

## A NEW SPECIES OF *DESMIOZA* ENDERLEIN (DIPTERA: PSYCHODIDAE, PSYCHODINAE) FROM SOUTHERN CHILE

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### ABSTRACT

*Desmioza jezurkae* sp. nov. (male and female) from Chile (Puerto Cristal) is described and illustrated from a small collection of moth flies deposited in the Museo Nacional de Historia Natural, Santiago, Chile. It represents the fourth species of the genus known from the world (Neotropical Region, only Chile and Argentina). Differential diagnoses of the related genera and species are added.

**Key words:** Moth fly, taxonomy, Neotropical Region, Chile.

### RESUMEN

Se describe y se entregan figuras de *Desmioza jezurkae* sp. nov. (macho y hembra) de Chile (Puerto Cristal) sobre la base de dos ejemplares pertenecientes a una pequeña colección de Psychodidae depositada en el Museo Nacional de Historia Natural (Santiago, Chile). Representa la cuarta especie de este género exclusivo de Chile y Argentina. Se agregan características diferenciales de algunos géneros y especies relacionadas.

**Palabras clave:** psicódidos, taxonomía, región Neotropical, Chile.

### INTRODUCTION

Enderlein (1937) classified his new genus *Desmioza* Enderlein, 1937 as a member of the tribe Mormiini (subtribe Mormiina) of the subfamily Psychodinae. Quate (1963) synonymized *Desmioza* with *Pericoma* Walker, 1856. It was catalogued by Duckhouse (1973) by the same way; he preferred to leave several species placed by Enderlein to 6 new genera under the one heading *Pericoma*. *Desmioza* is now one of 17 recognized genera of the tribe Setomimini, based on expanded gonocoxal apodemes, which were keyed by Quate & Brown (2004), and includes actually four species from temperate areas from southern Argentina and Chile (Elgueta & Ježek 2014, Omad 2012 and 2014, Quate & Brown 2004).

The fauna of moth flies in Chile was known only from many dispersal papers in the past, e.g. Tonnoir (1929), Enderlein (1937, 1940), Stuardo (1946), Satchell (1950) and Quate (1963). However, there are several modern recent papers in addition, e.g. Duckhouse (1972, 1973), Léger & Ferté (1996), Quate & Brown (2004) and Gonzáles (2013). Guillermo “Willy” Kuschel, well known world weevil specialist, collected more than 10 envelopes of dry specimens of psychodid flies in Chile. The new species described in this paper is based on two specimens from his small collection of Diptera deposited in the National Museum of Natural History of Santiago, Chile; all species of moth flies from Kuschel’s collection and additional material were accounted by Elgueta & Ježek (2014). It stimulated the first check list of moth flies of Chile which was included there.

### MATERIAL AND METHODS

Dry specimens of moth flies from envelopes were shortly boiled in a solution of KOH, put in ethanol 70 %, cleared in chloralphenol, finally deposited in xylol and mounted on glass slides (Canada balsam). Used microscopes: Carl Zeiss Jena (Germany) and Reichert (Austria), with a mirror arm for figures. Outlines of pertinent characters were integrated into calligraphic pen pictures with Indian ink. The drawings were edited in CorelDRAW 12 and Corel PHOTO-PAINT 12 graphic software. The type material (holotype and paratype) is deposited in the Museo Nacional de Historia Natural, Santiago - Chile. Nomenclature and morphological terminology follows Duckhouse (1972), Ježek *et al.* (2011) and Quate & Brown (2004).

## RESULTS

***Desmioza* Enderlein, 1937**

*Desmioza* Enderlein, 1937: 99; Quate 1963: 183.

Type species: *Pericoma edwardsi* Tonnoir, 1929 (original designation).

