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A new species of the genus *Cheilotrichia* Rossi, 1848 (Diptera: Limoniidae) from Mongolia

Новый вид рода *Cheilotrichia* Rossi, 1848 (Diptera: Limoniidae) из Монголии

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КЛЮЧЕВЫЕСЛОВА: двукрылые, Limoniidae, *Cheilotrichia*, *Empeda*, новый вид, Монголия.

ABSTRACT. A new species *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.,** from the Tsetsen-Uul mountain of Mongolia, is described and illustrated. The new species differs from other species of the subgenus *Empeda* of the Palaearctic region by its small body with brownish-yellow coloration and the structure of male antennae and terminalia.

РЕЗЮМЕ. Описан и проиллюстрирован новый вид *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.** с горы Тсетсен-Уул Монголии. Новый вид отличается от других видов подрода *Empeda* палеарктического региона коричневато-желтым маленьким размером тела, структурой антенн и терминалий самцов.

Introduction

The fauna of Limoniidae of Mongolia has been well studied [Savchenko, 1972; Mannheims, Savchenko, 1973; Gelhaus, Podenas, 2006; Podenas, Gelhaus, 2001, 2007, 2011; Yadamsuren *et al*., 2015; Podenas *et al*., 2023] and, together with the Inner Mongolia (China), currently includes 112 species [Oosterbroek, 2025].

The subgenus *Empeda* of the genus *Cheilotrichia* contains 103 species in the world fauna and 26 species in the Palaearctic [Oosterbroek, 2025]. Two species of *Empeda*, *C.* (*E.*) *areolata* (Lundstrom, 1912) and *C. (E.) tenuifurca* Podenas et Gelhaus, 2001, have been recorded from Mongolia and one species, *C. (E.) vaillanti* (Alexander, 1921), from the Inner Mongolia [Oosterbroek, 2025]. Additionally, one female not identified to species but possibly belonging to *Empeda* was listed in a paper by Gelhaus and Podenas [2006].

A new species of *Cheilotrichia* (*Empeda*) was found among a small collection of crane flies made in 2017 in Mongolia by Alexander V. Timokhov (Lomonosov Moscow State University).

Material and methods

Adult crane flies were collected at UV light and preserved in 70% ethanol. Male and female terminalia were examined upon boiling in 10% solution of NaOH for 1 minute, rinsing in distilled water, and placing in glycerol. The cleared parts were preserved in glycerol-filled microvials stored, along with the rest of the specimen, in ethanol-filled tubes. The material was studied with an Olympus SZ61 microscope. A Nikon Z5 digital camera equipped with a Tamron 70–300 /4–5.6 and an EL-Nikkor 50/2.8 enlarger lens or a Mitutoyo M Plan Apo 10X microscope objective lenses were used to capture stacks of images, which were then combined using the Helicon Focus software (www.heliconsoft.com/heliconsoft-products/helicon-focus). All images were adjusted and assembled into plates using Adobe Photoshop CS2.

The distribution of species is given according to Oosterbroek [2025]. Morphological terminology generally follows Cumming & Wood [2017]; terminology for wing venation follows de Jong [2017].

The type specimens are preserved in 80–85% ethanol at the Zoological Institute of the Russian Academy of Sciences (St Petersburg).

Taxonomic account

Order Diptera
Family Limoniidae
Subfamily Chioneinae
Cheilotrichia (*Empeda*) *mongolica* **sp.n.**
Figs 1–17.

MATERIAL: HOLOTYPE. ♂, MONGOLIA: Bayankhongor Prov., 26 km NE Bayantsagaan sum, NE foot of Tsetsen-Uul mountain, 45º10'58"N, 99º10'35"E, 1936 m a.s.l., 27.VIII.2017, leg. A.V. Timokhov. PARATYPE: 1 ♀, with same labels as in holotype.

