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The Family Bibionidae (Diptera: Nematocera) in Egypt and Saudi Arabia

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ABSTRACT

In the present study, a comprehensive catalog of all known taxa of the family Bibionidae in Egypt and Saudi Arabia is provided. A total of seven species, belonging to two genera, Bibio Geoffroy, 1762, and *Dilophus* Meigen, 1800, are systematically documented. Among these species, three are found in both Egypt and Saudi Arabia, namely, *B. hortulanus* (Linnaeus, 1758), *D. lingens* Loew, 1869, and D. tridentatus Walker, 1848. However, three species are exclusive to Egypt, namely, *B. johannis* (Linnaeus, 1767), *D. aegyptius* Costa, 1878, and *D. tenuis* Wiedemann, 1818. Additionally, one species, *D. erythraeus* Bezzi, 1906, is solely represented in Saudi Arabia. Notably, this study records the first-time occurrence of two species, *B. hortulanus* (Linnaeus) and *D. erythraeus* Bezzi, in Saudi Arabia. Furthermore, it also reports the first-time occurrence of *B. johannis* (Linnaeus) in Egypt. This study includes an up-to-date taxonomy of the recorded species, along with relevant taxonomic data, global and local distribution information, collection dates, and color photographs of selected species. These findings contribute to the knowledge of Bibionidae in both Egypt and Saudi Arabia and serve as a valuable resource for future research in the field.

Keywords: *B. hortulanus*; *B. johannis*; *D. lingens*; *D. tridentatus*; Diptera; Family Bibionidae; Lovebugs, March flies Nematocera.

INTRODUCTION

The Bibionidae is a small dipteran family belonging to the suborder Nematocera. They are commonly found in grassland habitats, and the family comprises 12 genera with over 1100 described species worldwide (Skartveit, 1997; Pape *et al.*, 2011). Among these species, at least 160 are recorded in the Palaearctic Region, while the Afrotropical Region is home to 73 species (Fitzgerald, 2004). The bibionids are commonly known as March flies or lovebugs. They are moderately small- to medium-sized, rather robust flies, ranging from 2.5 to 15 mm in length, with males and females sexually dimorphic: males are smaller, always holoptic, with eyes contiguous in front; females are bigger than males, dichoptic, with eyes widely separated. These flies are usually black, however, the body of some species have large orange portions; legs relatively long; wings broad hyaline to black or brown, often with distinct pterostigma, rarely patterned, with veins R_{2+3} and M_3 always absent, R_4 may present or not, veins C and R_{4+5} ending close to wing tip and C often extending beyond apex of vein R_{4+5}; antennae relatively short, with compact flagellomeres; ocelli always present, situated on prominent tubercle posterodorsally on the head (Falaschi *et al.*, 2016; Skartveit, 2017).

Bibionid larvae are mostly phytosaprophagous and live in moist, terrestrial habitats, most often within leaf litters; however, larvae of some species may feed on lichens, soft dead wood, or living roots and tubers causing occasional damage to many crops. Some bibionid adults do not feed, while others frequently visit flowers for nectar and pollen, and many of the species are relatively common and can form noticeable mass aggregations in forests, meadows and other grass-covered areas. Some species can also be observed in coastal sand dunes (Hüsing and Koopmann, 1988; Skartveit, 2017). In some species, males may aggregate in huge aerial swarms to mate (Haenni, 2009).

Overall, the Bibionidae have been poorly studied in Egypt and Saudi Arabia, and many species are still relatively unknown. Only a few studies, including some species known to occur in Egypt, have been published, such as Duda (1930), Hardy (1950) and Hardy (1951). These species were listed by Steyskal and El-Bialy (1967) based on the previous literature, including merely the names of species without citing important taxonomic data. In Saudi Arabia, Haenni (1985) recorded *D. tridentatus* Walker, 1848 as the country's first representative of the family Bibionidae. Later, El-Hawagry *et al.* (2019) recorded another species, *D. lingens* Loew, 1869.