Differential diagnosis. In a part of Setomimini of the Neotropical Region  $R_5$  ends beyond wing apex: *Desmioza*, *Didicrum* Enderlein, 1937, *Didimioza* Quate & Brown, 2004, and *Thrysocanthus* Enderlein, 1937. It differs from a group of genera as *Nemoneura* Tonnoir, 1929, *Valerianna* Quate & Brown, 2004, *Australopericoma* Vaillant, 1975, *Balbagathis* Quate, 1996, *Caenobrunettia* Wagner, 1981, *Alepia* Enderlein, 1937, *Neurosystasis* Satchell, 1955, *Micrommatos* Quate & Brown, 2004, *Arisemus* Satchell, 1955, *Platyplastinx* Enderlein, 1937 and *Tonnoira* Enderlein, 1937, where  $R_5$  ends in wing apex. Ascoids consist mostly of a single branch in *Desmioza*, *Didimioza* and *Thrysocanthus* in contrast to *Didicrum* with multibranching ascoids. *Desmioza* has eye bridge with three facet rows, on the other hand *Didimioza* with four facet rows and *Thrysocanthus* with more than four rows. Adapted from Quate & Brown (2004).

***Desmioza jezurkae* Ježek & Elgueta sp. nov.**

(Figures 1–24)

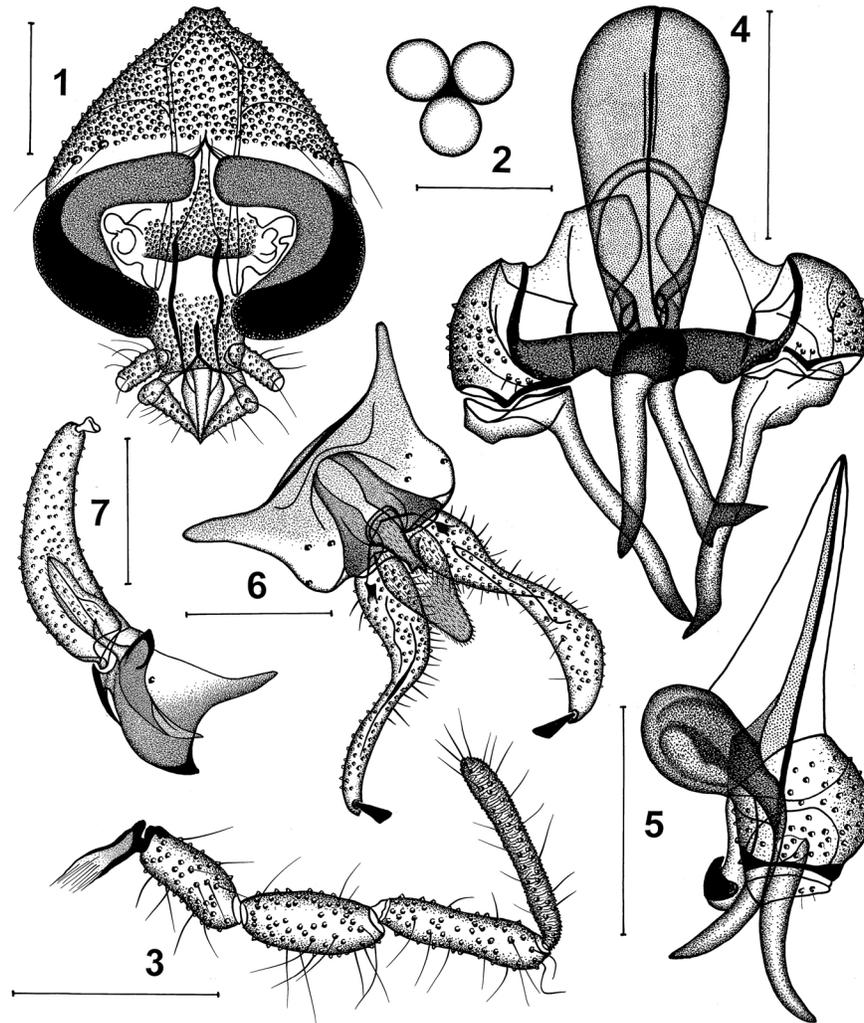
Type locality. Chile, Puerto Cristal, Región de Aisén, mixed forest (Subantarctic, Valdivian) with Patagonian influence. This locality is at 46° 33′ 50.75″ S and 72° 23′ 38.17″ W, near 225 masl.

