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**The female of *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004  
(Diptera: Chironomidae: Orthoclaadiinae)**

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**Abstract**

Mendes, H.F., Andersen, T. & Pinho, L.C. **The female of *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004 (Diptera: Chironomidae: Orthoclaadiinae)**. *Biota Neotrop.* May/Aug 2007 vol. 7, no. 2 <http://www.biotaneotropica.org.br/v7n2/pt/abstract?article+bn04707022007>. ISSN 1676-0603.

The female of *Ichthyocladius kronichticola* Mendes, Andersen et Sæther is described and figured. The female genitalia shows characters like a large, apparently undivided gonapophysis VIII; large oval seminal capsules; and fused, fully sclerotized labia, that strengthen the placement of the genus in the *Corynoneura*-group of genera.

**Keywords:** *Ichthyocladius*, *Corynoneura*-group, *Orthoclaadiinae*, *Chironomidae*, female, Brazil.

**Resumo**

Mendes, H.F., Andersen, T. & Pinho, L.C. **Fêmea de *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004 (Diptera: Chironomidae: Orthoclaadiinae)**. *Biota Neotrop.* May/Aug 2007 vol. 7, no. 2. <http://www.biotaneotropica.org.br/v7n2/pt/abstract?article+bn04707022007>. ISSN 1676-0603.

A fêmea de *Ichthyocladius kronichticola* Mendes, Andersen et Sæther é descrita e ilustrada pela primeira vez. A genitália feminina apresenta caracteres como gonapófise VIII bem desenvolvida, aparentemente não-dividida; cápsulas seminais grandes e ovais e lábios fundidos, completamente esclerosados, estreitando o posicionamento do gênero no grupo *Corynoneura*.

**Palavras-chave:** *Ichthyocladius*, grupo *Corynoneura*, *Orthoclaadiinae*, *Chironomidae*, fêmea, Brasil.

## Introduction

The genus *Ichthyocladius* was erected by Fittkau (1974) for two species from Peru and Ecuador. The larvae live on catfishes, attaching themselves to the skin and scales of the fish. Mendes et al. (2004) reviewed the genus and described two new species and two additional pupal types. The genus thus includes three named species: *I. neotropicus* Fittkau, 1974 from Peru, *I. kronichticola* Mendes, Andersen et Sæther, 2004, and *I. liliana* Mendes, Andersen et Sæther, 2004 from Brazil. In addition, immatures of other species are known from Trinidad, Venezuela, Guyana, Bolivia, Brazil, and Argentina (Fittkau 1974, Mendes et al. 2004).

The female of *I. neotropicus* was described by Fittkau (1974), based on pharate pupae. When reviewing the genus (Mendes et al. 2004), no new material of females was available. Several details, especially concerning the female genitalia, have thus not been described. However, recently we received more material of *I. kronichticola* including several females. Below we describe and figure these females in detail.

## Material and Methods

The material was reared from catfishes by E. N. F. Moura and F. O. Roque (see Ipeúna material in Roque et al. 2004). Rearing techniques consisted of keeping the catfishes in an aquarium covered with a net, and collect the emerging midges. The pupal exuviae were then collected on the water surface, as mentioned by Mendes (2002). The material was later mounted on slides in Euparal following the procedure outlined in Sæther (1969). The general terminology follows Sæther (1980). Measurements are given as ranges followed by mean when four specimens are measured.

The material is deposited at the Museu de Zoologia da Universidade de São Paulo, Brazil (MZUSP), The Natural History Collections, Bergen Museum, University of Bergen, Norway (ZMBN), Laboratório de Entomologia Aquática da Universidade Federal de São Carlos (LEA-UFSCar) and Museu de História Natural "Professor Adão José Cardoso", Universidade Estadual de Campinas (ZUEC).

## *Ichthyocladius* Fittkau

*Ichthyocladius* Fittkau, 1974: 91; Spies & Reiss (1996: 76); Mendes et al. (2004: 15)

**Type species:** *Ichthyocladius neotropicus* Fittkau, 1974: 101

**Other included species:** *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004: 18; *Ichthyocladius liliana* Mendes, Andersen et Sæther, 2004: 21; *Ichthyocladius* sp. Ecuador (Fittkau 1974); *Ichthyocladius* sp. Rio Maraujá (Mendes et al. 2004); *Ichthyocladius* sp. Argentina (Mendes et al. 2004).

