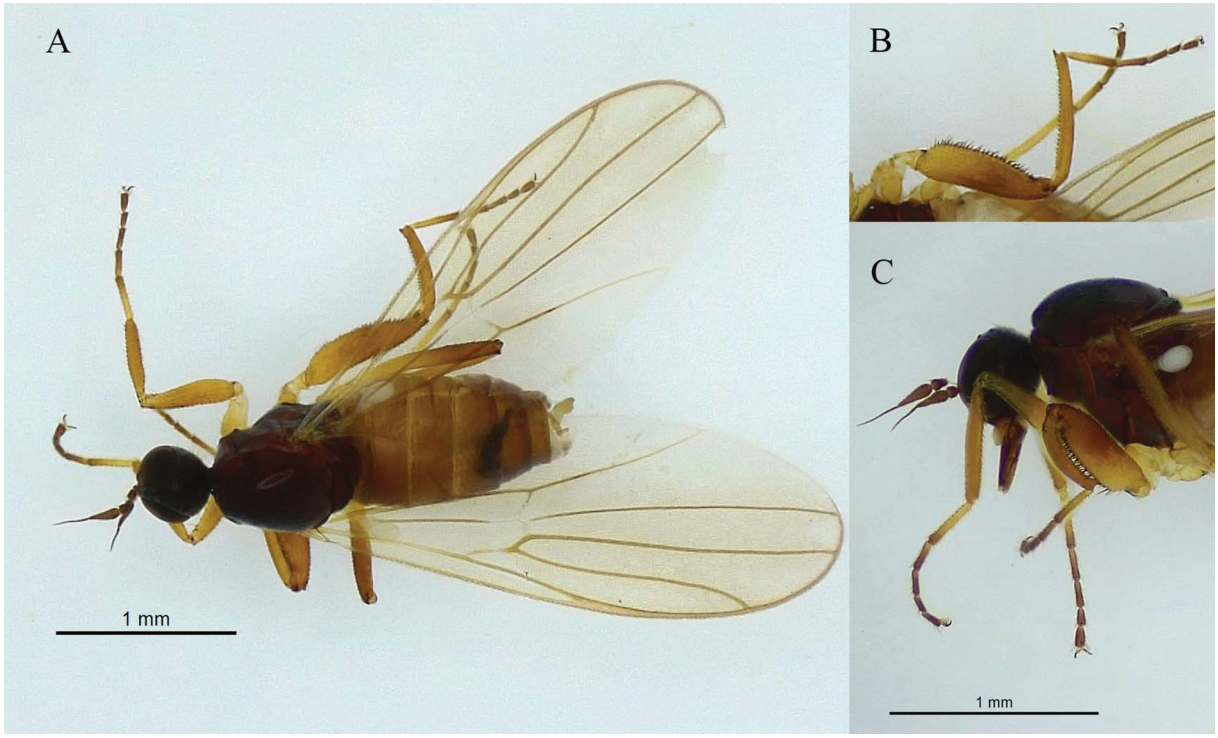

Fig. 7. *Platypalpus moroccensis* Grootaert & Zouhair sp. nov., ♂, habitus (holotype, RBINS). **A**. Dorsal view. **B**. Mid leg, anterior view. **C**. Head and thorax, lateral view, mid leg in posterior view. Photos: Isabella Van de Velde.

not swollen, anteroventrally over entire length densely set with short setae (shorter than width of tibia), no long dorsal setae present. Mid femur (Fig. 7A, C) thickened, more than fore femur, with double row of black ventral spinules (spinules in posterior row longer), without a row of posteroventral setae. Mid tibia slender, with a row of ventral spinules and a short brown, flattened apical spur. Hind femur slender, much longer than mid femur, ventrally with a row of short yellowish setae (less than half as long as femur is wide). Hind tibia slender, slightly dark apically, as long as femur.

Wings. Faintly brown infuscate, with paler brownish veins. Costa with one moderately long brown seta. Veins R_{4+5} and M_{1+2} parallel. Crossveins m-cu and r-m separated, bm slightly longer than br. Vein Cu_2 straight. Vein Cu reaching wing border. Anal vein distinct in apical part and evanescent in basal part. Squama yellowish with yellow seate. Haltere whitish.

Abdomen. With pale brown tergites, shining, covered with short pale setae. Sternites pale brown, shining, with similar setation of tergites. Male terminalia (Fig. 6) with left cercus much widened in basal third, right cercus digitiform (Fig. 6B). Left epandrial lamella with a broad apical margin, slightly notched near middle with right side pointed. Apical margin and left margin with short setae only.

Female

Resembling male, except for the terminalia.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus palmeni* Frey, 1943 (couplet 203), described from the Alps, probably from a male (at least as supposed by Chvála 1989). The new species corresponds very much to the re-description of *P. palmeni* in Chvála (1989), but the two species differ clearly by: the colour of the thoracic hairs which are yellow in *P. palmeni*, while they are black in the new species; the fore femur is rather stouter and the mid femur not stouter in *P. palmeni* (Fig. 8B), while in the new species the mid femur is stouter than the fore femur; and by the colour of the legs, which are yellow in *P. palmeni* (Fig. 8), with only the hind femur being blackish on the apical third and the tips of the four posterior tibiae and all tarsi are uniformly dark brown, while in the new species the legs also yellow, but

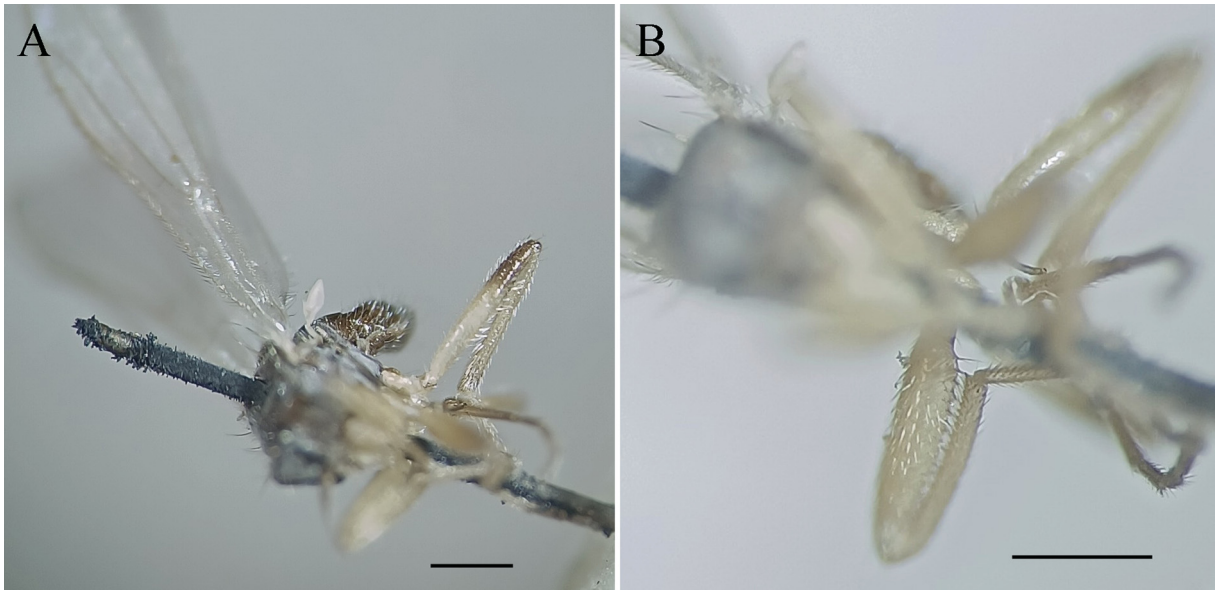

Fig. 8. *Platypalpus palmeni* Frey, 1943, ♂ (holotype, MZH, Luomus, Helsinki). **A**. Habitus with detail of hind femur. **B**. Detail of mid femur and mid tibia with small apical spur. Scale bars = 0.5 mm. Photos: Jere Kahanpää.

with the fore tibia darker (yellow in paler specimens), the mid femur with a brown dorsal patch on the apical half, the mid tibia are brown, the hind femur is brown on the apical half, the hind tibia are slightly dark apically (not the four posterior tibiae as in *P. palmeni*), the tarsomeres are brown apically and the four apical tarsi of all legs are entirely brown (except the yellowish base).

Platypalpus rifensis Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:1D78112C-239D-4EA6-AD68-5D21E3CC8A49
Figs 9–10

Diagnosis

Very small brown species (2 mm long) of the *longicornis* group, with two pairs of verticals, very small postpedicel and yellow proboscis. Mesoscutum including postpronotal lobe subshining, pleura subshining, leaving a polished spot on katepisternum. Legs yellow with hind four coxae paler brown, fore tibia with ventral and dorsal brown stripes, first fore tarsal segment dark brown at base, last three tarsal segments of mid and hind legs brownish (darker in hind than mid legs). Mid tibia without apical spur. Wing hyaline with vein bm shorter than br and veins R_{4+5} and M_{1+2} parallel before meeting wing margin.

Etymology

This species is named after the Rif region of the North of Morocco, where the holotype was collected.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Cascade Chrafate; 22 Mar. 2019; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.3 mm; wing: 2.0 mm.

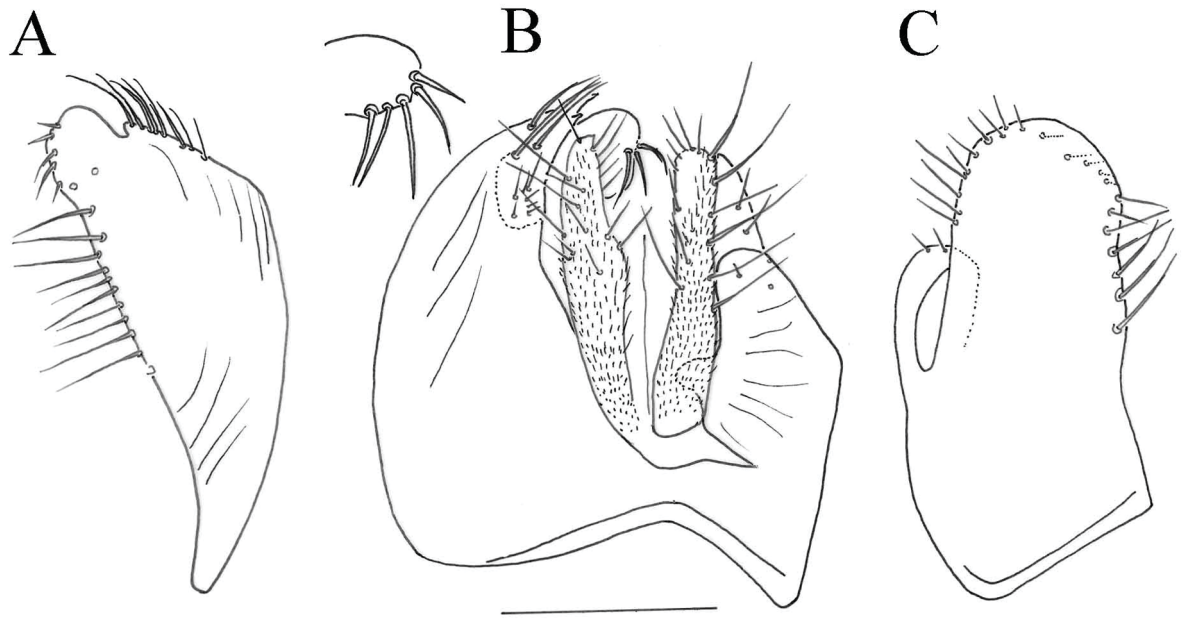

Fig. 9. *Platypalpus rifensis* Zouhair & Grootaert sp. nov., male terminalia (holotype, LESCB). **A**. Right epandrial lamella. **B**. Epandrium with cerci and detail of apex of right cercus. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

Head. Black in ground colour, occiput densely greyish pollinose, with minute pale setae, two pairs of verticals. Gena densely greyish pollinose, broader, with long pale setae. Ocellar tubercle shining. Frons dusted, slightly broader than pedicel, somewhat broader toward ocellar tubercle. Face densely yellowish dusted, narrower than pedicel. Clypeus yellowish dusted, longer. Antennae brown, with both basal segments brownish yellow, postpedicel very small, somewhat onion-shaped, as long as deep (stylus broken). Proboscis yellow, short, half as long as head is high. Palpus yellow, somewhat large, with scattered pale setulae and two moderately long yellow subapical setae.

Thorax. Brown. Mesoscutum including postpronotal lobe subshining, pleura subshining, leaving a polished spot on katepisternum. Postpronotal lobe with 1 long yellow seta. Mesoscutum with 2 short yellow notopleurals, 1 long yellow postalar, 2 long yellow prescutellars, 4 scutellars, acrostichals quadriserial, dorsocentrals uniserial.

Legs. Yellow, except for hind four coxae paler brown, fore tibia with ventral and dorsal brown stripes, first fore tarsal segment dark brown at base, last three tarsal segments of mid and hind legs brownish (darker in hind than in mid legs). Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur moderately thickened, with pale anteroventral and posteroventral setae. Fore tibia swollen in apical half, uniformly clothed with moderately long brown setulae. Mid femur thicker than fore femur, with double row of black ventral spinules and row of long yellow posteroventral setae. Mid tibia slender, without apical spur. Hind femur slender, long, clothed with ordinary pale setulae. Hind tibia slender, covered with ordinary pale setulae. Fore metatarsus covered with long brown setae, the longest at base slightly longer than metatarsus is wide (about 1.3 ×).