In this study, a total of seven species belonging to two genera, *Bibio Geoffroy* and *Dilophus Meigen*, have been documented in both Egypt and Saudi Arabia. Among these species, three are found in both countries, specifically *B. hortulanus* (Linnaeus, 1758), *D. lingens* Loew, 1869, and *D. tridentatus* Walker, 1848. However, three species are exclusive to Egypt, namely *B. johannis* (Linnaeus, 1767), *D. aegyptius* Costa, 1878, and *D. tenuis* Wiedemann, 1818. Additionally, one species, *D. erythraeus* Bezzi, 1906, is solely found in Saudi Arabia. Notably, two species, *B. hortulanus* (Linnaeus) and *D. erythraeus* Bezzi, are reported here for the first time in Saudi Arabia, while *B. johannis* (Linnaeus, 1767) is recorded for the first time in Egypt (Table 1). The current study is part of a larger undertaking to catalog the entire order Diptera in Egypt

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and Saudi Arabia. Consequently, numerous studies focusing on different families within the order have been conducted in both countries, including the present investigation.

MATERIALS AND METHODS

The current study was primarily based on data compiled from specimens collected by the authors from various Egyptian and Saudi Arabian locations, as well as museum specimens preserved at the Department of Entomology, Faculty of Science, Cairo University, Egypt (Efflatoun Bey's collection, EFC); Plant Protection Research Institute, Agricultural Research Centre, the Ministry of Agriculture, Dokki, Giza, Egypt (PPDD) and the King Saud University Museum of Arthropods, Riyadh, Saudi Arabia (KSMA).

Taxonomic information such as type species, type localities and synonymies mainly were obtained from relevant literature and websites, including Krivosheina (1986), Falaschi *et al.* (2016), GBIF (https://www.gbif.org/) and Systema Dipterorum (http://sd.zoobank.org/).

In addition to museum and/or collected specimens, various pertinent literature was used to determine the species' global and local distributions as well as the dates of their collection from both countries. At the end of each distribution section, a list of these sources is indicated in square brackets.

All taxa of Bibionidae in the present catalog, including genera and species are arranged alphabetically. Synonyms of genera and species are provided and listed in chronological order.

The species' global distribution is listed in alphabetical order as well. Here, the boundary between the Afrotropical and Palaearctic realms as proposed by Kirk-Spriggs and Sinclair (2017), is taken into consideration, with two notable exceptions-Gebel Elba in Egypt's southeast triangle and the southwest region of Saudi Arabia, which extends south to the Tropic of Cancer-these regions are referred to as "Afrotropical" in the present study (Figure 1).

To provide information about the local distribution and activity periods of bibionid flies in both Egypt and Saudi Arabia, the localities and dates of collection are listed for each species.

For localities, from which collected samples were obtained, are listed alphabetically within each ecological zone of Egypt and/or Saudi Arabia administrative region.

The sources from which each species' local distribution is obtained, *e.g.*, literature, museum material, and collected material are listed in square brackets at the end of the local distribution section.

Photographs were taken using a Leica MZ 125 stereobinocular microscope (Leica Microsystems Ltd, St. Gallen, Switzerland) fitted with a digital camera (Q-imaging Micro Publisher 5.0 RTV; Zerene Systems LLC, Richland, WA, USA). Photo automontage was performed using the Zerene stacker program version 1.04 (Innovative Solutions, Bucharest, Romania).
Coordinates of all localities are listed in Table (2).