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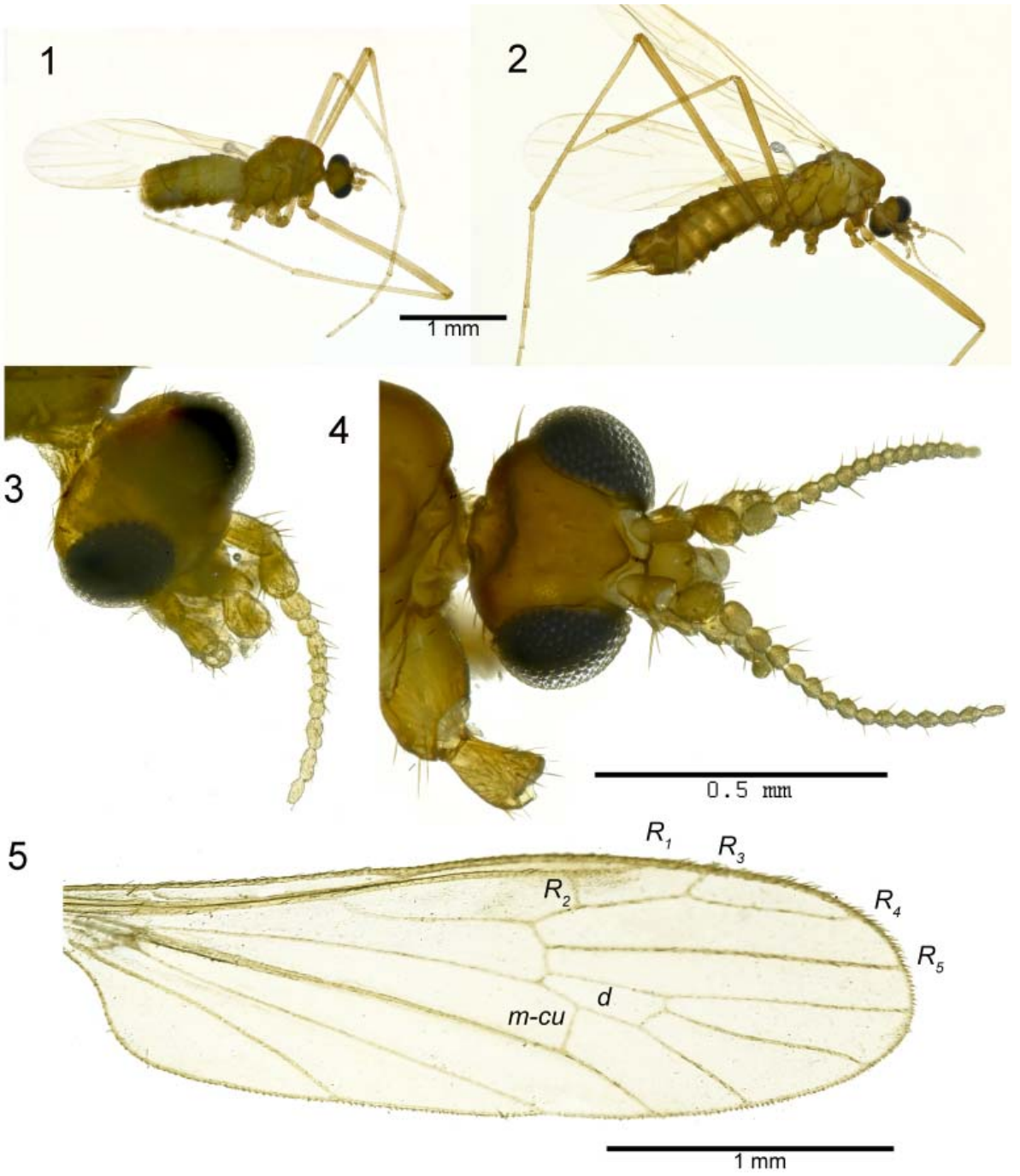
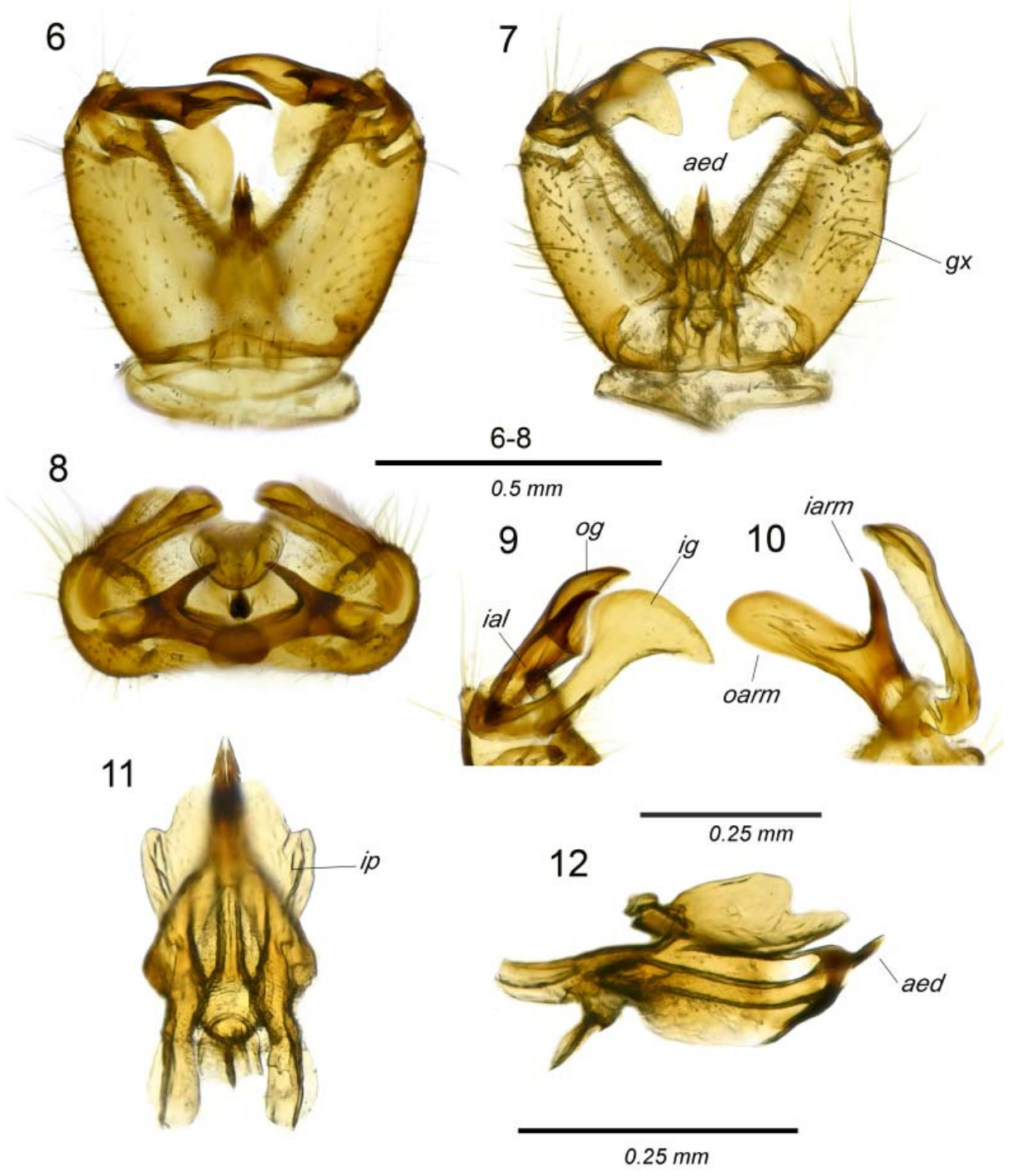
DIAGNOSIS. Minute species. Overall body coloration brownish yellow. Antenna light brown, pedicel not conspicuously enlarged, flagellar segments spherical, verticils equal to respective segment. Thorax brownish yellow, pruinose, without any distinct pattern. Wing with discal cell closed, *m-cu* connection to vein *M* before mid-length of discal cell, R_3 very short about one-sixth long R_4. Abdomen yellow, male terminalia with outer gonostyle bifid, brown, inner gonostyle (*ig*) simple, light brown, with robust stem, expanded apically into beak-shaped flat plate, with curved pointed apex.