Wings. Hyaline,with paler brownish veins. Costa with two long yellow setae. Veins R_{4+5} and M_{1+2} prallel before meeting wing margin. Crossveins m-cu and r-m slightly separated, bm slightly shorter than br. Vein Cu_2 straight. Vein Cu almost reaching wing border. Anal vein indistinct. Squama yellowish with long pale setae. Haltere whitish.

Abdomen. With tergites and sternites brown, shining, covered with long pale setulae. Male terminalia (Fig. 9) with cerci equally long, digitiform, and apex of right cercus somewhat pointed (Fig. 9B). Left epandrial lamella rectangular; left margin with some longer setae, hardly half as long as left lamella is wide, in apical half only (Fig. 9C). Right surstylus short (Fig. 9A).

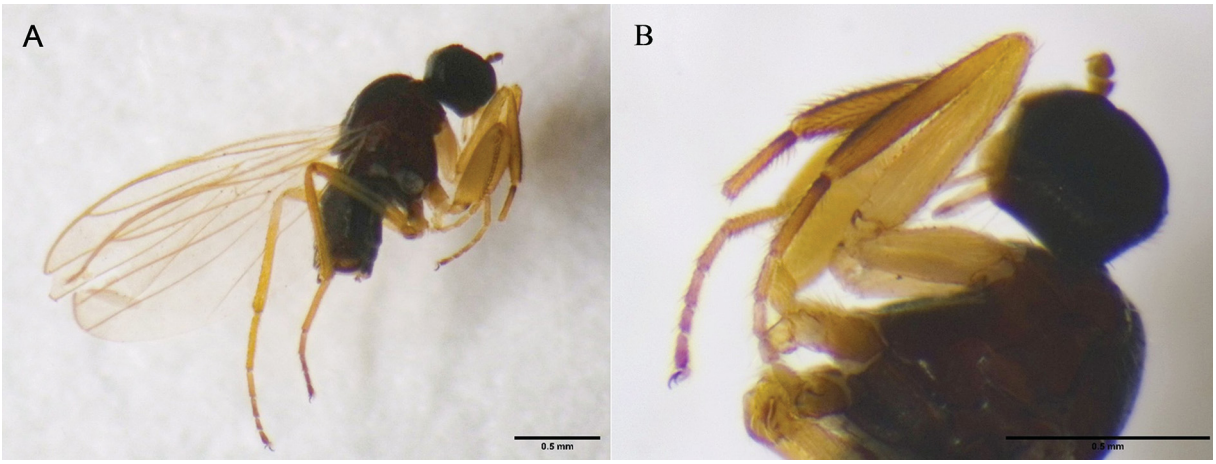

Fig. 10. *Platypalpus rifensis* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, LESCB). **A**. Lateral view. **B**. Head, thorax and fore legs, lateral view. Scale bars = 0.5 mm.

Female

Unknown.

Remarks

The key in Grootaert and Chvála (1992) leads to *Platypalpus cilitarsis* Frey, 1943 (couplet 216). The latter is very close to the species described above, sharing many characters according to the description of *P. cilitarsis* in Chvála (1989): two pairs of verticals, basal segments dirty yellow (brownish yellow in the new species), postpedicel very small and somewhat onion-shaped, acrostichals quadriserial, spur on mid tibia absent, legs yellow with posterior four coxae brownish. However, these species differ especially in the fore tibia and tarsi: in *P. cilitarsis*, the fore tibia is slender (tubiform) and entirely yellow, while in the new species it is swollen in the apical half and darkened. The tarsi in *P. cilitarsis* are brownish just on apical segments, and all the metatarsi are pale yellow, while in the new species the tarsi of the fore legs are entirely yellow except for the metatarsus, which is dark brown at the base, but the last three tarsal segments of the mid and hind legs are brownish (darker in hind than mid legs). In the new species, the fore metarsus is covered with long brown setae, the longest at the base being slightly longer than the metatarsus is wide (about 1.3 ×), unlike *P. cilitarsis* which has a row of long pale setae, the longest seta at the base is 3 × as long as the metatarsus is wide. The apical three tarsal segments are distinctly widened in *P. cilitarsis*, while in the new species they are not widened. Unfortunately, to our knowledge no illustrations of the male terminalia of *P. cilitarsis* are available.

Platypalpus pallidiventris-cursitans group

Platypalpus atlasensis Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:98D626B9-1227-4E23-A9CA-BF1AECB3F45F
Figs 11–12

Diagnosis

A small blackish brown species (2.5 mm long) of the *pallidiventris-cursitans* group with one pair of long vertical bristles. Antennae with basal segments yellow. Thorax with mesoscutum yellowish dusted including postpronotal lobe and pleura yellowish dusted, leaving a large polished spot on katepisternum. Legs yellow with four hind coxae and trochanters, knees of hind and mid legs blackish, tarsi uniformly dark brown except first segment darkened torwards tip. Mid tibia with a very short flattened spur. Wings hyaline with veins R_{4+5} and M_{1+2} convergent just before meeting wing margin.

Etymology

This new species is named after the Atlas Mountains, where the holotype was found.

Material examined

Holotype

MOROCCO – **High Atlas** • ♂; Oumnas; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.5 mm; wing: 2.0 mm.

Head. Black in ground colour, occiput greyish pollinose, covered with short pale setae, with one pair of long black verticals. Gena densely greyish pollinose, with long pale setae. Ocellar tubercle greyish pollinose. Frons slightly narrower than pedicel, somewhat broader toward ocellar tubercle, yellowish dusted. Face narrower than pedicel, yellowish dusted. Clypeus short, subshining. Antenna with both

basal segments yellow, postpedicel black, short, slightly longer than deep, arista black, about 2 × as long as postpedicel. Proboscis blackish, strong, nearly as long as head is high. Palpus yellow, ovate, with scattered pale setulae and a long pale subapical seta.

Thorax. Blackish brown. Mesoscutum densely yellowish dusted including postpronotal lobe. Pleura densely yellowish dusted, leaving a large polished spot on katepisternum. Postpronotal lobe with one long black seta and several pale setulae. Mesoscutum with 1 long postalar and 4 scutellars (apical pair long); acrostichals biserial, dorsocentrals uniserial.

Legs. Yellow, except posterior four coxae and trochanters brown, knees of mid and hind legs blackish and all tarsi uniformly brown, not annulated, except metatarsus darkened torwards tip. Coxae and trochanters with yellow setae. Fore femur moderately thickened with rows of anteroventral and posteroventral pale setae. Fore tibia very slightly thickened, clothed with ordinary setulae. Mid femur thicker than fore femur, with double row of black ventral spinules and a row of brown posteroventral setae. Mid tibia slender, as long as femur, covered with ordinary setulae, with very short, flattened apical spur. Hind femur slender, with short and pale anteroventral setae. Hind tibia slender, clothed with ordinary setulae.

Wings. Hyaline, with pale brownish veins. Costa with very short brown setae and a long brown seta at base. Veins R_{4+5} and M_{1+2} convergent just before meeting wing margin. Crossveins m-cu and r-m contiguous, bm slightly longer and broader than br. Vein Cu_2 straight. Vein Cu reaching wing border, recurrent in apical part. Anal vein indistinct. Squama blackish. Haltere whitish.

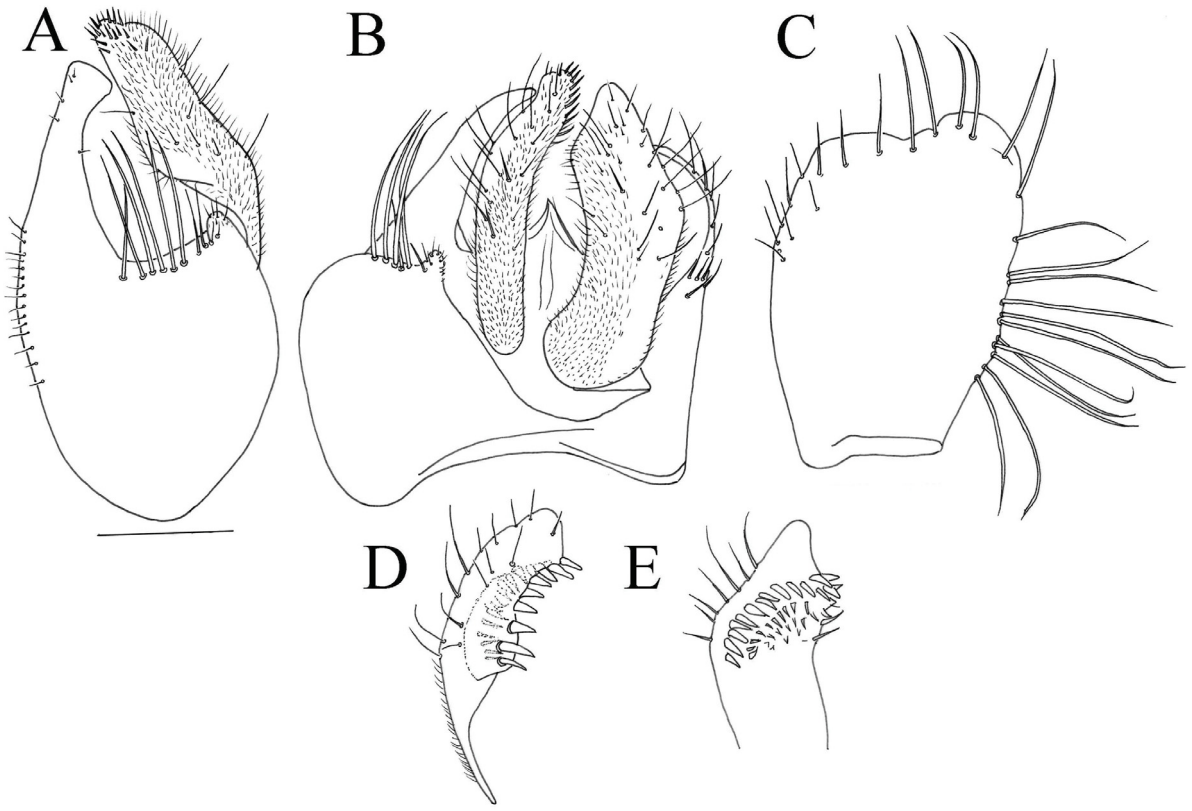

Fig. 11. *Platypalpus atlasensis* Zouhair & Grootaert sp. nov., male terminalia (holotype, LESCB). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. **D**. Left cercus, lateral view. **E**. Left cercus, ventral view. Scale bar = 0.1 mm.

Abdomen. With tergites blackish brown, subshining, covered with long pale setae; sternites blackish brown, with similar setation. Male terminalia (Fig. 11) with cerci longer than epandrial lamellae. Right cercus a little longer than left cercus and much more slender (Fig. 11B). Tip of right cercus set with fine spinules. Left cercus ventrally (inside) excavated (Fig. 11D–E), excavation bordered with broad denticulate spinules, central area set with fine spine only (Fig. 11E). Right surstylus fused with right epandrial lamella, lacking usual setae at apex. Area at base of surstylus very wide (Fig. 11A–B) and set with a comb of long setae. Left epandrial lamella (Fig. 11C) with a broad apex, notched in middle, left border set with a few long setae, nearly as long as lamella is wide.

Female

Unknown.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus articulatus* Macquart, 1827 (couplet 160). According to the description in Chvála (1975) and the diagnosis in Grootaert & Chvála (1992) of *P. articulatus*, the latter is very close to the new species; they differ only in the tarsi: the legs in both species are yellow with the posterior four coxae brown and the posterior four knees blackish, but in *P. articulatus* all tarsi are brownish annulated, while in the new species all tarsi are uniformly brown, not annulated, except for the metatarsus being darkened near the tip. The genitalia of both species are clearly different: in the new species the cerci are much longer and larger than in *P. articulatus*, and they are not enclosed in the periandrium as in *P. articulatus*. The right cercus of the new species bears numerous

Fig. 12. *Platypalpus atlasensis* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, LESCB).

spinules at the apex, and the left cercus bears spinules on the inside which are absent in *P. articulatus*, while the right surstylus is fused with the right epandrial lamella, unlike in *P. articulatus* (compare Grootaert & Chvála 1992: figs 206–210 with Fig. 11).

Platypalpus ebejeri Grootaert & Zouhair sp. nov.
urn:lsid:zoobank.org:act:67968D6A-216A-4A47-BCF2-778C5D84B3E0
Figs 13–14

Diagnosis

A medium sized species (2.8–3mm long) of the *pallidiventris-cursitans* group, with one pair of long black verticals. Antennae black with postpedicel conical, elongate, about 3.5× as long as wide at base, stylus slightly longer than postpedicel. Thorax with mesoscutum including postpronotal lobe greyish dusted (microtrichia long), pleura greyish dusted, leaving a large polished spot on katepisternum. Legs mostly blackish brown, with hind knees and hind and mid femora yellowish apically, tibia yellowish, tarsi brown with metatarsus yellow brown apically, but in dark specimens also yellowish part brown to blackish brown. Mid tibia with a sharp, pointed, black spur, as long as tibia is wide. Wings faintly brown infuscate with veins M_{1+2} and R_{4+5} convergent before reaching wing border.