Abbreviations used

BMNH: The Natural History Museum, Department of Entomology, London, England, UK
CS: Coastal Strip
EFC: Efflatoun Bey's collection, Department of Entomology, Faculty of Science, Cairo University, Egypt.
GBIF: Global Biodiversity Information Facility: https://www.gbif.org/
KSMA: King Saud University Museum of Arthropods, Riyadh, Saudi Arabia
LNVD: Lower Nile Valley & Delta
LSL: Linnean Society, Burlington House, London, England, UK
MSHC: Personal collection M. El-Hawagry
MT: Malaise trap
UNV: Upper Nile Valley
PPDD: Collection of Plant Protection Research Institute, Ministry of Agriculture, Dokki, Giza, Egypt
SW: Sweeping net
W: Wadi
ZMHU: Museum fur Naturkunde der Humboldt Universitat zu Berlin, Bereich Zoologisches Museum, Berlin, Germany.

RESULTS

The catalogue

Subfamily Bibioninae
Genus *Bibio* Geoffroy
Bibio Geoffroy, 1762: 568. Type species: *Tipula*

Table (1): List of recorded species of the family Bibionidae in Egypt and Saudi Arabia.

Studied Species	Egypt		Saudi Arabia	
	Record†			
	OR	NR	OR	NR
Bibio hortulanus (Linnaeus, 1758)	+			+
B. johannis (Linnaeus, 1767)		+		
Dilophus aegyptius Costa, 1878	+			
D. erythraeus Bezzi, 1906				+
D. lingens Loew, 1869	+		+	
D. tenuis Wiedemann, 1818	+			
D. tridentatus Walker, 1848	+		+	

†OR, old record; NR, new record

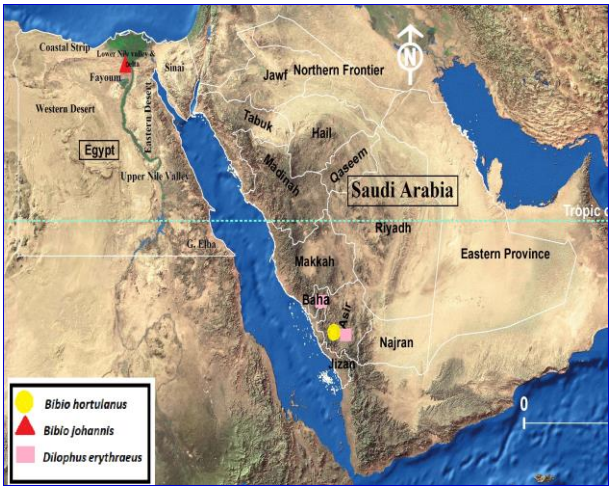

Figure (1): A satellite map of Egypt and Saudi Arabia (El Hawagry *et al.* 2020).

hortulana Linnaeus, 1758 (by subsequent designated of Latreille, 1810: 442). Validated by ICZN, 1957: 86.
Pullata Harris, 1776: 77. Type species: *P. funestus* Harris, 1776 (= *Bibio pomonae* (Fabricius, 1775)) (by subsequent designation of Coquillett, 1910: 598).
Hirtea Fabricius, 1798: 551. No type designated. Preoccupied by Scopoli (1763).
Dichaneurum Aymard, 1856: 234. *Nomen nudum*.
Lithobibio Beier, 1952: 133. Type species: *Lithobibio styriacus* Beier, 1952 (by monotypy).
Bibiophus Bollow, 1954: 209. Type species: *Bibio clavipes* Meigen, 1818 (by original designation).
Bibio johannis (Linnaeus, 1767)
Bibio johannis (Linnaeus, 1767).
Tipula johannis Linnaeus, 1767: 976. Type locality: Europe (Unspecified type in LSL).
Bibio marginalis Geoffroy *in* Fourcroy 1785: 514. Type locality: France (Paris).
Tipula pyri Fabricius, 1794: 249. Type locality: Denmark (Holsatiae).
Hirtea hyalinus Meigen, 1804: 110. Type locality: not given (Aachen).
Hirtea praecox Meigen, 1804: 111. Type locality: Germany (Aachen).
Bibio clavipes Meigen, 1818: 317. Unnecessary new replacement name for *B. johannis* Linnaeus.
Hirtea ephippium Zetterstedt, 1838: 799. Type locality: Sweden.
Hirtea praecox Meigen, 1804: 111. Type locality: Germany (Aachen).
Bibio clavipes Meigen, 1818: 317. Unnecessary new replacement name for *B. johannis* Linnaeus.
Hirtea ephippium Zetterstedt, 1838: 799. Type locality: Sweden.
Bibio johannis var. *nigrifemur* Strobl, 1900: 93. Type locality: Spain (S. Aiscurre, San Fernando, Dusmet).
Bibio johannis var. *jacobi* Villeneuve, 1924. Type locality: Switzerland (La Neuveville).
Bibio clavipes var. *tancrei* Duda, 1930: 50. Type locality: China (Quinghai).