Type material. HOLOTYPE: Male, Chile, Puerto Cristal, 21.i.1956, Kuschel leg. (slide deposited in the Museo Nacional de Historia Natural, Santiago, Chile). PARATYPE: one female, same data as holotype including type deposition.

Etymology. The new species name (adjective) is based on the nickname Ježurka of the wife of the first author: Věra Ježková.

Diagnosis. *Desmioza jezurkae* sp. nov. (male) has radial and medial forks of wings complete; gonostylus almost straight, without subapical protrusion, quite bare; one from two phallomeres bifurcated near end. Female: Sides of caudal lobes of subgenital plate parallel, with a tendency to expand laterally, inner margins slightly convex, with a deep, narrow and sharp groove, regularly wrinkled proximally. *Desmioza edwardsi* (Tonnoir, 1929) has radial and medial wing forks incomplete; gonostylus strongly curved, with subapical protrusion bearing 5-6 bristles; both phallomeres simple. Female: Caudal lobes of subgenital plate tongue-shaped (almost triangular), without deep, narrow and sharp groove proximally, not wrinkled.

Description. *Male*. Head flattened antero-posteriorly, vertex elevated (Figure 1), completely covered with setulae; three long supraocular bristles with conspicuous alveoli above dorsal margins of eyes; eyes separated approximately by the width of one half of the frontal eye bridge with three facet rows, facets are globular (Figure 2). The ratio of the distance of the apices of the eyes (tangential points) to the minimum width of the frons is 7.1:1. The interocular suture is inverted, well sclerotized, Y-shaped, bordered by a straight, barely transparent, doubled ligaments. Three alveoli patches (minute insertions of setulae) of the frontoclypeus (Figure 1) are quite fused (two cut ventro-laterals, one elongate and pointed vertical). The vertical patch is not widened closely to interocular suture. Terminal flagellomeres of antenna incomplete. Scape swollen in the middle (Figure 8) and ratio of the length to the width 1.8 : 1; scape 2.4 times as long as pedicel, pedicel almost globular. Flagellomeres cask-shaped, postpedicel and 2nd flagellomere with irregular longitudinal row of 7-9 bristles (Figures 8, 9). The sensory filaments (ascoids) of flagellomeres simple, needle-shaped (Figure 9), paired, rather short, half as long as flagellomeres bearing them (1:1). The mouthparts conspicuously extend beyond the basal palpomere. The length ratios of the maxillary palpomeres are 1.0 : 1.1 : 1.3 : 1.6, and the last palpomere is annulate (Figure 3), maxilla a little shorter than the first palpomere. For the terminal lobes of the labium, as shown in Figure 10, the lines of the spines between both



FIGURES 1 - 7. *Desmioza jezurkae* Ježek & Elgueta sp. nov. male. 1 – Head. 2 – Facets. 3 – Maxilla and palpus maxillaris. 4 – Aedeagal complex and gonopods, dorsal view. 5 – Aedeagal complex and gonopod, lateral view (one gonopod is omitted). 6 – Epandrium and surstyli, dorsal view. 7 – Epandrium and surstylus, lateral view. [Scale: 1, 3 - 7 = 0.2 mm; 2 = 0.05 mm]