Etymology

This species is named in honour of Dr Martin Ebejer in recognition for his substantial contributions to the exploration of Moroccan Diptera.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Oued Khemis; 28 Dec. 2019; sweep net; L. Zouhair leg.; RBINS.

Paratypes

MOROCCO – **Rif** • 1 ♂; Barrage Smir; 6 Apr. 2013; sweep net; K. Kettani leg.; LESCB • 4 ♂♂, 3 ♀♀; Jbel Zemzem; 17 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 1 ♂; Zaouyet El Habtiyen; 15 Apr. 2015; sweep net; K. Kettani leg.; LESCB • 5 ♂♂; Ras Mazari; 8 Apr. 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Rahbat Amlay; 2 May 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Bni Bounsar; 13–31 May 2018; Malaise trap; K. Kettani leg.; LESCB • 2 ♂♂, 2 ♀♀; Cascade Chrafate; 22 Mar. 2019; sweep net; K. Kettani leg.; RBINS • 5 ♂♂, 5 ♀♀; same collection data as for preceding; LESCB • 5 ♂♂; Ain Jdioui; 20 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 4 ♂♂; Oued khemis; 28 Dec. 2019; sweep net; L. Zouhair leg.; LESCB • 2 ♂♂; Oued Tanina; 22 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 1 ♂; Douar Adder (Tasselt); 22 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 2 ♂♂; Rmel; 17 May 2022; sweep net; F.Z. Sliman leg.; LESCB • 2 ♂♂, 1 ♀; Ametrasse; 20 May 2022; sweep net; L. Zouhair leg.; LESCB • 1 ♂; Mallaliyen; 4 Mar. 2023; sweep net; K. Kettani leg.; LESCB. – **Eastern Morocco** • 1 ♂, 2 ♀♀; Oujda (Urban); 18 Mar. 2018; sweep net; K. Kettani leg.; LESCB. – **Atlantic Plain** • 28 ♂♂, 8 ♀♀; Douar Louamra; 6 Mar. 2015; sweep net; K. Kettani leg.; LESCB • 1 ♂; Forest of Maâmora; 24 Apr. 2018; sweep net; K. Kettani leg.; LESCB. – **High Atlas** • 28 ♂♂, 8 ♀♀; Anfgou; 2 Aug. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 3.0 mm; wing: 3.0 mm.

Head. Black in ground colour, occiput greyish pollinose, with short pale setae, one pair of long black verticals. Gena greyish pollinose with long yellow setae. Ocellar tubercle greyish pollinose with 2 long black anterior setae and 2 very short yellow posterior setae. Frons subshining, as wide at base as pedicel.

Face densely greyish dusted, narrower than pedicel. Clypeus polished and long. Antennae black, pedicel as long as deep, postpedicel almost rectangular, pointed, about 3.5 × as long as wide at base, stylus slightly longer than postpedicel. Proboscis blackish brown, shorter than head is high. Palpus brown, ovate, with scattered pale setulae and one long yellow subapical seta.

Thorax. Black. Mesoscutum including postpronotal lobe greyish dusted (microtrichia long), pleura greyish dusted, leaving a large polished spot on katepisternum. Postpronotal lobe with 1 long black seta and 3 minute pale setae. Thoracic hairs black, but yellow in some specimens. Mesoscutum with 2 long, thick black notopleurals, 1 long blackish postalar, 2 pairs of blackish prescutellars (one strong, long pair and one short, faint pair), 4 blackish scutellars (apical pair long and cruciate, lateral pair very short), acrostichals biserial, dorsocentrals uniserial, as long as acrostichals.

Legs. Mostly blackish brown, with hind knees and hind and mid femora yellowish at base, tibia yellowish, tarsi annulated but rather indistinctly, but in dark specimens yellowish part of legs also brown to blackish brown. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur moderately thickened, with pale anteroventral and posteroventral setae, and a ring of thick black setae at apex. Fore tibia slightly thickened, clothed with ordinary brownish setulae, with 2–3 thick, short brown setae near apex. Mid femur very thickened (about 2 × as thick as fore femur), with double row of black ventral spinules and row of long yellow posteroventral setae. Mid tibia slender, with a row of ventral spinules and a sharp pointed, black apical spur, as long as tibia is wide. Hind femur slender, clothed with ordinary yellow setulae. Hind tibia slender, as long as femur, with ordinary short yellow setulae.

Wings. Faintly brown infuscate, with brown veins. Costa with one long brown seta. Vein M_{1+2} and vein R_{4+5} convergent before reaching wing border. Crossveins m-cu and r-m separated, bm distinctly longer than br. Vein Cu_2 straight, recurrent in basal part. Vein Cu reaching wing border. Anal vein distinct. Squama yellowish. Haltere whitish.

Abdomen. With blackish tergites, polished, covered with pale setae. Sternites blackish, with similar setation. Male terminalia (Fig. 13) with right surstylus long, fused with right epandrial lamella. At its base only short setae, the usual long setae absent. Both cerci set with a number of flattened setae,

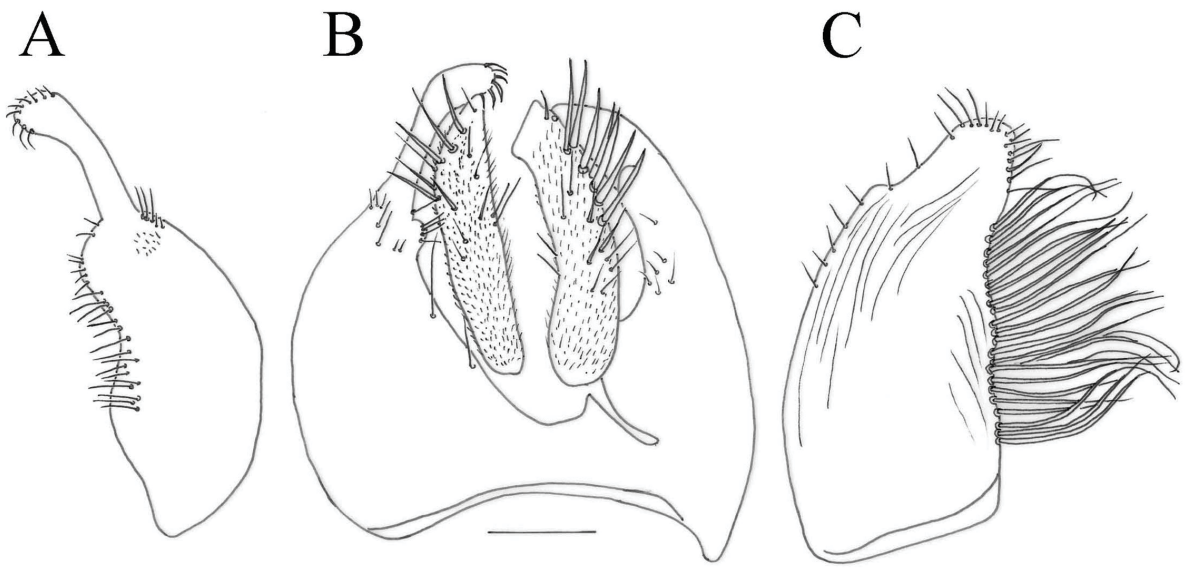

Fig. 13. *Platypalpus ebejeri* Grootaert & Zouhair sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

especially on left margin of left cercus (Fig. 13B). Left margin of left epandrial lamella densely set with long setae.

Female

Resembling male, except for the terminalia.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus riojaensis* Chvála, 1981 (couplet 102). According to the original description of *P. riojaensis* in Chvála (1981), the latter is very close to the species described here. *Platypalpus riojaensis* has one pair of verticals, the antennae are black with the postpedicel pointed, more than twice as long as deep at the base, the thoracic hairs are black, the acrostichals are biserial, the dorsocentrals are uniserial, exactly as in the new species, but in the latter the postpedicel is longer, about 3.5 × as long as deep at the base. The wings in *P. riojaensis* are clear, while in the new species they are faintly brown infuscate. The legs have almost the same coloration in both species, with all coxae black, the femora more or less darkened, leaving at least the apical fourth yellowish, and the tarsi are annulated rather indistinctly, but in the new species the mid and hind femora are yellowish at the base, not apically. The fore femur is almost entirely blackish brown. The posteroventral setae on the mid femur are black in *P. riojaensis*, but yellow in the new species. Posteroventral and anteroventral setae are present on the hind femur in *P. riojaensis*, but are absent in the new species. The genitalia of both species are different (compare Chvála 1981: fig. 19 with Fig. 13).

Fig. 14. *Platypalpus ebejeri* Grootaert & Zouhair sp. nov., ♂, habitus (holotype, RBINS).

Platypalpus fatnae Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:CCB7E89F-BE54-479F-9B36-34C80710DC2F
Figs 15–16

Diagnosis

Extensively black small species (2.5 mm long) of the *pallidiventris-cursitans* group, with one pair of long vertical bristles. Antennae black with postpedicel conical, elongate, about 3 × as long as wide at base. Thorax with mesoscutum greyish dusted including postpronotal lobe and pleura greyish dusted, leaving only a large polished spot on katepisternum. Legs yellow with all coxae and trochanters extensively black, mid femur with a black stripe dorsally, hind femur blackish at tip and all tarsi black annulated. Mid tibia with a long, sharp apical spur. Hind femur with a ventral row of black spinules. Wings hyaline with veins R_{4+5} and M_{1+2} convergent just before meeting wing margin.

Etymology

This species is dedicated to the mother (Fatna Abdaoui) of the first author for her invaluable support.

Type material

Holotype

MOROCCO – **High Atlas** • ♂; Ourika; 9 Apr. 2022; sweep net; L. Zouhair leg.; LESCB.

Description

Male

Length. Body: 2.5 mm; wing: 2.3 mm.

Head. Black in ground colour, occiput greyish pollinose, with one pair of long black verticals. Gena densely greyish pollinose, with long black setae. Ocellar tubercle greyish pollinose. Frons greyish pollinose, narrower than pedicel, somewhat broader toward ocellar tubercle, yellowish dusted. Face

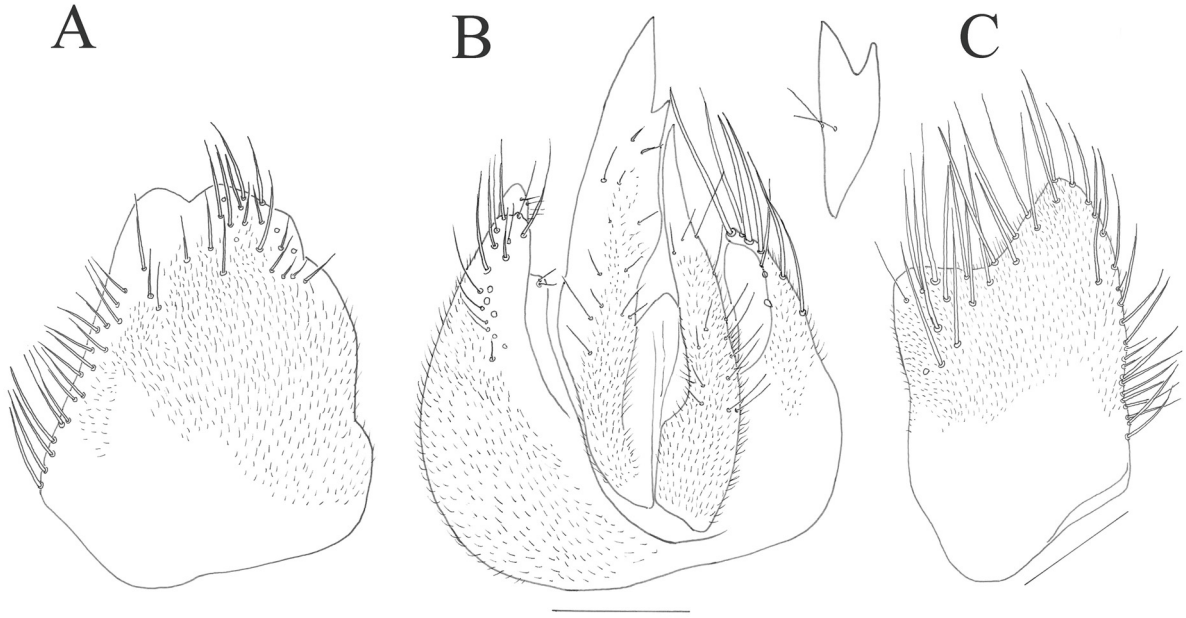

Fig. 15. *Platypalpus fatnae* Zouhair & Grootaert sp. nov., male terminalia (holotype, LESCB). **A**. Right epandrial lamella. **B**. Epandrium with cerci and detail of tip of left cercus in lateral view. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

slightly narrower than pedicel, subshining. Clypeus long, subshining. Antennae black, pedicel as long as deep, postpedicel conical, elongate, about 3 × as long as wide at base (stylus partly broken). Proboscis black, shorter than head is high. Palpus black, nearly ovate, with long black subapical seta.