Distribution

PA: China, Egypt (new record), Europe (wide-spread), Japan, Korea, Mongolia. [Source: Duda (1930), Krivosheina (1986), GBIF and the present study].

Table (2): A gazetteer of bibionid localities in Egypt and Saudi Arabia

Country	Locality	Governorate	Ecological zone or Region†	Latitude (N)	Longitude (E)
Egypt	Amria	Alexandria	Coastal Strip	31.0037	29.7983
	El-Arish	North Sinai	Sinai	31.1442	33.8056
	El-Burg	Alexandria	Coastal Strip	30.9081	29.5464
	El-Dekhila	Alexandria	Coastal Strip	31.1209	29.8156
	El-Rawda	El-Minya	UNV	27.7982	30.8571
	Ezbet El-Nakhl	Qalyoubia	LNVD	31.1111	32.1625
	Firan	South Sinai	Sinai	28.7062	33.6732
	Kerdassa	Giza	LNVD	30.0297	31.1061
	Luxor	Luxor	UNV	25.6863	32.6337
	Mariout	Alexandria	Coastal Strip	30.9081	29.5464
	W. Itlah	South Sinai	Sinai	28.5750	33.9248
	W. Tala'a	South Sinai	Sinai	28.5656	33.9319
Saudi Arabia	Abha	Abha	Asir	18.1604 18.3258	42.6313 42.4964
	Al-Mekhwa	Al-Mekhwa	Al-Baha	19.8222	41.3708
	Jabal Shada	Al-Mekhwa	Al-Baha	19.8388	41.3101
	Raydah	Abha	Asir	18.2052	42.4101
	Rawdhat Khoraim	Riyadh	Riyadh	25.379	47.293
	W. Majarish	Makkah Al-Mukarramah	Makkah Al-Mukarramah	21.3178	40.2155

†LNVD, Lower Nile Valley & Delta; UNV, Upper Nile Valley.

Local distribution and dates of collection

Egypt: LNVD: Ezbet El-Nakhl, Kerdassa (January and May). [Source: Museum material]
Material examined:

Egypt: 1 male, Ezbet-Naghl, 18.V.1922, Efflatoun. leg. (EFC); 1 male, Kerdace, 20.I.1921, Efflatoun. leg. (EFC).

***Bibio hortulanus* (Linnaeus, 1758)**

Tipula hortulanus Linnaeus, 1758: 588. Type locality: Sweden (Unspecified type in LSL).

Pullata citrius Harris, 1776: 77. Type locality: England.
Bibio hortulanus var. *hirtipes* Loew, 1846: 347. Type locality: Greece and Asia Minor.
Bibio hortulanus var. *hispanicus* Duda, 1930: 58. Type locality: Spain (Madrid and Escorial).
Bibio hortulanus var. *major* Duda, 1930: 59. Type locality: Russia (Koslofska a. Ussuri).

Distribution

AF: Ethiopia, Saudi Arabia [as "South western part"] (new record). PA: Afghanistan, Algeria, Egypt, Europe (widespread), Iran, Israel, Kyrgyzstan, Syria, Tajikistan, Tunisia, Turkmenistan, Uzbekistan. [Sources: Krivosheina (1986), Skartveit and Kaplan (1996), GBIF and the present study].

