

A new species of dance fly of the subgenus *Empis* (*Kritempis*) (Diptera: Empididae) from Spain

Новый вид мух-толкунчиков подрода *Empis* (*Kritempis*) (Diptera: Empididae) из Испании

I.V. Shamshev & M. Barták

И.В. Шамшев, М. Бартак

Igor V. Shamshev, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: shamshev@mail.ru

Miroslav Barták, Department of Zoology and Fisheries, Faculty of Agrobiolgy, Food and Natural Resources, Czech University of Life Sciences Prague, Kamýcká 129, 165 00 Praha-Suchdol, Czech Republic. E-mail: bartak@af.czu.cz

Abstract. A new species of dance fly (Diptera, Empididae) in the subgenus *Kritempis* Collin, 1926 of the genus *Empis* Linnaeus, 1758 is described from Spain: *E. (K.) kubiki* sp. nov. (type locality: Embalse de Barbate, Cádiz Province). The new species is closely related to *E. (K.) livida* Linnaeus, 1758.

Резюме. Описан новый вид мух-толкунчиков (Diptera, Empididae) из подрода *Kritempis* Collin, 1926 рода *Empis* Linnaeus, 1758 из Испании: *E. (K.) kubiki* sp. nov. (типовое местонахождение: Эмбальсе-де-Барбате, провинция Кадис). Новый вид наиболее близок к *E. (K.) livida* Linnaeus, 1758.

Key words: Spain, dance flies, Diptera, Empididae, *Empis*, *Kritempis*, new species

Ключевые слова: Испания, мухи-толкунчики, Diptera, Empididae, *Empis*, *Kritempis*, новый вид

ZooBank Article LSID: urn:lsid:zoobank.org:pub:FDEABC1B-F77F-49EA-B369-EA5A43FFECA

Introduction

Species of the subgenus *Kritempis* Collin, 1926 of the genus *Empis* Linnaeus, 1758 (with *Empis algira* Macquart, 1838 as the type species of the subgenus) are rather large (6–11 mm long), greyish black, slender dance flies with the following typical features: eyes holoptic in male; proboscis usually about as long as head height, labella thick; wing with anal vein faint, incomplete; hypopygium with hypandrium reduced to its lateral arms; female with mid tibia bearing a posteroventral group of spine-like setae at base (Daugeron, 2009). The subgenus unites currently nine species (including a new species described herein) distrib-

uted almost exclusively in the Mediterranean basin of the Palaearctic (except *E. livida* Linnaeus, 1758). Our paper provides the description of a new species of *Kritempis* from Spain.

Material and methods

The material of the new species was collected during the expedition of the Czech University of Life Sciences, Prague, to southern Spain in 2017 (collecting permit 201799900112920 – 10/03/2017). Pinned, dried specimens were studied. To facilitate observations, the terminalia were macerated in cold 10% KOH, then put for a short period in 85% lactic acid and immersed in glycerol.

Terms used for adult structures primarily follow those summarised by Cumming & Wood (2009). The photos were taken using a Nikon SMZ 1500 stereomicroscope equipped with a Nikon D700 digital SLR camera, then were aligned and stacked using the Helicon Focus 5.3.14 software. Labels of the holotype are cited in full, with original spelling, punctuation and date. Additional information is included in square brackets. The depository of the material is given in parentheses: Czech University of Life Sciences, Prague (CULSP) and Zoological Institute of Russian Academy of Sciences, St Petersburg (ZIN).

Taxonomy

Order **Diptera** Linnaeus, 1758

Family **Empididae** Latreille, 1804

Subfamily **Empidinae** Latreille, 1804

Tribe **Empidini** Latreille, 1804

Genus **Empis** Linnaeus, 1758

Subgenus **Kritempis** Collin, 1926

Empis (Kritempis) kubiki sp. nov.

(Figs 1–4)

Holotype. Male, “Spain: Embalse de Barbate [Cádiz Prov.]/ sw [= sweeping], pasture nr. river/ 36.4311, –5.7439 [= 36°25′52.0″N, 5°44′38.0″W], 37 m/ Barták, Kubík, 6.–8.v.2017”; “Empis (Kritempis) Barták, Kubík, sp. n.” [red label] (CULSP).

Paratypes. **Spain**: 1 male, 1 female, same data as holotype (both CULSP); 1 male, 10 km NW of Los Barrios, wet pasture, sweeping, 36.2275, –5.5860 [=36°13′39.0″N, 5°35′09.6″W], 150 m, 6.V.2017 (Barták, Kubík) (ZIN).