Thorax. Extensively black. Mesoscutum greyish dusted including postpronotal lobe. Pleura greyish dusted leaving a large polished spot on katepisternum. Thoracic hairs broken, but according to hair follicles: postpronotal lobe with one seta and several setulae, mesoscutum with 1 notopleural, 2 scutellars, acrostichals biserial and dorsocentrals uniserial.

Legs. Yellow except for all coxae and trochanters extensively black, mid femur with a black stripe dorsally, hind femur blackish at tip, all tarsi black annulated. Coxae and trochanters with long black setae. Fore femur thickened in basal quarter, with rows of pale anteroventral and posteroventral setae. Fore tibia slightly thickened, spindle-shaped, clothed with ordinary setulae and bearing 2–3 strong black setae dorsally at median part. Mid femur very distinctly thickened, with double row of black ventral spinules and row of thick, long black posteroventral setae. Mid tibia slender, as long as femur, with a row of black ventral spinules and a long, sharp, largely black apical spur. Hind femur slender with a ventral row of black spinules. Hind tibia slender, clothed with ordinary setulae, dorsally bearing 1 strong black preapical seta and 1–2 strong black ventral setae in the middle.

Wings. Hyaline, with pale brownish veins. Costa with 1 moderately long black seta. Veins R_{4+5} and M_{1+2} convergent just before meeting wing margin. Crossveins m-cu and r-m separated, bm distinctly broader and longer than br. Vein Cu_2 straight. Vein Cu reaching wing border, recurrent in apical part. Anal vein indistinct. Squama whitish with pale hairs. Haltere whitish.

Fig. 16. *Platypalpus fatnae* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, LESCB).

Abdomen. With tergites extensively blackish, subshining, covered with long pale setae; sternites blackish, with similar setation. Male terminalia (Fig. 15) with cerci much longer than epandrium. Both cerci pointed, right cercus much longer than left cercus. Apices of both cerci forked. Right surstylus lacking (Fig. 15A). Apical border of left epandrial lamella deeply notched, set with long fine setae. Setae on left margin shorter (Fig. 15C).

Female

Unknown.

Remarks

The species described here can be compared with *Platypalpus baezi* Grootaert & Chvála, 1992, described from the Canary Islands (couplet 100), and with *P. alluaudi* Grootaert & Chvála, 1992, described from Morocco (couplet 95); the three species have one pair of black verticals, black antennae with the postpedicel at least 2.5 × as long as deep, legs yellow with all coxae and trochanters black and the tarsi black annulated, but the new species has a black stripe on the mid femur dorsally, which is absent in *P. alluaudi* and *P. baezi*. The new species has some black dorsal setae on the fore tibia (2–3), as in *P. alluaudi* (absent in *P. baezi*). The mid tibia in the new species have a row of black ventral spinules and the hind tibia bear 3–4 strong black setae posterodorsally, which are absent in *P. alluaudi* and *P. baezi*. The acrostichals and dorscentrals cannot be compared because they are broken in the new species. An illustration of the male genitalia of *P. alluaudi* is not available. The genitalia of *P. baezi* and those of new species are completely different (compare Grootaert & Chvála 1992: figs 110–112 with Fig. 15).

Platypalpus pauli Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:AB7BEDEF-4ABF-4FB6-A746-51B5E8BCD922
Figs 17–18

Diagnosis

A small black species (2.5 mm long) of the *pallidiventris-cursitans* group, with one pair of long yellow verticals. Antennae with both basal segments yellow, postpedicel blackish but somewhat yellowish at base, about 3 × as long as wide at base. Mesoscutum including postpronotal lobe densely yellowish dusted, pleura densely grey dusted leaving a polished spot on katepisternum. Legs entirely yellow including coxae, but tarsi black annulated. Fore tibia with a dorsal row of moderately long, somewhat thick brownish setae. Mid tibia with a long, sharp apical spur. Wings hyaline with veins R_{4+5} and M_{1+2} convergent just before meeting wing margin.

Etymology

This new species is named after Dr Paul Gatt, an expert of hybotid fauna, for his great dedication to the study of this dipteran family.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Ametrasse; 20 May 2022; sweep net; L. Zouhair leg.; RBINS.

Paratypes

MOROCCO – **Rif** • 2 ♂♂, 1 ♀; Medchar Lemtahene; 27 Apr. 2012; sweep net; K. Kettani leg.; LESCB • 1 ♂, 1 ♀; Oued Khemis; 10 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Oued Boumarouil; 10 May 2014; sweep net; K. Kettani leg.; LESCB • 4 ♂♂, 1 ♀; Oued Sifalaou; 17 Apr. 2016; sweep net; K. Kettani leg.; LESCB • 1 ♂; Rahbat Amlay; 2 May 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; same collection data as for holotype; LESCB. – **Eastern Morocco** • 1 ♂; Ain Chebak;

9 Apr. 2017; sweep net; N.H. El Ouazzani leg.; LESCB. – **Atlantic Plain** • 1 ♂; Guiche Loudaya; 10 Apr. 2022; sweep net; K. Kettani leg.; LESCB. – **High Atlas** • 1 ♂; Ain Tafraout; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.5 mm; wing: 2.8 mm.

Head. Black in ground colour, occiput densely greyish pollinose (yellowish pollinose toward ocellar tubercle) with short pale setae and one pair of long yellow verticals. Gena densely greyish pollinose with long pale setae. Ocellar tubercle yellowish pollinose, with 2 moderately long, yellow anterior setae and 2 very short, yellow posterior setae. Frons densely greyish pollinose, narrower than pedicel, somewhat broader toward ocellar tubercle. Face greyish dusted, narrower than postpedicel at base. Clypeus polished and short. Antennae with both basal segments brownish yellow, postpedicel blackish but somewhat yellowish at base, conical, slightly elongate, about 3 × as long as wide at base, stylus black, about 1.5 × as long as postpedicel. Proboscis blackish, rather long, somewhat shorter than head is high. Palpus yellow, somewhat large, elongate ovate, with scattered pale setulae and two long yellow subapical setae.

Thorax. Black. Mesoscutum including postpronotal lobe densely yellowish dusted, pleura densely grey dusted, leaving a polished spot on katepisternum. Postpronotal lobe with 1 long yellow seta and 2 minute yellow setae. Mesoscutum with 2 yellow notopleurals, 1 yellow postalar, 2 pairs of long yellow prescutellars, 4 yellow scutellars (apical pair long and cruciate, lateral pair very short), acrostichals yellow, biserial, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Entirely yellow including coxae, tarsi dark brown annulated. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur thickened, with short, pale anteroventral and posteroventral setae. Fore tibia swollen, clothed with ordinary brown setulae, with a dorsal row of moderately long, somewhat thick brownish setae. Mid femur much thicker than fore femur, with double

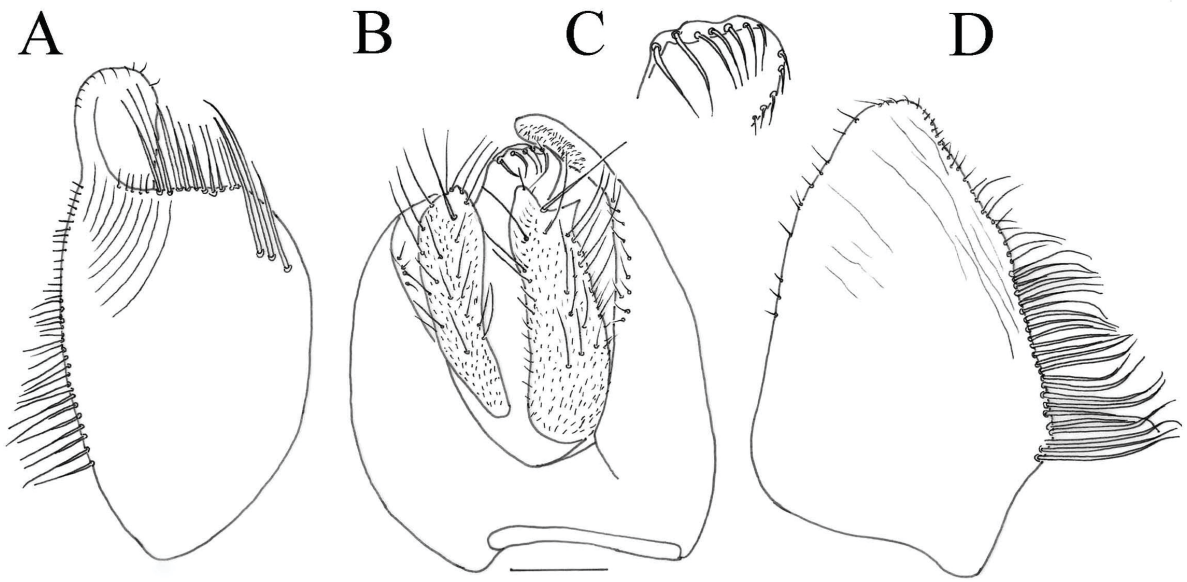

Fig. 17. *Platypalpus pauli* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Apex of right surstylus. **D**. Left epandrial lamella. Scale bar = 0.1 mm.

row of black ventral spinules and row of long, yellow posteroventral setae. Mid tibia slender, with ordinary short setae and a long, sharp, largely black apical spur, longer than tibia is deep. Hind femur slender, with a ventral row of black spinules. Hind tibia slender, shorter than femur, with a dorsal row of short, somewhat thick brown setulae.

Wings. Hyaline, with paler brownish veins. Costa with one moderately long black seta. Veins R_{4+5} and M_{1+2} convergent just before meeting wing margin. Crossveins m-cu and r-m separated, bm distinctly longer than br. Vein Cu_2 straight. Vein Cu reaching wing border. Anal vein distinct in apical part and evanescent in basal part. Squama yellowish. Haltere whitish.

Abdomen. With brown tergites, subshining, covered with pale setae. Sternites paler brown, with similar setation. Male terminalia (Fig. 17) with cerci confined to epandrial capsule. Cerci equally long. Apex of left cercus with a pointed protrusion at left side (Fig. 17B). Apical margin of right surstylus set with long setae (Fig. 17C). Left border of left epandrial lamella with very short setae on apical half, on basal half densely set with long setae (Fig. 17D).

Female

Unknown.

Remarks

The black postpedicel with its yellow base, the presence of only 2 notopleural setae and the swollen fore tibia will lead to *P. annulitarsis* Kovalev, 1978 (couplet 168) in the key in Grootaert & Chvála (1992). The male of *P. annulitarsis* has a long but rounded spur as in *P. annulipes* (Meigen, 1822) (Kovalev

Fig. 18. *Platypalpus pauli* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, RBINS).

1978: fig. 2), the tarsi are dark annulated with the fore tarsi very sharply so (Chvála 1989) and the left epandrial lamella has a rounded basal projection bearing long setae. In *P. pauli* sp. nov., the spur on the mid tibia is sharply pointed as in *P. stabilis* Collin, 1961, all tarsi are dark annulated and the left side of the left epandrial lamella is not protruding. In *P. stabilis* the clypeus is dusted, while it is polished in the new species, the anterior four femora are equally thickened, while the mid femora are more thickened than the fore femora in *P. pauli*, and the left side of the left epandrial lamella is set over its entire length with long setae (Chvála 1975), while they are confined to the basal half in the new species.

Platypalpus imlilensis Grootaert & Zouhair sp. nov.
urn:lsid:zoobank.org:act:60254BDF-034F-4FC1-994D-23CAF73C03EF
Figs 19–20

Diagnosis

A small brown species (2.8 mm long) of the *pallidiventris-cursitans* group, with one pair of long yellow verticals. Antennae dirty yellow with extreme tip of pedicel at insertion of stylus darker, stylus black, postpedicel conical, slightly elongate, about 2.3 × as long as wide at base, stylus about 2.5 × as long as postpedicel. Thorax with mesoscutum including postpronotal lobe densely yellowish dusted, pleura densely yellowish dusted, leaving a polished small spot on katepisternum. Legs yellow including coxae, with fore tarsi sharply annulated dark brown, mid and hind tarsi annulated paler brown. Fore tibia with a small brown spot near apex. Mid tibia with a sharp, pointed, black apical spur, as long as tibia is wide. Wings with veins M_{1+2} and R_{4+5} almost parallel before reaching wing border.

Etymology

This new species is named after the type locality (Oued Imlil), located in the High Atlas, where the holotype was collected.

Material examined

Holotype

MOROCCO – **High Atlas** • ♂; Oued Imlil; 25 Mar. 2017; sweep net; K. Kettani leg.; RBINS.

Paratypes

MOROCCO – **Middle Atlas** • 1 ♂; Zaouyat Ifrane; 2 Apr. 2017; sweep net; K. Kettani leg.; LESCB • 1 ♂; Lac Ouiouane; 9 Jun. 2017; sweep net; K. Kettani leg.; LESCB. – **High Atlas** • 2 ♂♂; same collection data as for holotype; LESCB • 1 ♂; Lac Tislit; 29 Apr. 2017; sweep net; K. Kettani leg.; LESCB. – **Anti Atlas** • 1 ♂, 1 ♀; Boudnibe; 3 Apr. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.8 mm; wing: 3.0 mm.