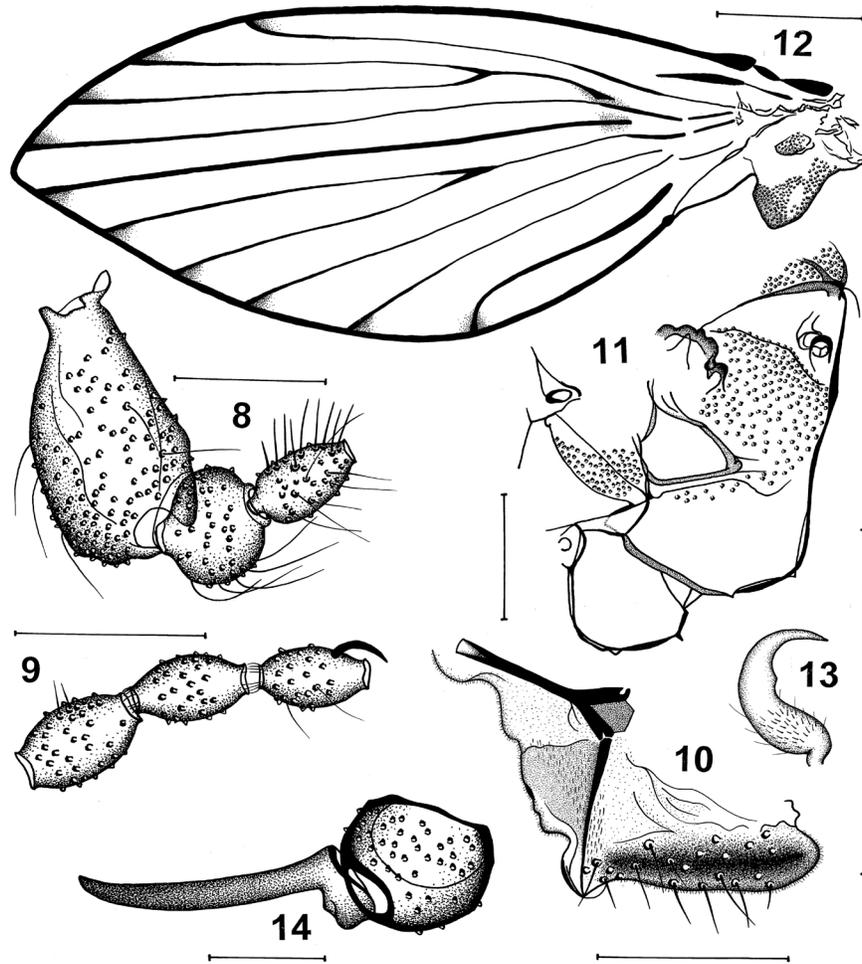
lobes are not developed, and lobes are formed at right angles (Figures 1, 10). The ratio of the maximum length of cibarium (Figure 1) to the length of epipharynx is 1.9 : 1. Thoracic sclerites and spiraculum as in Figure 11. Mesothoracal allurement area rather flat, clothed with numerous setulae. Katepisternum with a row of insertions of setulae just below anepisternal suture. Wings (Figure 12) broadly lancet-shaped, 2.8 mm long (holotype), rounded at apex, membrane bare, with conspicuous infuscation patches at apices of longitudinal veins (here a little thickened), at basis of  $R_{2+3}$  and  $R_5$ . Radial and medial forks complete, more sclerotized. Radial fork basal to medial fork. Placement of radial and medial forks in relation to the apex of  $CuA_2$ :  $CuA_2$  distal to radial and medial forks. Following veins or their parts strengthened: Sc,  $R_1$  near end of Sc,  $R_{2+3}$ , basis of  $R_4$  and  $M_{1+2}$ ,  $R_5$  and  $CuA_2$ . Basal costal wing node distinct, Sc uninterrupted, straight.  $CuA_1$  basally without connection to  $M_3$  and to  $CuA_2$ .  $R_5$  extending distally and reaching wing margin conspicuously below wing apex. Veins r-r, r-m and m-m not developed. Wing 2.5 times as long as wide. Length ratios of femora, tibiae and first tarsomeres:  $P_1 = 1.8 : 2.1 : 1.0$ ;  $P_2 = 1.9 : 2.4 : 1.2$ ;  $P_3 = 2.2 : 2.8 : 1.2$ . Fore claws as in Figure 13. Terminalia. Basal apodeme of male genitalia broad and extremely rounded proximally in dorsal view (Figure 4), narrow laterally (Figure 5), anterior gonocoxal apodeme with paired expanded conspicuous lobes at first parallel sided and then pointed, triangular (right angle). Hypandrium stripe-shaped, conspicuous, broad, very sclerotized, bare (Figures 4, 5). Aedeagal complex (Figure 4) with two longly digitiform robust phallomeres (both pointed, however, second bifurcated from dorsal view), bare, shorter than gonostyli, parameres absent. Gonocoxites (Figures 4, 14) short, swollen, hardly globular, with many setulae; gonostyli quite bare, with very short widened basis, then elongate, almost straight, at the end gradually tapering to apex, approximately twice as long as gonocoxites. Epandrium (Figures 6, 7) with two very poor fields of posterior insertions of setulae on both sides (3+3), without openings (apertures). Caudal epandrial notch large and deep. Sclerotized paired remainders of 10th segment inside of epandrium developed and safely indicated, pruning clippers-shaped from dorsal view (Figures 6, 7). Epiproct small, triangular, hypoproct longly tongue-shaped, rounded, both parts with microtrichia (Figures 6, 7). Surstylus almost cylindrical, approximately 5 times as long as its basal diameter, bent from dorsal and lateral views (Figures 6, 7), only with one short retinaculum subapically, not frazzled.