Local distribution and dates of collection

Egypt: Sinai: El-Arish, Firan, Wadi Itlah, Wadi Tala (= Wadi El-Tala'a El-Kebira) (March to May).
[Sources: Hermann and Villeneuve (1909), Skartveit and Kaplan (1996) and museum material in PPDD].

Saudi Arabia: Asir: Garf Raydah Nature Reserve (May). [Source: collected material].

Material examined

Egypt: 1 male, 1 female, Sinai, May.1930, Storey leg. (PPDD).

Saudi Arabia: 1 female (in a bad condition), Garf Raydah Nature Reserve, 8.V.2015, Al-Dhafer *et al.* leg. (MSHC).

Genus *Dilophus* Meigen

Philia Meigen, 1800: 20. Type species: *Tipula febrilis* Linnaeus, 1758 (by subsequent designation of Coquillett, 1910: 588). Unavailable name, suppressed by ICZN, 1963: 339.

***Dilophus* Meigen, 1803**: 264. Type species: *Tipula febrilis* Linnaeus, 1758 (by subsequent designation of Latreille, 1810: 442).

Acanthocnemis Blanchard, 1852: 355 (no type designated).

Triploctenia Enderlein, 1934: 181. Type species: *Dilophus tenuis* Meigen, 1818 (by original designation).

Tridicroctena Enderlein, 1934: 181. Type species: *Dilophus africanus* Becker, 1903 (= *Dilophus tridentatus* Walker, 1848) (by original designation).

Dactylodiscia Enderlein, 1934: 181. Type species: *Dilophus hiemalis* Becker, 1908 (by original designation).

Cnemidoctenia Enderlein, 1934: 181. Type species: *Dilophus crassicrus* Lundström, 1913 (by original designation).

***Dilophus aegyptius* Costa, 1878**: *Dilophus aegyptius* Costa, 1878: 15. Type locality: Egypt [as "Egitto, sponde del Nilo"] (depository unknown).

Distribution

PA: Egypt. [Source: Costa (1878) and Krivosheina (1986)].

Local distribution and dates of collection

Egypt: Upper Egypt: El-Rawda, El-Minya Governo-rate (February). [Source: Costa (1878)].

Notes: No specimens examined.

***Dilophus erythraeus* Bezzi, 1906**

Dilophus erythraeus Bezzi (Figure 2) (1906: 205. Type locality: Eritrea (Adi Keyh [as "Adi Caie"]).

Distribution

AF: East and South Africa, Saudi Arabia [as "South western part"] (new record), Yemen. PA: Afghanistan. [Sources: Krivosheina (1986), GBIF and the present study].

Local distribution and dates of collection

Saudi Arabia: Al-Baha: Al-Mekhwa (May); Asir: Abha (May). [Source: collected material].

Material examined

Saudi Arabia: 1 female, Mohamed Al-Qahtany farm, Abha, 30.V.2021, SW, U. El-Ghiet & B. Bu Salem leg. (KSMA); 1 female, Nasser Asiri farm, Abha, 31.V.2021, SW, U. El-Ghiet and B. Bu Salem leg. (KSMA); 1 male, Al-Omari farm, Al-Mekhwa, 20.V.2021, SW, U. El-Ghiet and B. Bu Salem leg. (KSMA).

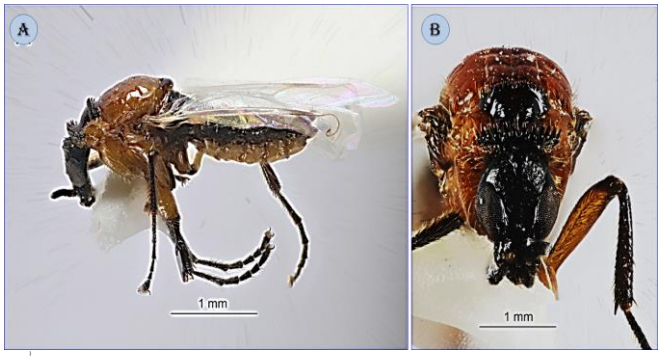

Figure (2): *D. erythraeus* Bezzi. (A), female lateral view; (B), female frontal view.