Head. Black in ground colour, occiput densely greyish pollinose, with short pale setae, one pair of long yellow verticals. Gena densely greyish pollinose with long yellow setae. Ocellar tubercle greyish pollinose with 2 long, yellow anterior setae and 2 very short, yellow posterior setae. Frons greyish dusted, broader than postpedicel is wide at base and parallel-sided. Face densely yellowish dusted, narrower than postpedicel is wide at base, but broader toward clypeus. Clypeus short, polished. Antennae dirty yellow, with extreme tip of pedicel at insertion of stylus darker, stylus black, pedicel as long as deep, postpedicel conical, slightly elongate, about 2.5 × as long as wide at base, stylus about 2.5 × as long as postpedicel. Proboscis brownish, shorter than head is high. Palpus whitish yellow, ovate (not strap-shaped), with numerous long, pale yellow setae.

Thorax. Brown. Mesoscutum including postpronotal lobe densely yellowish dusted, pleura densely yellowish dusted, leaving a polished small spot on katepisternum. Postpronotal lobe with 1 long yellow seta. Mesoscutum with 2 notopleurals, 1 long yellow postalar, 2 pairs of yellow prescutellars (one strong, long pair, one short, weak pair), 4 yellow scutellars (apical pair long and cruciate, lateral pair very short), acrostichals yellow, biserial, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Yellow including coxae, with fore tarsi sharply annulated dark brown, mid and hind tarsi annulated paler brown (in some specimens, annulations of mid tarsi slightly darker than on hind tarsi). Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur distinctly thickened in basal third, with pale anteroventral and posteroventral setae. Fore tibia slightly thickened, clothed with ordinary pale setulae, with a small brown spot near base (absent in some specimens or much paler). Mid femur as thick as fore femur, with double row of black ventral spinules and row of long, yellow posteroventral setae. Mid tibia slender, with a row of ventral spinules and a sharp, pointed, black apical spur, as long as tibia is wide. Hind femur slender, clothed with ordinary yellow setulae. Hind tibia slender, as long as femur, with ordinary short, yellow setulae.

Wings. Hyaline, with pale yellow veins. Costa with one moderately long yellow seta. Vein M_{1+2} and vein R_{4+5} almost parallel before reaching wing border. Crossveins m-cu and r-m separate, bm distinctly longer and larger than br. Vein Cu_2 straight, recurrent in basal part. Vein Cu reaching wing border. Anal vein distinct. Squama yellowish. Haltere whitish.

Abdomen. With yellowish brown tergites, dusted, covered with pale setae. Sternites yellowish, with similar setation. Male terminalia (Fig. 19) with small cerci, concealed in epandrium. Right border of right epandrial lamella with a brush of long setae near middle (Fig. 19A). Left epandrial lamella with apical part of right margin and apex with long setae. Left margin with a brush of very long, densely set setae near middle (Fig. 19C).

Female

Unknown.

Remarks

The key in Grootaert & Chvála (1992) leads to *Platypalpus flavicornis* Meigen, 1822 (couplet 156). According to the description in Chvála (1975), *P. flavicornis* is very close to *P. imlilensis* sp. nov.: they

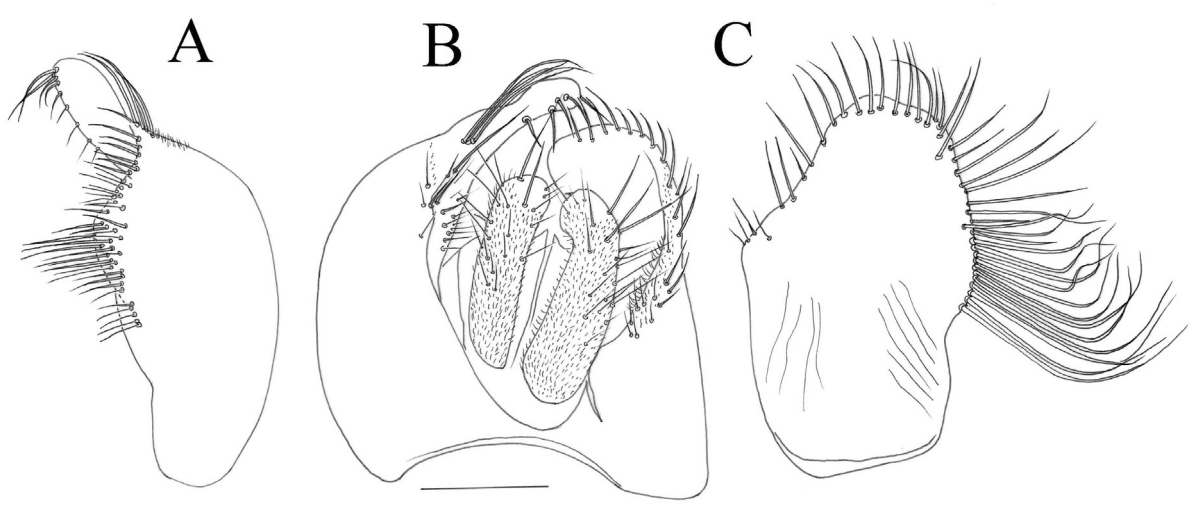

Fig. 19. *Platypalpus imlilensis* Grootaert & Zouhair sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

Fig. 20. *Platypalpus imlilensis* Grootaert & Zouhair sp. nov., ♂, habitus (holotype, RBINS). **A**. Lateral view. **B**. Antennae; fore tibia with a small brown spot near the base. Scale bars = 0.5 mm.

both have one pair of yellow verticals, the antennae are yellow with a dark stylus, but in the new species the postpedicel is darker at the extreme tip and longer than in *P. flavicornis*. The katepisternum has only a small polished spot in both species, the acrostichals are biserial and the dorsocentrals are uniserial in both species. The legs in *P. flavicornis* are yellow and all tarsi have sharp blackish-brown to black annulations, while in the new species the legs are also yellow with annulated tarsi, but only the fore tarsi are sharply dark brown annulated, the mid and hind tarsi being paler brown annulated. The genitalia of the two species are clearly different, especially in the shape of the cerci and the left epandrial lamella (compare Chvála 1975: figs 480–482 with Fig. 19).

Platypalpus nigritellus Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:3D43B29F-75DE-4F1A-AA70-910918E2B9E9
Figs 21–22, 25A

Diagnosis

A small dark species (2.3 mm long) of the *pallidiventris-cursitans* group, with one pair of verticals. Antennae blackish brown with postpedicel broader, elongate, about 3 × as long as wide at base, stylus about 1.5 × as long as postpedicel. Thorax with mesoscutum including postpronotal lobe greyish dusted, pleura greyish dusted leaving a polished spot on katepisternum. Legs entirely blackish brown including coxae and tarsi, with only knees of fore legs and fore femur at tip somewhat yellowish. Mid tibia with short, flattened, black apical spur. Wings faintly brown infuscate with veins R_{4+5} and M_{1+2} slightly convergent just before meeting wing margin.

Etymology

This species is named after the black colour of the body.

Material examined

Holotype
MOROCCO – **High Atlas** • ♂; Amizmiz; 24 Mar. 2017; sweep net; K. Kettani leg.; RBINS.

Paratype
MOROCCO – **High Atlas** • 1 ♂; Moulay Brahim; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.3 mm; wing: 2.2 mm.

Head. Black in ground colour, occiput densely greyish pollinose with long pale setae, one pair of verticals. Gena densely greyish pollinose with long pale setae. Ocellar tubercle greyish pollinose. Frons densely greyish pollinose, narrower than postpedicel at base, somewhat broader toward ocellar tubercle. Face greyish dusted, narrower than pedicel. Clypeus polished and very short. Antennae blackish brown, postpedicel broader at base, somewhat triangular, elongate, about 3 × as long as wide at base, stylus about 1.5 × as long as postpedicel. Proboscis blackish, shorter than head is high. Palpus brown, elongate ovate, with scattered pale setulae and one long yellow subapical seta.

Thorax. Black. Mesoscutum including postpronotal lobe greyish dusted, pleura greyish dusted, leaving a polished spot on katepisternum. Postpronotal lobe with 1 weak, short, yellow seta. Mesoscutum with 2 long black notopleurals, 1 pair of brown prescutellars, 1 brown postalar, 4 brown scutellars (apical pair long and cruciate, lateral pair very short and weak), acrostichals yellow, biserial, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Entirely blackish brown including coxae and tarsi, with fore knees and fore femora at tip somewhat yellowish. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur moderately thickened, with pale anteroventral and posteroventral setae. Fore tibia thickened, clothed with ordinary pale setulae. Mid femur as thick as fore femur, with double row of black ventral spinules and row of long, yellow posteroventral setae. Mid tibia slender, with ordinary short pale setae and very small, short, flattened, black apical spur. Hind femur slender, clothed with ordinary pale setulae. Hind tibia slender, as long as femur, covered with ordinary pale setulae.

Wings. Uniformly faintly brown infuscate, with brown veins. Costa with one moderately long brown seta. Veins R_{4+5} and M_{1+2} slightly convergent just before meeting wing margin. Crossveins m-cu and r-m separated, bm longer and larger than br. Vein Cu_2 straight. Vein Cu not reaching wing border. Anal

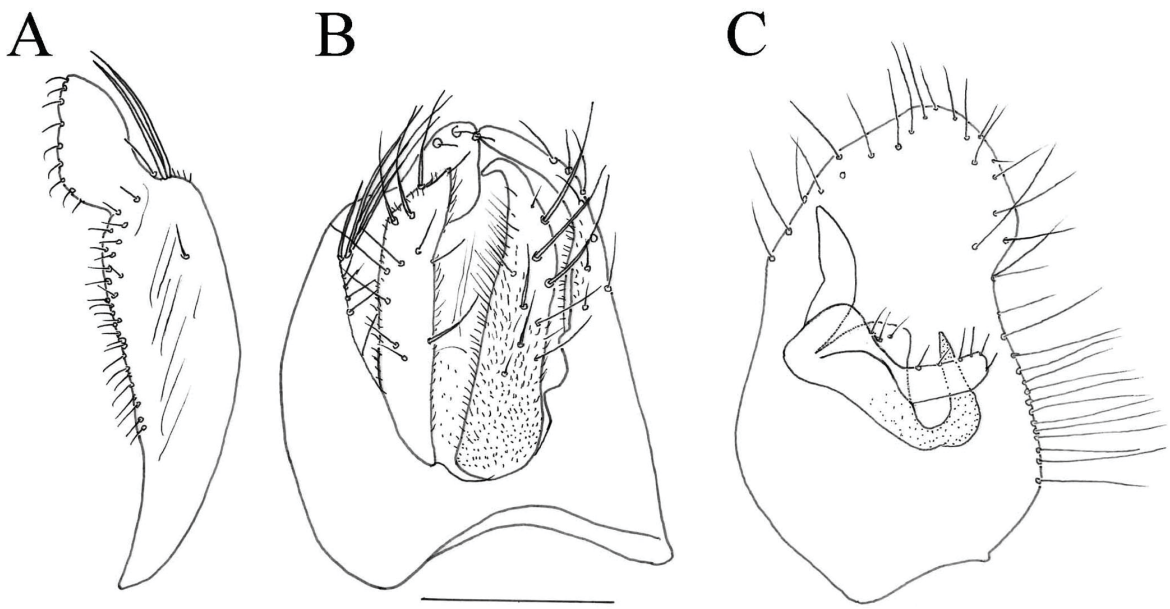

Fig. 21. *Platypalpus nigritellus* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

vein distinct in apical part and evanescent in basal part. Squama yellowish, with long pale setae. Haltere yellowish.

Abdomen. With brown tergites, subshining, covered with long pale setae. Sternites brown, with similar setation. Male terminalia (Fig. 21) with apex of left cercus long, pointed, bent to the inside (Fig. 21B).

Female

Unknown.

Remarks

The key in Grootaert & Chvála (1992) leads to *P. pragensis* Chvála 1989 (couplet 90). According to the original description of *P. pragensis*, it is very close to the new species described above by having these same main characters: one pair of verticals, antennae with postpedicel broad at base, triangular, 2.5–3 × as long as deep, stylus slightly longer than postpedicel, thoracic hairs yellow, acrostichals biserial, fore femur with antero- and posteroventral setae, and mid tibia with very short, blunt apical spur. However, the two species differ in the colour of some parts of the legs: they are yellow in *P. pragensis* with the coxae brown, the fore femur is brown except for the tip, the posterior four femora are yellow with brown tips, the tibia is brown and the tarsi are completely blackish brown, while in the new species all legs are entirely dark blackish brown, with only the fore knees and the fore femur at the tip somewhat yellowish brown. Unfortunately, no illustrations of the male terminalia of *P. pragensis* have been provided, but

Fig. 22. *Platypalpus nigritellus* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, RBINS).

Chvála wrote that the cerci are short and blunt, while in the new species the cerci are long and the tip of the left cercus is prolonged and curved inwards (Fig. 21).