DESCRIPTION. General body coloration brownish yellow. Male body length 2.7 mm (Fig. 1), that of female 3.0 mm (Fig. 2); wing length of male and female 2.8–3.0 mm. Male antenna length 0.6 mm (Fig. 3) that of female 0.75 mm (Fig. 4).



Figs 1–5. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.** (in ethanol): 1–2 — habitus, lateral view; 3–4 — head and antenna, lateral view; 5 — wing. 1, 3, 5 — holotype, male, 2, 4 — paratype, female.

Рис. 1–5. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.** (в спирте): 1–2 — общий вид, сбоку; 3–4 — голова и антенна, вид сбоку; 5 — крыло. 1, 3, 5 — голотип, самец, 2, 4 — паратип, самка.



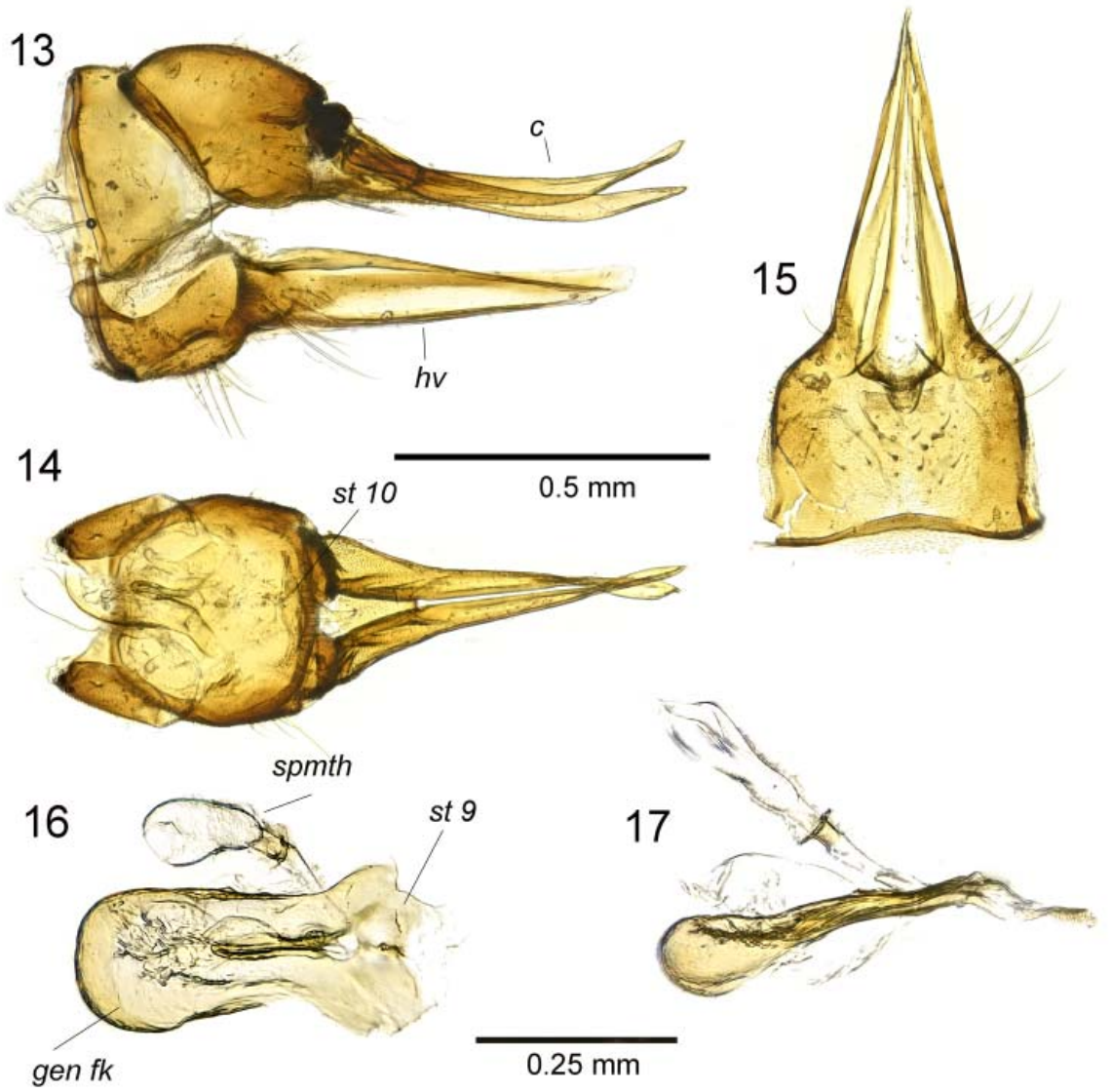
Figs 6–12. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.**, male terminalia (holotype) in glycerol: 6–8 — hypopygium; 9–10 — gonocoxite and gonostylus; 11–12 — complex of aedeagus. 6 — dorsal view; 7, 9, 11 — ventral view; 8, 10 — caudal view; 12 — lateral view. Abbreviations: *aed* — aedeagus; *gx* — gonocoxite; *ial* — inner apical lobe; *iarm* — inner arm of outer gonostyle; *ig* — inner gonostyle; *ip* — interbasal plate; *oarm* — outer arm of outer gonostyle; *og* — outer gonostyle.