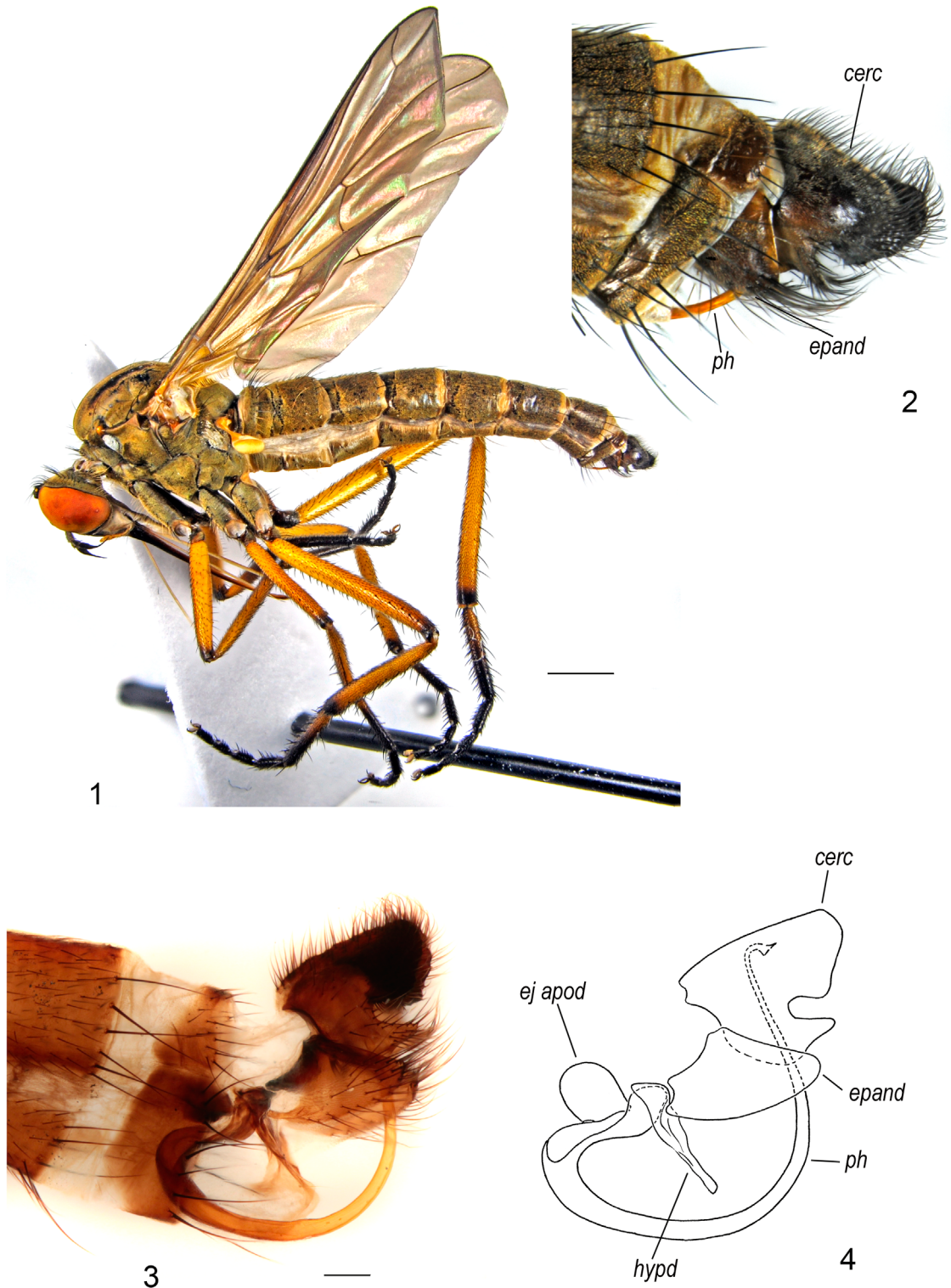
Diagnosis. Large blackish brown flies (body about 11 mm long); head holoptic in male, antenna entirely black; proboscis nearly 2.5 times as long as head height; coxae and trochanters black; veins M_1 and M_2 incomplete.