Platypalpus shamshevi Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:8C1BEA1C-BDBD-4C76-89E3-6613D4028B8A
Figs 23–24, 25B

Diagnosis

Small black species (2.5 mm long) of the *pallidiventris-cursitans* group, with one pair of long black verticals. Antennae black with postpedicel broader, conical, slightly elongate, about 2.5 × as long as wide at base, stylus about 2 × as long as postpedicel. Thorax with mesoscutum including postpronotal lobe densely greyish dusted, pleura densely greyish dusted, leaving a polished small spot on katepisternum. Legs yellow with hind coxae, knees of mid and hind legs, hind femora and hind tibia at tip, and all tarsi blackish brown. Mid tibia with a sharp, pointed, black spur, as long as tibia is deep. Wings faintly brown infuscate with vein M_{1+2} conspicuously bowed before meeting wing margin, vein R_{4+5} rather straight.

Etymology

This species is dedicated to Dr Igor Shamshev, an expert on Hybotidae who has described and published many new species in the superfamily Empidoidea.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Chamaa; 17 Apr. 2021; sweep net; L. Zouhair leg.; RBINS.

Paratypes

MOROCCO – **Rif** • 1 ♂; Jbel Zemzem; 17 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 1 ♂; Chellal Akchour; 6 Apr. 2016; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Sifalaou; 17 Apr. 2016; sweep

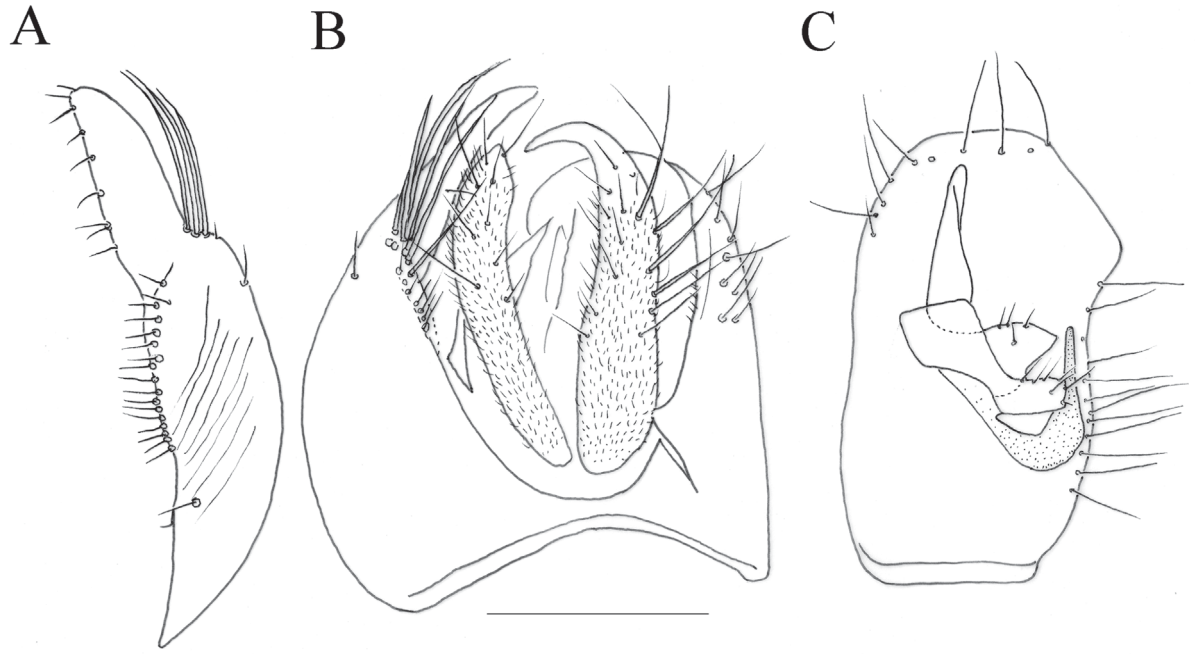

Fig. 23. *Platypalpus shamshevi* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium with cerci. **C**. Left epandrial lamella. Scale bar = 0.1 mm.

net; K. Kettani leg.; LESCB • 2 ♂♂; Merja Sidi Lhaj Merzouk; 30 Apr. 2016; sweep net; K. Kettani leg.; RBINS • 3 ♂♂; same collection data as for preceding; LESCB • 1 ♂; Oued Machekralla; 8 May 2018; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Kharrouba; 8 May 2018; sweep net; K. Kettani leg.; LESCB • 3 ♂♂, 3 ♀♀; Oued El Koub; 23 Apr. 2018; sweep net; K. Kettani leg.; LESCB • 3 ♀♀; Triwa; 27 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♂; Chamaa; 17 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 2 ♂♂, 2 ♀♀; Tafoughalt; 5 May 2021; sweep net; M. Doukale; LESCB • 2 ♂♂; Ametrasse; 20 May 2022; sweep; L. Zouhair leg.; LESCB • 2 ♂♂; forest of Kourt (Oued Lmalha); 22 May 2022; sweep net; L. Zouhair leg.; LESCB. – **Middle Atlas** • 1 ♂; Ain Leuh; 5 May 2019; sweep net; S. Fekrani leg.; LESCB. – **High Atlas** • 6 ♂♂, 1 ♀; Ourika; 9 Apr. 2022; sweep net; L. Zouhair leg.; LESCB.

Description

Male

Length. Body: 2.5 mm; wing: 2.0 mm.

Head. Black in ground colour, occiput densely greyish pollinose with short black setae, one pair of long black verticals. Gena densely greyish pollinose with long black setae. Ocellar tubercle greyish pollinose, with 2 long black anterior and 2 very short yellow posterior setae. Frons densely greyish dusted, broader than pedicel and parallel-sided. Face greyish dusted, slightly broader than pedicel. Clypeus polished and short. Antennae black, with pedicel as long as deep, postpedicel broader, conical, slightly elongate, about 2.5 × as long as wide at base, stylus black, about 2 × as long as postpedicel. Proboscis blackish, shorter than head is high. Palpus yellow, elongate ovate, with scattered pale setulae and one long, yellow subapical seta.

Fig. 24. *Platypalpus shamshevi* Zouhair & Grootaert sp. nov., ♂, habitus (holotype, RBINS).

Thorax. Black. Mesoscutum including postpronotal lobe densely greyish dusted, pleura densely greyish dusted, leaving a polished small spot on katepisternum. Postpronotal lobe with 1 long yellow seta and 2 minute yellow setulae. Mesoscutum with 2 notopleurals, 1 long black postalar, 1 pair of long black prescutellars, 4 yellow scutellars (apical pair long and cruciate, lateral pair very short), acrostichals yellow, biserial, dorsocentrals yellow, uniserial, as long as acrostichals.

Legs. Yellow with posterior four coxae, hind trochanters, knees of mid and hind legs, hind femora at tip, hind tibiae at tip and all tarsi blackish brown. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur moderately thickened, with pale anteroventral and posteroventral setae. Fore tibia spindle-shaped, clothed with ordinary pale setulae. Mid femur slightly thicker than fore femur, with double row of black ventral spinules and row of long, yellow posteroventral setae. Mid tibia slender, with a row of ventral spinules and a short, black, blunt apical spur. Hind femur slender, clothed with ordinary short yellow setulae. Hind tibia slender, slightly shorter than femur, with ordinary short dark setulae.

Wings. Faintly brown infuscate, with brown veins, paler in basal part of wing. Costa with one moderately long brown seta. Vein M_{1+2} conspicuously bowed before meeting wing margin, vein R_{4+5} rather straight. Crossveins m-cu and r-m separated, bm distinctly longer and larger than br. Vein Cu_2 slightly sinuate, recurrent in basal part. Vein Cu reaching wing border. Anal vein distinct in median part and evanscent in basal and apical parts. Squama blackish. Haltere whitish.

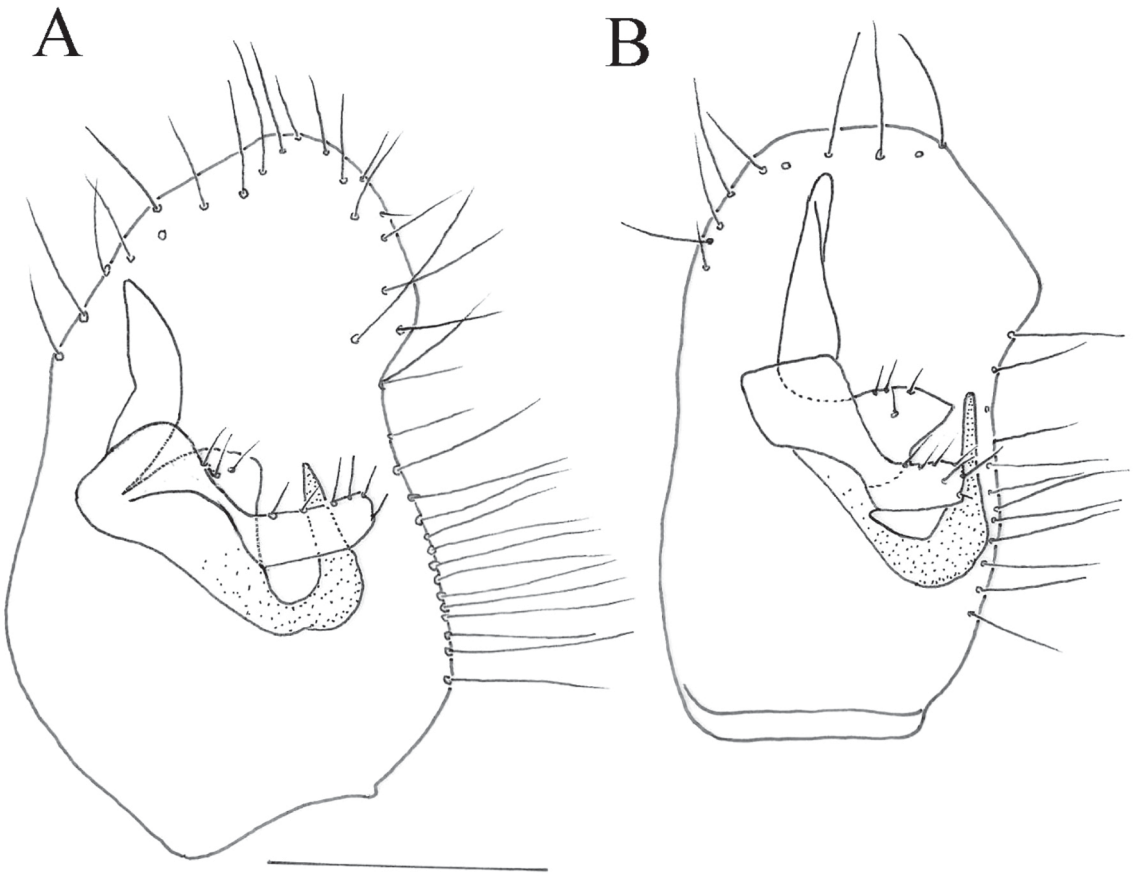

Fig. 25. Comparison of left epandrial lamella with internal structures. **A**. *Platypalpus nigritellus* Zouhair & Grootaert sp. nov. (holotype, RBINS). **B**. *P. shamshevi* Zouhair & Grootaert sp. nov. (holotype, RBINS). Scale bar = 0.1 mm.

Abdomen. With brown tergites, subshining, covered with pale setae. Sternites brown, with similar setation. Male terminalia (Fig. 23) with apex of left cercus long, pointed, bent to the inside (Fig. 23B).

Female

Resembling male.

Remarks

The key in Grootaert & Chvála (1992) leads to *P. cothurnatus* Macquart, 1827 (couplet 92). According to its description in Chvála (1975), *P. cothurnatus* resembles the new species by having one pair of verticals, the antennae black with the postpedicel about 2–2.5 × as long as deep, the stylus 2 × as long as the pedicel, the acrostichals biserial and the dorsocentrals uniserial. However, there are some differences in the legs: in *P. cothurnatus* the legs are yellow with the two apical tarsal segments black, whereas in the new species the legs are also yellow, but the posterior four coxae, the hind trochanters, the knees of the mid and hind legs, the hind femora at the tip, the hind tibiae at the tip and all the tarsi are blackish brown. The genitalia of the two species are also similar, but they differ in the left cercus, which has a long, pointed apex (Fig. 23B), bent to the inside, in the new species, while in *P. cothurnatus* (Chvála 1975: figs 416–418) the apex is not long and not very pointed. The left epandrial lamella of the two species is very different.

At first sight the male terminalia of *Platypalpus shamshevi* sp. nov. and *P. nigritellus* sp. nov. are quite similar, and therefore the two species are compared here: they do not belong to the same group and it is easy to distinguish between them morphologically, especially since the legs are entirely blackish in *P. nigritellus*, while in *P. shamshevi* only the tarsi, the posterior four coxae and the hind femora and tibiae at the tip are blackish brown, with a row of ventral spinules on the mid tibia which is lacking in *P. nigritellus*. The genitalia of the two species are somewhat similar, but can be distinguished by the right surstylus, which is shorter in *P. nigritellus* (Fig. 21A) than in *P. shamshevi* (Fig. 23A), the left cercus is more elongate pointed in *P. shamshevi* than in *P. nigritellus* and the internal structures on the inside of the left epandrial lamella are also different (compared in Fig. 25A–B).