Рис. 6–12. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.**, терминалии самца (голотип) в глицерине: 6–8 — гипопигий; 9–10 — гонококсит и гоностили; 11–12 — комплекс эдеагуса. 6 — вид сверху; 7, 9, 11 — вид снизу; 8, 10 — вид сзади; 12 — вид сбоку. Обозначения: *aed* — эдеагус; *gx* — гонококсит; *ial* — внутренняя апикальная доля; *iarm* — внутренняя ветвь наружного гоностиля; *ig* — внутренний гоностиль; *ip* — интербазальная пластинка; *oarm* — наружняя ветвь наружного гоностиля; *og* — наружный гоностиль.

Male (holotype). Head (Fig. 3) yellowish brown. Antenna light brown, scape and pedicel brown, flagellar segments light brown. Scape elongate with slightly widened distal part. Pedicel not conspicuously enlarged, pear-shaped. Flagellar segments short, spherical, with last three segments elongated, each formed by fused two segments. Verticils brown; longest verticils equal to respective segments except last three. Rostrum yellow, palpus light brown.

Thorax generally brownish yellow with pruinosity, praescutum without any distinct pattern, scutum and scutellum concolorous, yellow. Pleura of much the same basic coloration as other parts of thorax.Wing (Fig. 5) faintly greyish, stigma lacking. Veins light brown. Venation: *Sc* short, ending about opposite to one-third length of *Rs*, R_2 straight, perpendicular, relatively short, about 0.8 length of R_{2+3+4}; R_3 and R_4 divergent, R_3 very short, about one-sixth as long as R_4; discal cell closed, narrowed, proximally elongate, gently widened distally; *m-cu* connection to vein *M* before midlength of discal cell. Haltere with knob yellowish white. Legs with coxae and trochanters brownish yellow. Femora, tibiae and tarsomeres entirely light brown.

Abdomen yellow. Male terminalia (Figs 6–8) light brown, twisted 180°. Gonocoxite with inner apical lobe (*ial*). Outer gonostyle (*og*) bifid, brown. Outer arm (*oarm*) relatively short



Figs 13–17. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.**, female terminalia (paratype) in glycerol: 13–14 — ovipositor; 15 — sternite 8 and hypogynial valves; 16–17 — sternite 9, 10 and genital fork. 13, 17 — lateral view; 14–16 — ventral view. Abbreviations: *c* — cerci; *hv* — hypogynial valve; *gen fk* — genital fork; *spmth* — spermatheca; *st* — sternite.

Рис. 13–17. *Cheilotrichia* (*Empeda*) *mongolica* **sp.n.**, терминалии самки (паратип) в глицерине: 13–14 — яйцеклад; 15 — стернит 8 и гиповальвы; 16–17 — стернит 9, 10 и генитальная вилка. 13, 17 — вид сбоку; 14–16 — вид снизу. Обозначения: *c* — церки; *hv* — гиповальвы; *gen fk* — генитальная вилка; *spmth* — сперматека; *st* — стернит.