Description. **Male** (Fig. 1). Body length 10.3–11.0 mm; wing length 8.1–8.6 mm. Eyes holoptic, upper ommatidia slightly enlarged. Frons represented by small subtriangular space above antennae, densely greyish pollinose, bare. Face broad, bare, greyish pollinose; clypeus shiny. Occiput densely yellowish grey pollinose, with two transverse rows of black setae on upper part

(postoculars shorter and thinner) and pale long hair-like setae closer to neck below and behind mouth-opening. Ocellar tubercle blackish, with two moderately long, black, thin setae and several setulae. Antenna black; scape nearly twice as long as wide, longer than subglobular pedicel, both with short black setulae; postpedicel conical, moderately long, nearly 3 times as long as wide, with straight margins; stylus long, only slightly (1.2 times) shorter than postpedicel. Proboscis long; labrum brown (except yellowish subapical part), nearly 2.5 times as long as head height; palpus largely yellow, blackish near base, with scattered black setulae.

Thorax dark brown, densely yellowish grey pollinose; scutum with three distinct subequally narrow brown vittae along rows of acrostichals and dorsocentrals; thorax with black setation (except as noted). Prosternum bare. Proepisternum with numerous pale hair-like setae on lower part and several similar setae on upper part. Antepro-notum with 7–14 moderately long black setae. Postpronotal lobe with one strong long seta and several short setae. Mesonotal setation: 1–2 presutural supra-alar (anterior longer), 3 notopleurals, 1 postsutural supra-alar, 1 postalar and 4 scutellars (lateral pair shorter); in addition, notopleuron with several setulae anteriorly; acrostichals arranged in two close irregular rows, lacking on prescutellar depression; dorsocentrals uniserial, rather long, less numerous and more broadly spaced than acrostichals, becoming longer behind suture, with 2–3 pairs of prescutellars longest. Laterotergite with 1–6 very long black stronger setae anteriorly and numerous pale hair-like setae posteriorly. Anterior and posterior spiracles pale.

Legs very long, slender, extensively yellow but coxae and trochanters black (densely yellowish grey pollinose), femora and tibiae on extreme apex and tarsi brown (except about basal half of basitarsus); legs black setose (except noted). Coxae and trochanters with ordinary setae; fore coxa covered with short pale hair-like setae anteriorly. Fore femur covered with mostly very short setae, anteroventral and posteroventral setae minute (somewhat longer on subapical part); fore femur bare ventrally. Fore tibia with about four short anterodorsal, two posterodorsal and several similar posteroventral setae (besides circlet of short



Figs 1–4. *Empis (Kritempis) kubiki* sp. nov., male, paratype. **1**, habitus, lateral view; **2**, postabdomen *in situ*, lateral view; **3**, macerated terminalia, lateral view; **4**, outline of terminalia (setation omitted), lateral view. Abbreviations: *cerc*, cercus; *ej apod*, ejaculatory apodeme; *epand*, epandrium; *hypd*, hypandrium; *ph*, phallus. Scale bar: 1 mm (1), 0.1 mm (2–4).

subapicals). Fore basitarsus with three short anterodorsal and 6–7 similar anteroventral setae (besides subapicals); tarsomeres 2–5 with anteroventral and posteroventral spinules. Mid femur with setation similar to fore femur but posteroventral setae stronger, rather spinule-like. Mid tibia with 5–7 anterodorsal, 1–2 short posterodorsal, 4–5 anteroventral and 3–5 posteroventral setae (number, position and robustness variable). All mid tarsomeres with anteroventral and posteroventral setae short, spine-like (somewhat longer on basitarsus). Hind femur covered ventrally with dense spinule-like setulae, with complete row of short spine-like anteroventral setae and bearing 4–5 anterodorsal setae near apex. Hind tibia with 10–12 short anterodorsal and similar number of posterodorsal setae; seta in comb present. Hind tarsomeres with setation similar to mid tarsomeres; in addition, hind basitarsus with numerous short strong setae dorsally. Claws of all legs moderately long, of equal lengths.

Wing membrane uniformly brownish; veins brown. Pterostigma distinct, brownish, narrow. Basal costal seta present, brown, long. Veins R_5 and M_1 somewhat divergent near wing margin; M_1 , M_2 and anal vein incomplete; radial fork sharply acute; cell *dm* long. Anal angle acute, subsequently anal lobe well developed. Calypter yellow, pale fringed. Halter yellow.