Female. Head as in male, eyes separated (Figure 15). Scape not swollen, 1.9 times as long as pedicel (Figure 16), antennae incomplete. The length ratios of the maxillary palpomeres are 1.0 : 1.5 : 1.7 : 2.4. Cibarium, epipharynx and labrum as in Figure 17. The labium (Figure 18) has two lines of spines between lobes (one lobe is omitted), and lobe is not formed at right angles (compare male - Figures 1, 10). Wings broadly lancet-shaped, as in male, 2.9 mm long (allotype). Haltere as in Figure 19. Length ratios of femora, tibiae and first tarsomeres:  $P_1 = 1.7 : 1.9 : 1.0$ ;  $P_2 = 1.9 : 2.5 : 1.4$ ;  $P_3 = 2.1 : 3.1 : 1.3$ . Terminalia as figured (Figures 20-24). Subgenital plate bilobed (Figure 20), parallel sided, with large caudal cleft between lobes, with a deep narrow and sharp groove, regularly wrinkled proximally. Lobes have a tendency to expand laterally and are with slightly convex inner margins, clothed with dense mitrotrichiae of different lengths. Foot of lobes forms a rhomboid field conspicuously sclerotized caudally and laterally, not proximally, with numerous expansive setulae in proximal and lateral ways. The basis of subgenital plate is bordered by conspicuous sclerotized stripe. Genital chamber has complicated ligaments (Figures 20, 21), paired spermateca is simple (Figures 20-22), without netting structures. Ovipositor is long, a little bent and setose (Figures 23, 24).