(Figs 9–10), appears in ventral view as spine smoothly tapering to pointed apex (Fig. 9) and in caudal view as parallel-sided plate with blunt rounded apex (Fig. 10). Inner arm (*iarm*) shorter than outer, appearing as dark brown curved spine with acute tip. Inner gonostyle (*ig*) simple, light brown, robust stem, expanded apically into beak-shaped flat plate, with curved pointed apex (Fig. 9). Aedeagal complex (Figs 11–12) with interbases fused into interbasal plate (*ip*) with well-defined side notches. Aedeagus (*aed*) in lateral view (Fig. 12) relatively slender, almost parallel-sided, upturned beyond mid-length, with apical portion even more narrowed.

Female. Resembling male in general appearance (Fig. 2). Antenna (Fig. 4) light brown, flagellar segments spherical, but distal segments not fused. Female terminalia (Figs 13–17) brown with yellow cercus and hypogynial valve. Cercus long, narrow, slightly arched and weakly upcurved apically (Fig. 13). Sternite 8 (Fig. 15) slightly wider than long, its lateral margin weakly arched (Fig. 13). Hypogynial valve longer than sternite 8, about twice as wide as cercus in lateral view, reaching to about two-thirds of cercus. Genital fork of sternite 9 in lateral view gradually widening towards anterior end (Fig. 17), in dorsal view parallel-sided, widely rounded at anterior end, with narrow sclerite in middle part (Fig. 16). Sternite 10 (*st 10*) narrow, poorly defined (Fig. 16).

DIFFERENTIAL DIAGNOSIS. *Cheilotrichia (Empeda) mongolica* **sp.n.**, differs from the other Palaearctic species of *Empeda* by its small body with brownish-yellow coloration, the structure of the antennae and male terminalia. The general body coloration resembles that of *C.* (*E.*) *vaillanti* (Alexander, 1921), the only known female of which was captured in Inner Mongolia (China). The wing of *C.* (*E.*) *vaillanti* also has a closed discoidal cell. However, this species is larger (body length 3.8 mm, wing length 4.6 mm), with a brown body and *m-cu* connecting to vein *M* before the fork of *M* [Alexander, 1921], while in *C.* (*E.*) *mongolica* **sp.n**. is smaller (body and wing length 3.0 mm), with a brownish yellow body and *m-cu* connecting to vein *M* before mid-length of discoidal cell. The species *C.* (*E.*) *savchenkoi* Devyatkov, 2017, which has a light yellow body, is also distinguished by its larger size (male body length 3.7–4.0 mm, wing length 4.2–5.0 mm), an open discoidal cell and different male terminalia [Devyatkov, 2017]. The outer male gonostyle of *C.* (*E.*) *mongolica* **sp.n**. in caudal view (Fig. 10) resembles that of *C.* (*E.*) *brachyclada* (Alexander, 1940), from Sichuan (China), and *C.* (*E.*) *baluchistanica* (Alexander, 1944), from Israel and Pakistan [Oosterbroek, 2025]. However, in contrast to the new species, the outer arm (*oarm*) of the gonostyle in these species is unusually short compared to the inner one, appearing as a curved spine, while its inner arm (*iarm*) appears as a longer plate expanding apically [Alexander, 1940, 1944]. Such a difference between the outer and the inner arms is not typical of *Empeda*. Therefore, it is possible that, in the descriptions of these species, the two arms have been confused with one another due to the displacement of structures on a flat slide. The shape of the inner gonostyle of the new species (Fig. 9) is distinct among the Palaearctic species of the genus.

DISTRIBUTION AND BIONOMICS. The new species was collected in Mongolia at an altitude of 1936 m above sea level, at the north-eastern foot of the Mount Tsetsen-Uul, near the puddles of a temporary stream.

ETYMOLOGY. The specific epithet refers to the country of origin of the type specimens.

Competing interests. The author declares no competing interests.

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