Platypalpus brevicornis group

Platypalpus brevicornoides Zouhair & Grootaert sp. nov.
urn:lsid:zoobank.org:act:DD45D146-EFEE-4153-853B-2B7DA003353B
Figs 26–27

Diagnosis

A small black species (2.3 mm long) of the *brevicornis* group, with two pairs of long black verticals. Antennae black, postpedicel conical, 2 × as long as deep, stylus 3 × as long as postpedicel. Thorax with mesoscutum including postpronotal lobe greyish dusted and pleura greyish dusted, leaving a large polished spot on katepisternum. Legs yellow with hind four coxae, fore femur dorsally, a patch on apical third of mid femur dorsally, apical third of hind femur dorsally and fore metatarsus brownish except for yellow apex, hind metatarsus brownish apically, four apical tarsi dark brown except for yellowish base of tarsomeres 2–3, last tarsal segment dilated. Mid tibia with a short, pointed, black apical spur. Wings hyaline with veins R_{4+5} and M_{1+2} almost parallel before meeting wing margin.

Etymology

This species is named after its similarity to *P. brevicornis*.

Material examined

Holotype

MOROCCO – **Rif** • ♂; Chellal Akchour; 17 Mar. 2019; sweep net; K. Kettani leg.; RBINS.

Paratypes

MOROCCO – **Rif** • 3 ♂♂; Oued Sahil; 5 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Sifalaou; 17 Apr. 2016; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Douar Hammadech; 6 Jan. 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Barrage Talembote; 19 Dec. 2020; sweep net; K. Kettani leg.; LESCB • 3 ♂♂; Douar El Hamma; 8 Jan. 2020; sweep net; K. Kettani leg.; LESCB • 1 ♂; Amrah; 15 May 2021; sweep net; M. Nourti leg.; RBINS. – **High Atlas** • 2 ♂♂; Bni Tadjite; 9 Apr. 2017; sweep net; K. Kettani leg.; LESCB.

Description

Male

Length. Body: 2.3 mm; wing: 2.2 mm.

Head. Black in ground colour, occiput densely greyish pollinose with short pale setae, two pairs of long black verticals. Gena densely greyish pollinose with long pale setae. Ocellar tubercle greyish pollinose with two black, moderately long anterior setae and two pairs of short black posterior setae. Frons greyish dusted, slightly broader than pedicel. Face yellowish dusted, narrower than pedicel. Clypeus short, polished. Antennae entirely black (Fig. 27A; in some specimens, pedicel yellow at base, Fig. 27B), postpedicel conical, 2 × as long as deep, stylus 3 × as long as postpedicel. Proboscis brown, shorter than head is high. Palpus yellow, ovate, with scattered pale setulae and two long yellow subapical setae.

Thorax. Black. Mesoscutum including postpronotal lobe greyish dusted. Pleura greyish dusted leaving a large polished spot on katepisternum. Postpronotal lobe with 1 long black seta and 2 minute setulae. Mesoscutum with 2 notopleurals (anterior long brown, posterior yellow and shorter), 1 long black postalar, 2 long, strong black prescutellars, 4 black scutellars (apical pair long and cruciate, lateral pair short); acrostichals yellow, biserial; dorsocentrals yellow, biserial, as long as acrostichals.

Legs. Yellow with hind four coxae, fore femur dorsally, a patch on apical third of mid femur dorsally, apical third of hind femur dorsally (in dark specimens also fore and mid tibia ventrally, apical and basal

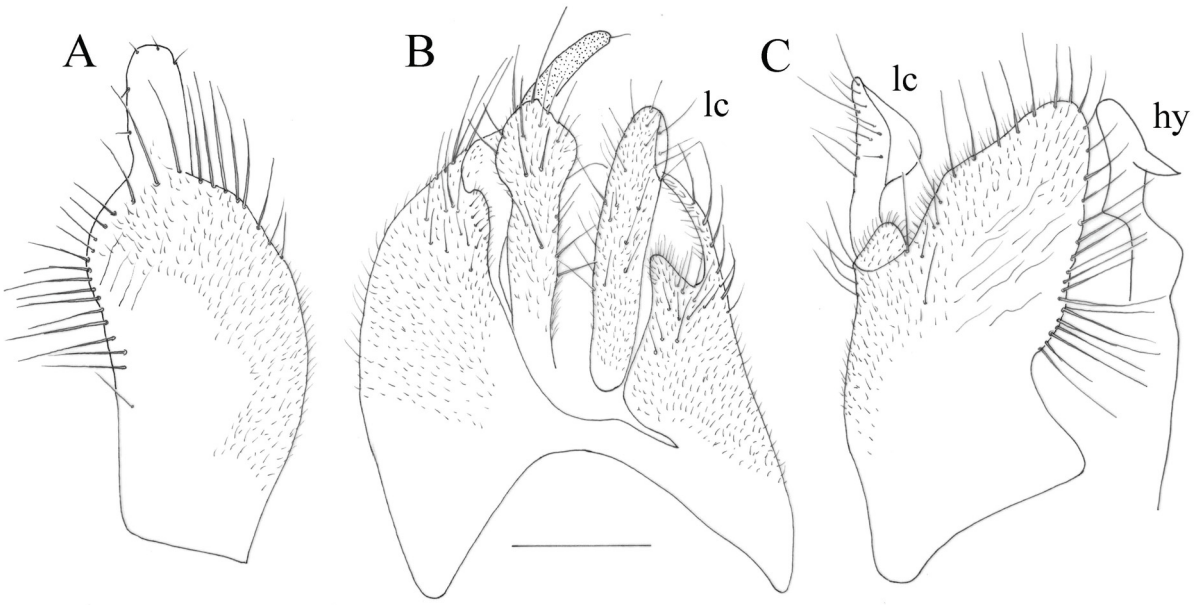

Fig. 26. *Platypalpus brevicornoides* Zouhair & Grootaert sp. nov., male terminalia (holotype, RBINS). **A**. Right epandrial lamella. **B**. Epandrium, dorsal view. **C**. Left cercus in lateral view, left epandrial lamella and apex of hypandrium. Scale bar = 0.1 mm.

parts of hind tibia darker brown, Fig. 27B), fore metatarsus brownish except for yellow apex, hind metatarsus brownish apically, four apical tarsi dark brown except for yellowish base of tarsomeres 2–3, last tarsal segment dilated. Coxae and trochanters with ordinary yellowish setae of different lengths. Fore femur thickened, with pale anteroventral and posteroventral setae. Fore tibia somewhat thickened, clothed with ordinary yellow setulae, bearing 5–6 dark setae dorsally. Mid femur as thick as fore femur, with double row of black ventral spinules and row of long, yellow posteroventral setae. Mid tibia slender, clothed with ordinary short setae, with row of ventral spinules and a short, pointed, black apical spur. Hind femur slender, with two ventral rows of long yellow setulae. Hind tibia slender, slightly shorter than femur, covered with ordinary pale setulae.

Wings. Hyaline, with paler brownish veins. Veins R_{4+5} and M_{1+2} parallel throughout. Crossveins m-cu and r-m slightly separated, bm much larger and slightly longer than br. Vein Cu_2 straight, recurrent at base. Vein Cu reaching wing border. Anal vein indistinct. Squama yellowish with long yellow setae. Haltere whitish.

Abdomen. With tergites blackish, polished, covered with short pale setae. Sternites blackish brown, polished with similar setation. Male terminalia with both cerci equally long (Fig. 26B). Right cercus club-shaped, with a slightly swollen tip, left cercus digitiform with an excavation on left side (Fig. 26B–C). Left epandrial lamella bears regularly spaced setae on right side, longer on left border (Fig. 26C). Right border bears a distinct protrusion densely set with microtrichia.

Female

Unknown.

Remarks

The key in Grootaert & Chvála (1992) leads to *P. brevicornis* Zetterstedt, 1842 (couplet 217), but as described by Chvála (1975), the acrostichals are dark brown and 5-serial, the dorsocentrals are dark brown and multiserial, while in the new species the acrostichals are yellow and quadriserial, the dorsocentrals are yellow and uniserial. The legs in *P. brevicornis* are yellowish including all coxae, and just the basal two-thirds of the femora are brownish, whereas in the new species the legs are yellow with

Fig. 27. *Platypalpus brevicornoides* Zouhair & Grootaert sp. nov., ♂♂, habitus. **A**. Specimen with antennae entirely black (holotype, RBINS). **B**. Specimen with pedicel yellow at the base and the legs with fore and mid tibia ventrally, and apical and basal parts of hind tibia dark (paratype from Amrah, RBINS). Scale bars = 0.5 mm.

the hind four coxae brown, only the fore coxa is yellow, and the fore femur dorsally, a patch on the apical third of the mid femur dorsally, the apical third of the hind femur, the fore and mid tibia ventrally, and the apical and basal parts of the hind tibia are also darker brown. The fore metatarsus in the new species is brownish except for the yellow apex, the hind metatarsus is yellow, brownish apically, and the four apical tarsi of all legs are almost entirely brownish (except for the yellowish base), whereas all tarsi in *P. brevicornis* are entirely brown. They differ also in the colour of posteroventral setae, which are black in *P. brevicornis* and yellow in the new species. The genitalia of the two species are completely different (compare Chvála 1975: figs 498–500 with Fig. 26).

Additional new records

Platypalpus albiseta group

Platypalpus albocapillatus Fallén, 1815
Fig. 28

Material examined

MOROCCO – **Rif** • 1 ♂; Oued El Kannar (Douar Assoul); 28 Feb. 2021; sweep net; L. Zouhair leg.; RBINS • 1 ♂; Amrah; 15 May 2021; sweep net; F.Z. Sliman leg.; LESCB. – **High Atlas** • 1 ♂, 1 ♀; Bouzmella; 24 May 2021; sweep net; K. Menouar leg.; LESCB.

Fig. 28. *Platypalpus albocapillatus* Fallén, 1815, male habitus (Oued El Kannar (Douar Assoul), RBINS).

Distribution outside Morocco

Belgium, Denmark, Estonia, Finland, Germany, Great Britain, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Russia, Sweden, Switzerland, Ukraine (Szadziewski 1979; Raffone 2002; De Jong *et al*. 2014).

Remarks

This is the first record of *Platypalpus albocapillatus* from Morocco as well as the whole of North Africa. The Moroccan specimens correspond perfectly with the morphological description in Chvála (1973). The genitalia agree exactly in all details (shape of cerci and of the left and right lamellae) with that illustrated by Chvála (1973, 1975).

Platypalpus unguiculatus group

Platypalpus anomalicerus (Becker, 1902)
Fig. 29

Material examined

MOROCCO – **Rif** • 1 ♀; Oued Laou; 16 Mar. 2021; sweep net; L. Zouhair leg.; LESCB. – **Middle Atlas** • 1 ♀; Zaouyat Ifrane; 2 Apr. 2017; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Oum Rbiaa; 1 May 2023; sweep net; K. Kettani leg.; LESCB. – **High Atlas** • 3 ♂♂, 2 ♀♀; Bni Tadjite; 9 Apr. 2017; sweep net; K. Kettani leg.; RBINS • 33 ♂♂, 35 ♀♀; same collection data as for preceding; LESCB • 2 ♂♂; Tahannaout; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB. – **Anti-Atlas** • 1 ♀; Boudnibe;

Fig. 29. *Platypalpus anomalicerus* (Becker, 1902), ♂, habitus (Boudnibe, LESCB).

3 Apr. 2017; sweep net; K. Kettani leg.; LESCB • 23 ♂♂, 17 ♀♀; Bouanane; 5 Apr. 2017; sweep net; Y. Fekrani leg.; LESCB • 1 ♀; Aoufouss; 26 Sep. 2022; sweep net; K. Kettani leg.; LESCB.

Moroccan literature records

Eastern Morocco: Oued Guir; Anti-Atlas: Agadir (Séguy 1941; Grootaert & Chvála 1992; Kettani *et al.* 2022).

Distribution outside Morocco

Algeria, Egypt, Italy (Raffone 2005).

Remarks

This is the first record of *Platypalpus anomalicerus* from the Rif, Middle Atlas and High Atlas regions.

Platypalpus longicornis group

Platypalpus boreoalpinus Frey, 1943
Fig. 30

Material examined

MOROCCO – **Rif** • 1 ♀; Oued Tassikeste; 5 Jan. 2023; sweep net; L. Zouhair leg.; LESCB. – **Atlantic Plain** • 2 ♂♂; Forest of Maâmora; 5 Mar. 2017; sweep net; K. Kettani leg.; RBINS. – **High Atlas** • 1 ♂; Timalizene; 24 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Fig. 30. *Platypalpus boreoalpinus* Frey, 1943, ♂, habitus (Timalizene, LESCB).

Distribution outside Morocco

Austria, Czech Republic, Finland, Germany, Italy, Norway, Russia, Sweden, Switzerland (De Jong *et al*. 2014).

Remarks

This is the first record of *Platypalpus boreoalpinus* from Morocco and North Africa. Its morphology corresponds completely to the description in Chvála (1975). Barták & Kubík (2016) discussed the variability in the male genitalia of this species. With regard to our specimens, the male genitalia agree exactly with that illustrated by Chvála (1975).