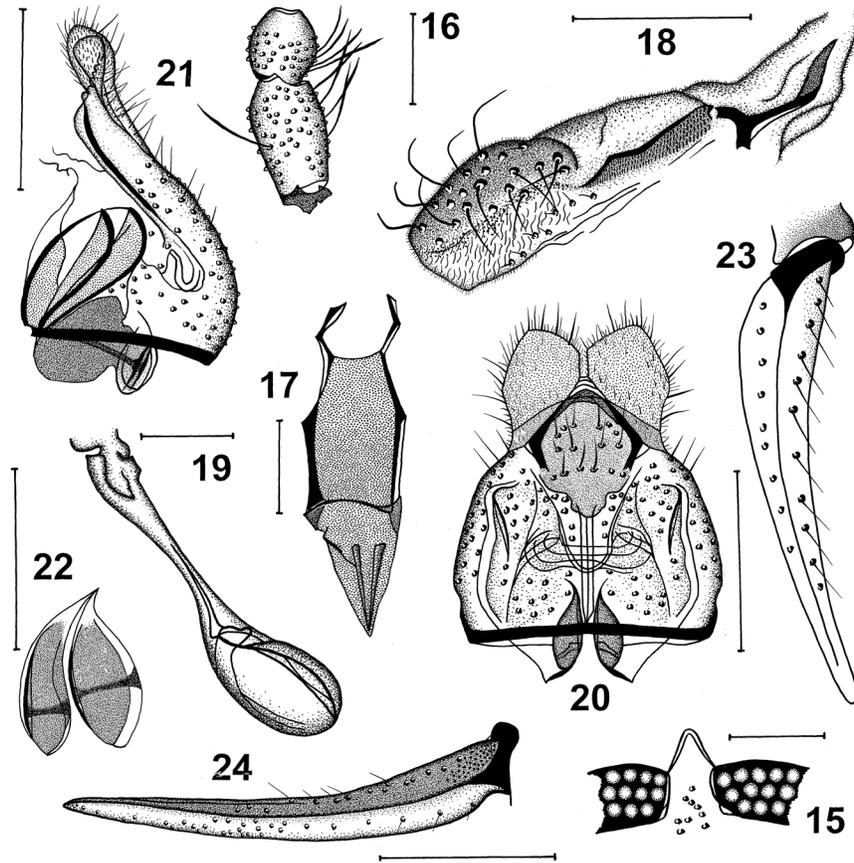
Biology and collecting circumstances. Unknown. The individuals were caught at Puerto Cristal (Figures 25 and 26) but the exact conditions of the collect are unknown. At the time where G. Kuschel collected the specimens. there was a very active mining camp with about 800 people.

Distribution. Chile, Aisén: Puerto Cristal, near the central border north of General Carrera lake in a zone with *Nothofagus* forests plus introduced vegetation, and has been affected in the past due to miner activities.

Remarks. *Desmioza* Enderlien, 1937 currently includes only four South American species, whose distribution is restricted to southern Argentina and Chile; a species from Panamá described as *Desmioza*



FIGURES 8 – 14. *Desmioza jezurkae* Ježek & Elgueta sp. nov. male. 8 – Basal antennomeres (1-3). 9 – Middle antennomeres (4-6). 10 – Terminal lobe of labium. 11 – Thoracic sclerites, lateral view. 12 – Wing. 13 – Tarsal claw of P<sub>1</sub>, lateral view. 14 – Right gonopod, lateral view. [Scale: 8 – 10, 13 – 14 = 0.1 mm; 11 = 0.25 mm; 12 = 0.5 mm]



FIGURES 15 – 24. *Desmioza jezurkae* Ježek & Elgueta sp. nov. female. 15 – Frons and facets in detail. 16 – Basal two antennomeres (scape and pedicel). 17 – Cibarium, epipharynx and labrum, frontal view. 18 - Terminal lobe of labium. 19 – Haltere, lateral view. 20 – Subgenital plate and genital chamber ventrally. 21 – Subgenital plate and genital chamber laterally. 22 – genital chamber caudally. 23 – Ovipositor dorsally. 24 – Ovipositor laterally. [Scale: 15 – 19, 22 = 0.1 mm; 20 – 21, 23 – 24 = 0.2 mm]



FIGURES 25 - 26. Puerto Cristal. 25 (above). Overview from the north, showing natural vegetation in the foreground. 26 (below). Detail of houses, with poplar trees and other introduced plants in surroundings (photographs by L. Casanova).

*symphyllia* Quate, 1999, was included by Quate and Brown (2004) in their new genus *Didimioza* together with other two species from tropical areas of South America (Perú and Venezuela). Recently was published *Desmioza biancae* Omad, 2014 from Argentina, which has the male gonostylus bifurcated as well as it is present in *D. equalis* (Tonnoir, 1934). *Desmioza jezurkae* Ježek & Elgueta sp. nov. has the male gonostylus simple such as in *D. edwardsi* (Tonnoir, 1929). Omad (2014) uses the name *Desmioza speciosa* (Tonnoir) but the correct name for this species is *Desmioza equalis* (Tonnoir, 1934) as previously has been pointed (Elgueta and Ježek 2014).

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