Abdomen black, densely yellowish grey pollinose; tergites sparsely covered with mostly black setulae, but moderately long posteromarginal setae present; tergites 1–5 with some pale hair-like setae laterally, sternites 2–6 mostly with pale hair-like setae, sternites 7 and 8 only black setose, sternite 8 with rather long posteromarginal setae. Pregenital segments unmodified, tergite 8 entire, short, somewhat concave anteriorly (in dorsal view), setose; sternite 8 about half as long as sternite 7. Hypopygium (Figs 2–4) moderately large, blackish brown, except phallus brownish yellow. Cercus large, distinctly broader than epandrial lamella, with posterior margin extending far beyond its apex; cercus with small excision in lower part, with upper lobe large, broadly rounded at apex, and lower lobe small, pointed; cercus covered with short black setulae, more densely along upper margin and posteriorly. Epandrial lamella small, subtriangular, with tuft of long black setae

apically. Hypandrium hidden by sternite 8, represented by two lateral sclerites bearing minute setulae, otherwise membranous. Phallus (Fig. 4) simply bowed, with hook-like bent apex, mostly concealed, only short part between sternite 8 and epandrial lamella visible.

Female. Head dichoptic. Frons broad, about 0.2 times the head width, with several marginal setulae. Thorax as in male. Legs coloured as in male but differently setose. Fore femur with dense anterodorsal row of flattened setae (about as long as diameter of fore tibia). Fore tibia short setose, without longer setae (except preapicals). Mid femur short setose, only posteroventral setae on apical third somewhat longer. Mid tibia slightly curved, ventrally near base with a cluster of erect setae about as long as tibia width, and with anterodorsal and posteroventral row of somewhat spinose short setae. Hind femur with posteroventral row of pennate setae starting from about one-third of its length, gradually longer towards tip. Hind tibia similarly setose as in male, but all setae shorter. Tarsi similarly setose and spinose as in male, but setae shorter. Abdomen brown, microtrichose. Setae shorter than in male, posteromarginals apparent on segments 1–4, very short on apical segments. Cercus long, narrow.

Comparison. The new species is very similar to *E. livida*, differing from the latter in the uniformly black antenna (vs. pedicel brownish), black coxae and trochanters (vs. yellowish), black cerci with one excision (vs. brownish yellow to yellowish and with two excisions) and in some other characters. The new species can be included in the key of *Empis* (*Kritempis*) compiled by Daugeron (2009: 533) with the following modifications:

Male.

3. M_1 and M_2 abbreviated; laterotergite usually with strong black setae anteriorly 3a
 – M_1 complete, M_2 abbreviated; laterotergite with pale yellow setae anteriorly 4
 3a. Legs with yellow coxae *E. livida*
 – Legs with black coxae *E. kubiki* sp. nov.

Female.

12. Hind femur without pennate setae; M_1 complete ... 13
 – Hind femur with anteroventral pennate setae; M_1 abbreviated 12a

- 12a. Legs with yellow coxae *E. livida*
– Legs with black coxae *E. kubiki* sp. nov.

Etymology. The species epithet, *kubiki*, is a Latin genitive patronym to honour Dr. Štěpán Kubík (Czech Republic, Prague) for his help with collecting the type specimens.

Distribution. Palaearctic: Spain (Province of Cádiz).

Acknowledgements

Fedor V. Konstantinov (Department of Entomology, St Petersburg State University, Russia) kindly provided the equipment and software for making digital images. The study of Igor Shamshev was performed within the frames of the Russian State Research Pro-

ject No. AAAA–A17-117030310210-3 and supported by the Russian Foundation for Basic Research (grant No. 18-04-00354A). Adrian Plant (Mahasarakham University, Thailand) and Christophe Daugeron (Muséum national d'Histoire naturelle, Paris, France) kindly reviewed the manuscript.

References

- Cumming J.M. & Wood D.M. 2009. Adult morphology and terminology. In: Brown B.V., Borkent A., Cumming J.M., Wood D.M. & Zumbado M. (Eds.). *Manual of Central American Diptera*, 1: 9–50. Ottawa: NRC Research Press.
- Daugeron C. 2009. Systematics of the Euro-Mediterranean *Empis* (*Kritempis*) (Diptera: Empididae: Empidinae). *Zootaxa*, 2318: 531–544.

Received 5 September 2018 / Accepted 22 October 2018. Editorial responsibility: A.A. Przhiboro