Platypalpus nigritarsis group

Platypalpus anomalitarsis Chvála & Kovalev, 1974
Fig. 31

Material examined

MOROCCO – **Rif** • 1 ♂; Oued Mhannech; 13 Dec. 2013; sweep net; K. Kettani leg.; LESCB • 1 ♂; Merj Lkhayl; 11 Dec. 2015; sweep net; K. Kettani leg.; LESCB • 1 ♂; Dayat Tazia; 23 Apr. 2017; sweep net; K. Kettani leg.; LESCB • 1 ♀; Oued Tkaraa; 5 Jan. 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Cascade Chrafate; 2 May 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Dbani; 19 May 2018; sweep net; M. Nourti leg.; LESCB • 1 ♂; Bni Bounsar; 13–31 May 2018; Malaise trap; K. Kettani leg.; LESCB • 2 ♀♀; Azilane; 27 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 2 ♀♀; Dayat Aanassar;

Fig. 31. *Platypalpus anomalitarsis* Chvála & Kovalev, 1974, ♂, habitus (Amsemlil, LESCB).

22 Mar. 2019; sweep net; K. Kettani leg.; LESCB • 2 ♀♀; Cascade Chrafate; 22 Mar. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♂; Azilane; 27 Apr. 2019; sweep net; K. Kettani leg.; RBINS • 1 ♂, 1 ♀; Bouslimane; 28 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 3 ♂♂, 3 ♀♀; maison forestière; 28 Apr. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♂, 1 ♀; Sefihat Telj; 5 Oct. 2019; sweep net; L. Zouhair leg.; LESCB • 2 ♂♂; Rmel; 24 Feb. 2020; sweep net; M. Nourti leg.; LESCB • 1 ♂, 1 ♀; Azilane; 4 Mar. 2020; sweep net; L. Zouhair leg.; LESCB • 1 ♂, 1 ♀; Zaouya; 6 Apr. 2021; sweep net; M. Nourti leg.; LESCB • 1 ♂, 1 ♀; Douar Adder (Tasselt); 22 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 2 ♀♀; Dayat Fifi; 6 May 2021; sweep net; L. Zouhair leg.; LESCB • 4 ♂♂; Amsemlil; 17 Feb. 2022; sweep net; L. Zouhair leg.; LESCB • 3 ♂♂, 2 ♀♀; Seguia Anssar Afeska; 27 Mar. 2022; sweep net; L. Zouhair leg.; LESCB • 1 ♀; Medchar Lemtahene; 17 Mar. 2022; sweep net; L. Zouhair leg.; LESCB • 1 ♂, 1 ♀; El Maounzel; 27 Mar. 2022; sweep net; K. Kettani leg.; LESCB • 1 ♂, 2 ♀♀; Lalla Outka; 27 Mar. 2022; sweep net; K. Kettani leg.; LESCB • 1 ♂; Medchar Lemtahene; 9 Apr. 2022; sweep net; L. Zouhair leg.; RBINS • 4 ♂♂, 18 ♀♀; Bni Bounsar; 1–30 Apr. 2022; Malaise trap; K. Kettani leg.; LESCB. – **Atlantic Plain** • 1 ♂; Forest of Maâmora; 5 Mar. 2017; sweep net; K. Kettani leg.; LESCB. – **Middle Atlas** • 1 ♀; Tazekka summit; 23 Apr. 2017; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Chiker; 13 Mar. 2023; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Boughayati; 14 Mar. 2023; sweep net; K. Kettani leg.; LESCB • 5 ♂♂, 2 ♀♀; Moudmame Forest; 12 Oct. 2023; sweep net; L. Zouhair leg.; LESCB • 3 ♂♂, 1 ♀; Kharzouza Forest; 12 Oct. 2023; sweep net; L. Zouhair leg.; LESCB • 2 ♂♂, 4 ♀♀; Ras El Ma; 13 Oct. 2023; sweep net; L. Zouhair leg.; LESCB • 1 ♂, 1 ♀; Oued Sidi Rached; 13 Oct. 2023; sweep net; L. Zouhair leg.; LESCB • 1 ♂, 3 ♀♀; Ain Vittel; 13 Oct. 2023; sweep net; L. Zouhair leg.; LESCB. – **High Atlas** • 1 ♂ 1 ♀; Asni; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB • 1 ♀; Tabant; 31 Oct. 2021; sweep net; S. Fekrani leg.; LESCB. – **Anti Atlas** • 4 ♂♂, 3 ♀♀; Boudnibe; 3 Apr. 2017; sweep net; K. Kettani leg.; LESCB.

Moroccan literature records

Middle Atlas: Ifrane; Anti-Atlas: Errachidia (Ebejer *et al.* 2019; Kettani *et al.* 2022).

Distribution outside Morocco

Algeria, Spain (De Jong *et al*. 2014; Ventura *et al.* 2015).

Remarks

This is the first record of *Platypalpus anomalitarsis* from the Rif, Atlantic Plain and High Atlas regions.

Platypalpus minutus group

Platypalpus ostiorum (Becker, 1902)
Fig. 32

Material examined

MOROCCO – **Rif** • 1 ♂; Amaghousse; 8 Apr. 2018; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Oued Afertane; 19 Dec. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♀, 1 ♂; Barrage Talembote; 19 Dec. 2020; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Talembote (Usine électrique); 16 Mar. 2021; sweep net; L. Zouhair leg.; RBINS. – **Middle Atlas** • 2 ♂♂; Dayat Zarhoun; 1 Apr. 2018; sweep net; Y. Fekrani leg.; LESCB. – **High Atlas** • 1 ♂; Amizmiz; 24 Mar. 2017; sweep net; K. Kettani leg.; RBINS. – **Anti-Atlas** • 1 ♀; Taliouine; 2 Dec. 2017; sweep net; K. Kettani leg.; LESCB.

Moroccan literature records

Grootaert & Chvála 1992.

Distribution outside Morocco

Algeria, Corsica, Egypt, Italy, Malta, Spain, Tunisia (Grootaert & Chvála 1992; De Jong *et al*. 2014).

Fig. 32. *Platypalpus ostiorum* (Becker, 1902), ♂, habitus (Amaghousse, LESCB).

Remarks

Grootaert & Chvála (1992) mentioned that *Platypalpus ostiorum* exists in Morocco, but no detailed records were given. Our records confirm the presence of this species in the country from the Rif and the Middle, High and Anti-Atlas regions.

Platypalpus pallidiventris-cursitans group

Platypalpus chrysonotus Strobl, 1899
Fig. 33

Material examined

MOROCCO – **Rif** • 3 ♂♂; Barrage Moulay Bouchta; 5 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Jbel Zemzem; 17 Apr. 2014; sweep net; K. Kettani leg.; LESCB • 1 ♂; Perdicaris; 16 May 2015; sweep net; K. Kettani leg.; RBINS • 3 ♂♂; Adrou; 14–15 Jul. 2015; Malaise trap; K. Kettani leg.; LESCB • 1 ♂; Oued Sifalaou; 17 Apr. 2016; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Oued Souk Elhad; 30 Apr. 2016; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Farda; 16 May 2016; sweep net; K. Kettani leg.; LESCB • 1 ♂; Achetta; 22 Apr. 2018; sweep net; F.Z. Sliman leg.; RBINS • 1 ♂; Rahbat Amlay; 2 May 2018; sweep net; K. Kettani leg.; LESCB • 2 ♂♂; Oued Azoumagh; 2 Dec. 2021; sweep net; L. Zouhair leg.; LESCB • 1 ♂; Ametrasse; 20 May 2022; sweep net; L. Zouhair leg. • 1 ♂; Rmel; 16 May 2022; sweep net; M. Nourti leg.; LESCB. – **Eastern Morocco** • 6 ♂♂; Ain Chebak; 9 Apr.

Fig. 33. *Platypalpus chrysonotus* Strobl, 1899, ♂, habitus (Oued Farda, LESCB).

2017; sweep net; N.H. El Ouazzani leg.; LESCB. – **High Atlas** • 2 ♂♂; Oued Imlil; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Moroccan literature records

Rif: Oued Laou (Ebejer *et al*. 2019).

Distribution outside Morocco

Algeria, Spain, Tunisia (Grootaert & Chvála 1992).

Remarks

This is the first record of *Platypalpus chrysonotus* from the Eastern and High Atlas regions.

Platypalpus verbekei Grootaert & Chvála, 1992
Fig. 34

Material examined

MOROCCO – **Rif** • 1 ♂; Amaghousse; 8 Apr. 2018; sweep net; K. Kettani leg.; LESCB • 1 ♂; Jnane Niche; 8 Jan. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Afertane; 19 Dec. 2019; sweep net; K. Kettani leg.; LESCB • 1 ♂; Oued Taida; 20 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 1 ♂; Oued Tanina; 22 Apr. 2021; sweep net; L. Zouhair leg.; LESCB • 1 ♂; Oued Azoumagh; 2 May 2021; sweep net; L. Zouhair leg.; RBINS • 1 ♂; beach of Briyech; 5 Jan. 2023; sweep net; K. Kettani leg.;

Fig. 34. *Platypalpus verbekei* Grootaert & Chvála, 1992, ♂, habitus (Oued Azoumagh, RBINS).

LESCB • 1 ♂; beach of Briyech; 9 Jan. 2023; sweep net; K. Kettani leg.; LESCB. – **High Atlas** • 1 ♂; Tahannaout; 25 Mar. 2017; sweep net; K. Kettani leg.; LESCB.

Distribution outside Morocco

Algeria, France, Spain (Grootaert & Chvála 1992; De Jong *et al*. 2014; Ventura *et al*. 2015).

Remarks

This is the first record of *Platypalpus verbekei* from Morocco and the second record from North Africa after its report by Ventura *et al*. (2015) from Algeria. According to the original description in Grootaert & Chvála (1992) from France, the Moroccan specimen is entirely compatible with the morphological description and the genitalia illustrations. It is also compatible with the Algerian specimen re-described and illustrated by Ventura *et al*. (2015).

Discussion

Platypalpus Macquart is the most widespread hybotid genus in Morocco, occurring in all types of environments, from the most humid to the most arid, and appearing in all months of the year. These findings are based on the examination of a large collection of hybotids collected over a long period of field excursions carried out between 2010 and 2023 in different regions of Morocco, where *Platypalpus* proved to be the dominant genus. Despite its abundance, it has been little studied, which makes this study an important contribution to our knowledge of the Moroccan *Platypalpus* fauna, bringing the total number of known species from 24 to 39. Furthermore, the Moroccan *Platypalpus* fauna remains the most studied in comparison with the neighboring North African countries.

The description of twelve species new to science presented in this paper emphasizes the importance of the Rif and the Atlas regions, where the species have been found, as biodiversity hotspots in Morocco. In addition, three species (*Platypalpus albocapillatus*, *P. boreoalpinus* and *P. verbekei*) are newly recorded for Morocco, that were reported to have an exclusively European distribution (Grootaert & Chvála 1992; De Jong *et al*. 2014), thus supporting the close connection of the North African and European faunas. The occurrence of *P. verbekei* in Morocco was expected after its recent record in Algeria by Ventura *et al*. (2015).

Most of the newly described species (seven out of 12 species) belong to *pallidiventris-cursitans* group (*P. atlasensis* sp. nov., *P. ebejeri* sp. nov., *P. fatnae* sp. nov., *P. pauli* sp. nov., *P. imlilensis* sp. nov., *P. nigritellus* sp. nov. and *P. shamshevi* sp. nov.). This is not surprising, given that this is the largest group of species in *Platypalpus*, especially in the Palaearctic, where this group largely dominates (Grootaert & Shamshev 2006). The trend is the same for species already known in the country, where 17 out of 24 species belong to *pallidiventris-cursitans* group. Besides that, one species (*P. verbekei*) among the three ones newly reported in Morocco belongs to the *pallidiventris-cursitans* group.

Although the *albiseta* group is known as dominant in Africa (Grootaert & Shamshev 2006), only one species of this group was already known to occur in Morocco, represented by *P. asniensis* Grootaert & Chvála. In this paper, we add three species to the Moroccan *albiseta* group: *P. albocapillatus*, *P. miroslavi* sp. nov. and *P. taninensis* sp. nov. The same can be said for the *longicornis* group, which was represented in the country by only one species (*P. pseudoexiguus* (Strobl, 1909)), and three species are added to this group by the current work: *P. boreoalpinus*, *P. moroccensis* sp. nov. and *P. rifensis* sp. nov. It is noteworthy that the *brevicornis* group is reported here for the first time by *P. brevicornoides* sp. nov.

Furthermore, some species have been recorded for the first time in certain of Moroccan's biogeographical areas such as *P. anomalicerus* for the Rif, Middle Atlas and High Atlas, *P. anomalitarsis* for the Rif, Atlantic Plain and High Atlas, *P. chrysonotus* for Eastern Morocco and the High Atlas, and *P. ostiorum* from the Rif, Middle Atlas, High Atlas and Anti-Atlas, thereby expanding their known distribution area in the country. It is worth noting that *P. anomalitarsis* was the dominant species in our collection of *Platypalpus*.

Indeed, there is still an important part in our collection of *Platypalpus* yet to be examined, from other localities never studied before; it is highly possible that additional records will be reported from Morocco and that more new species will eventually be described. A future study is therefore being considered.

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