***Dilophus lingens* Loew, 1869**

Dilophus lingens Loew, 1869 (Figure 3): 20. Type locality: Greece (Rhodus) (Unspecified type in ZMHU).

Distribution

PA: Egypt, Greece, Israel, Saudi Arabia, Tunisia. [Sources: Loew (1869), Duda (1930), Steyskal and El-Bialy (1967), Krivosheina (1986), Skartveit and Kaplan (1996) and El-Hawagry *et al.* (2019)].

Local distribution and dates of collection

Egypt: CS: Amria, El-Dekhila, Mariout (El-Burg) (February and March). [Source: Museum material].

Saudi Arabia: Riyadh: Rawdhat Khoraim National Park (March). [Sources: El-Hawagry *et al.* (2019)
and museum material].

Material examined

Egypt: 2 males, Burg, 8.III.1927, H.C.E. & M.T. leg. (EFC); 10 males, 4 females, Burg, 20.II.1931, H.C.E.
and M.T. leg. (EFC); 1 male, 1 female, Burg, 25.II.1932, H.C.E. & M.T. leg. (EFC); 6 males, 4 females, Mariout, El-Burg, 13-16.II.1925, H.C.E. and M.T. leg. (EFC); 6 males, 6 females, Mariout, El-Burg, 5-10.III.1929, Efflatoun leg. (EFC); 3 males, 4 females, Mariout, 14.III.1923, Efflatoun leg. (EFC); 2 males, 2 females, Mariout, 15.III.1923, Efflatoun leg. (EFC); 1 male, 1 female, Mariout, 16.III.1923, Efflatoun leg. (EFC); 1 male, 1 female, Amria, 26.II.1918, Storey leg. (PPDD). SAUDI ARABIA: 1 male, 1 female, Rawdhat Khorim National Park, 21.III.2012 (SW), Al-Dhafer et al. leg. (KSMA).

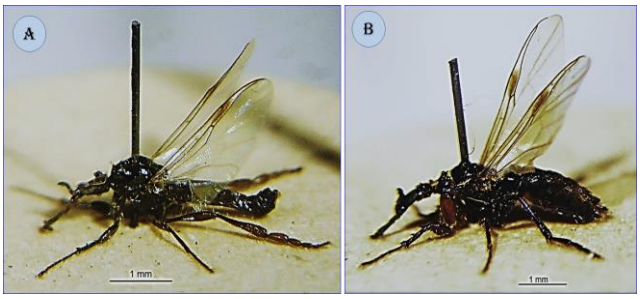

Figure (3): *D. lingens* Loew. (A), male lateral view; (B), female lateral view.

***Dilophus tenuis* Wiedemann *in* Meigen, 1818**

Dilophus tenuis Wiedemann *in* Meigen, 1818: 308. Type locality: Portugal (Holotype in ZMHU).

Dilophus ternatus Loew, 1846: 322. Type locality: Italy (Sicily: Messina).

Distribution

PA: Austria, Egypt, Italy, Portugal, Spain. [Sources: Meigen (1818), Loew (1846), Krivosheina (1986) and Steyskal and El-Bialy (1967)].

Local distribution and dates of collection

We couldn't locate any specimens of this species.

***Dilophus tridentatus* Walker, 1848**

Dilophus tridentatus Walker (Figure 4), 1848: 118. Type locality: Lebanon (Tripoli). (Unspecified type in BMNH).

Dilophus africanus Becker, 1903: 79. Type locality: Egypt (Luxor).

Distribution

PA: Algeria, Canary Island, Egypt, Iraq, Israel, Lebanon, Libya, Saudi Arabia, Tunisia. [Sources: Haenni (1985), Krivosheina (1986) and Skartveit and Kaplan (1996)].

Local distribution and dates of collection

Egypt: CS: Mariout (February). UNV: Luxor (February). [Source: Becker, 1903].

Saudi Arabia: Al-Baha: Jabal Shada al-A'la Nature Reserve (February and May); Makkah Al-Mukarramah: Wadi Majarish (February); Riyadh: (February) [Sources: Haenni (1985) and El-Hawagry *et al.* (2016)].

Material examined:

*Egypt:*1 male, Mariout, 23.II.1922, Efflatoun leg. (EFC).

Saudi Arabia: 1 male, 1 female, Jabal Shada al-A'la Nature Reserve, 15.II.2014 (MT), Al-Dhafer *et al.* leg. (KSMA); 1 male, 1 female, Jabal Shada al-A'la Nature Reserve, 5.V.2015 (SW), Al-Dhafer *et al.* leg.(KSMA).

DISCUSSION

Only seven species, belonging to two genera (Bibio Geoffroy and Dilophus Meigen), are documented in the present study as being recorded from both Egypt and Saudi Arabia. Although this species count may appear relatively low, it is likely that further exploration utilizing diverse collection and rearing methods could unveil additional species. However, it is important to note that a small family like Bibionidae may naturally have a limited number of species. This is supported by the fact that the entire Nematoceran family comprises approximately 160 species in the Palaearctic Region, 73 species in the Afrotropical Region, and around 1100 species worldwide (Fitzgerald, 2004).

Dilophus aegyptius was described from Egypt by Costa (1878); however, it could not be authenticated in the present or previous studies since the type depository is unknown, and no identified specimens have been collected or preserved in museums. As well, *Dilophus tenuis* Wiedemann *in* Meigen was recorded from Egypt by Steyskal and El-Bialy (1967); however, they didn't provide the locality or the date of collection, and we couldn't collect any specimens of the species or locate any specimens in the museums.

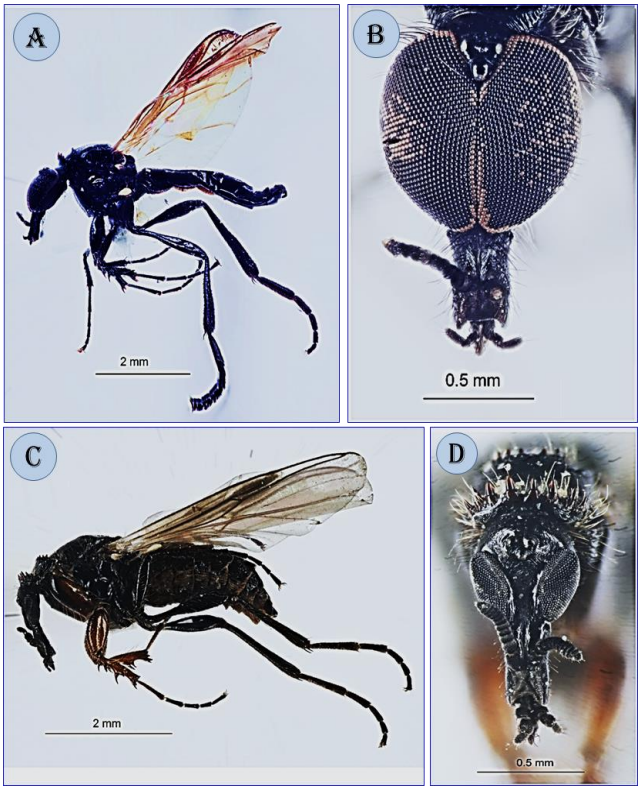

Figure (4): *D. tridentatus* Walker. (A), male lateral view; (B), male frontal view; (C), female lateral view; (D) female frontal view.

Egypt and Saudi Arabia, as neighbors, are both located at the junction of the Afrotropical and Palaearctic biogeographic regions (Figure 1). The fauna of both countries is predominantly Palaearctic, except for the southeastern corner of Egypt (Gebel Elba) (El-Hawagry, 2018) and the south-western region of Saudi Arabia, south to the Tropic of Cancer (El-Hawagry *et al.*, 2020), which are mostly Afrotropical. These biogeographic features likely reflect on the distribution of bibionid species treated in the present study, as all seven reported species are Palaearctic, including only two species, *Bibio hortulanus* (Linnaeus) and *Dilophus erythraeus* Bezzi, which have both Palaearctic and Afrotropical affinities.

CONCLUSION

In conclusion, this study provides a comprehensive catalog of the Bibionidae family in Egypt and Saudi

Arabia, documenting a total of seven species from the genera *Bibio Geoffroy* and *Dilophus Meigen*. Among these species, three are found in both countries, while three are exclusive to Egypt and one is solely represented in Saudi Arabia. Notably, this study records the first-time occurrence of two species in Saudi Arabia (*B. hortulanus* and *D. erythraeus*) and the first-time occurrence of *B. johannis* in Egypt. The study includes an up-to-date taxonomy of the recorded species, along with relevant taxonomic data, global and local distribution information, collection dates, and color photographs of selected species. These findings significantly contribute to the knowledge of Bibionidae in both Egypt and Saudi Arabia and serve as a valuable resource for future research in this field. The catalog provides a foundation for further exploration and understanding of bibionid species in the region, and highlights the need for continued research to uncover additional species and expand our knowledge of their distribution and ecology.

ACKNOWLEDGEMENTS

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فصيلة بيبيونيدي (رتبة ثنائية الأجنحة - تحت رتبة نيماتوسيرا) في مصر والمملكة العربية السعودية

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الملخص العربـــــي

يقدم هذا البحث فهرسة تصنيفية (كتالوج) لجميع وحدات فصيلة بيبيونيدي (ثنائيات الأجنحة) (Bibionidae - Diptera) في كل من مصر والمملكة العربية السعودية. يعالج الكتالوج 7 أنواع مصنفة في جنسين هما جنس بيبيو وجنس ديلوفوس (*Bibio* Geoffroy, 1762 and *Dilophus* Meigen, 1800). ثلاثة من هذه الأنواع ممثلة في كل من مصر والمملكة العربية السعودية وهي: بيبيو هورتولانوس وديلوفوس لينجنس و ديلوفوس ترايدنتاتوس (*B. hortulanus* (Linnaeus, 1758), *D. lingens* Loew, 1869 and *D. tridentatus* Walker, 1848). في حين أن ثلاثة انواع ممثلة في مصر فقط وهي: بيبيو جوهانيس وديلوفوس اجبتيوس وديلوفوس تينيوس (*B. johannis* (Linnaeus, 1767), *D. aegyptius* Costa, 1878 and *D. tenuis* Wiedemann, 1818). كما أن نوعا واحدا ممثلا فقط في المملكة العربية السعودية وغير ممثل في مصر وهو ديلوفوس اريثرياس (*D. erythraeus* Bezzi, 1906). نوعان من هذه الأنواع تسجل في هذه الدراسة للمرة الأولى من المملكة العربية السعودية وهما بيبيو هورتولانوس و ديلوفوس اريثرياس (*B. hortulanus* (Linnaeus) and *D. erythraeus* Bezzi)، في حين ان النوع أن نوعا واحدا يسجل لأول مرة من مصر وهو بيبيو جوهانيس (*B. johannis* (Linnaeus)). تشتمل الدراسة على احدث تصنيف لوحدات الفصيلة مصحوبا بكل البيانات التصنيفية المتعلقة والانتشار العالمي والمحلي لكل الأنواع، بالإضافة إلى تواريخ التجميع وبعض الصور الملونة لبعض الانواع.