Diagnosis as in Mendes et al. (2004) with the following additions: female AR lower than 0.5; tergites II–VIII with median group of setae on low to strong protuberance. Apodeme lobe covered by gonapophysis VIII, coxosternapodeme without sclerotized lamellae, labia fused and sclerotized. Fittkau (1974) stated that the female of *I. neotropicus* was lacking temporal setae. We are not able to observe any temporal setae in the female of *I. kronichticola* either, although the male has several minute temporals (Mendes et al. 2004).

## *Ichthyocladius kronichticola* Mendes, Andersen et Sæther

*Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004:

18

Material examined: BRAZIL, São Paulo, Ipeúna, córrego da Lapa, 22° 22' 42" S, 47° 46' 40" W, 6.i.2003, 2 males, 4 females, 3 pupal skins, E. N. F. Moura leg.; as previous except for 30.xi.2003, 1 male, 1 larva; as previous except for vii.2002, 18 larvae. BRAZIL, Minas Gerais, Bocaina de Minas, Maringá, Rio Preto, 10.iv.2003, 1 larva (pre-pupa) ZUEC 6189, I. Sazima leg., chironomids attached to *Trichomycterus mirissumba* Costa, 1992; as previous except for ZUEC 6189, 1 larva (pre-pupa); as previous except for ZUEC 6179, 1 larva; as previous except for ZUEC 6190, 1 larva.

**Diagnostic characters:** The female of *I. kronichticola* differs from *I. neotropicus* by having median setae on tergites II–VIII on strong protuberances, and by having tergite IX completely covering the cerci.

**Female (n = 3-4):** Total length 2.6-3.17 mm. Wing length 1.57-1.88 mm. Total length / wing length 1.63-1.74. Wing length / length of profemur 2.80-2.88. Thorax and head dark brown; abdomen dark brown with posterior 1/4 of segment VI and posterior 1/2 of segment VII pale; coxa, trochanter, femur, and tibiae dark brown with setae on foretibia in pale spots; tarsi pale; wing darkened.

Head (Figure 1). Antenna with 6 flagellomeres, length / width of segments (in  $\mu\text{m}$ ): 53-59 / 25-29, 43-53 / 21-30, 53-64 / 18-23, 59-64 / 14-16, 64-74 / 14-16, 123-135 / 16-21. AR 0.41-0.48. No temporal setae visible. Clypeus with 12-17, 14 setae. Tentorium, stipes and cibarial pump as in Figure 2. Tentorium 98-113  $\mu\text{m}$  long, 45-54  $\mu\text{m}$  wide; stipes 86-92  $\mu\text{m}$  long. Palpomere 43-49  $\mu\text{m}$  long, 35-39  $\mu\text{m}$  wide.

Thorax (Figure 3). Dorsocentrals 20-29, 25, in 1-3 rows; prealars 4-5, 5; supraalar 1. Scutellum with 6-12, 8 setae.

Wing (Figure 4). VR 1.04-1.10. Clavus 884-1096  $\mu\text{m}$  long. Clavus length / wing length 0.54-0.58. Cu / wing length 0.42-0.44.

Legs. Spur of foretibia 17-21  $\mu\text{m}$  long, spurs of midtibia 19-26  $\mu\text{m}$  and 11-15  $\mu\text{m}$  long; spurs of hind tibia 40-48  $\mu\text{m}$  and 23-30  $\mu\text{m}$  long. Width at apex of foretibia 35-43  $\mu\text{m}$ , of midtibia 49-55  $\mu\text{m}$ , of hind tibia 48-53  $\mu\text{m}$ . Comb with 3-5 setae, longest about 45  $\mu\text{m}$  long. Pseudospurs each about 10  $\mu\text{m}$  long. Tarsi 4 shorter than tarsi 5. Length and proportion of legs as in Table 1.

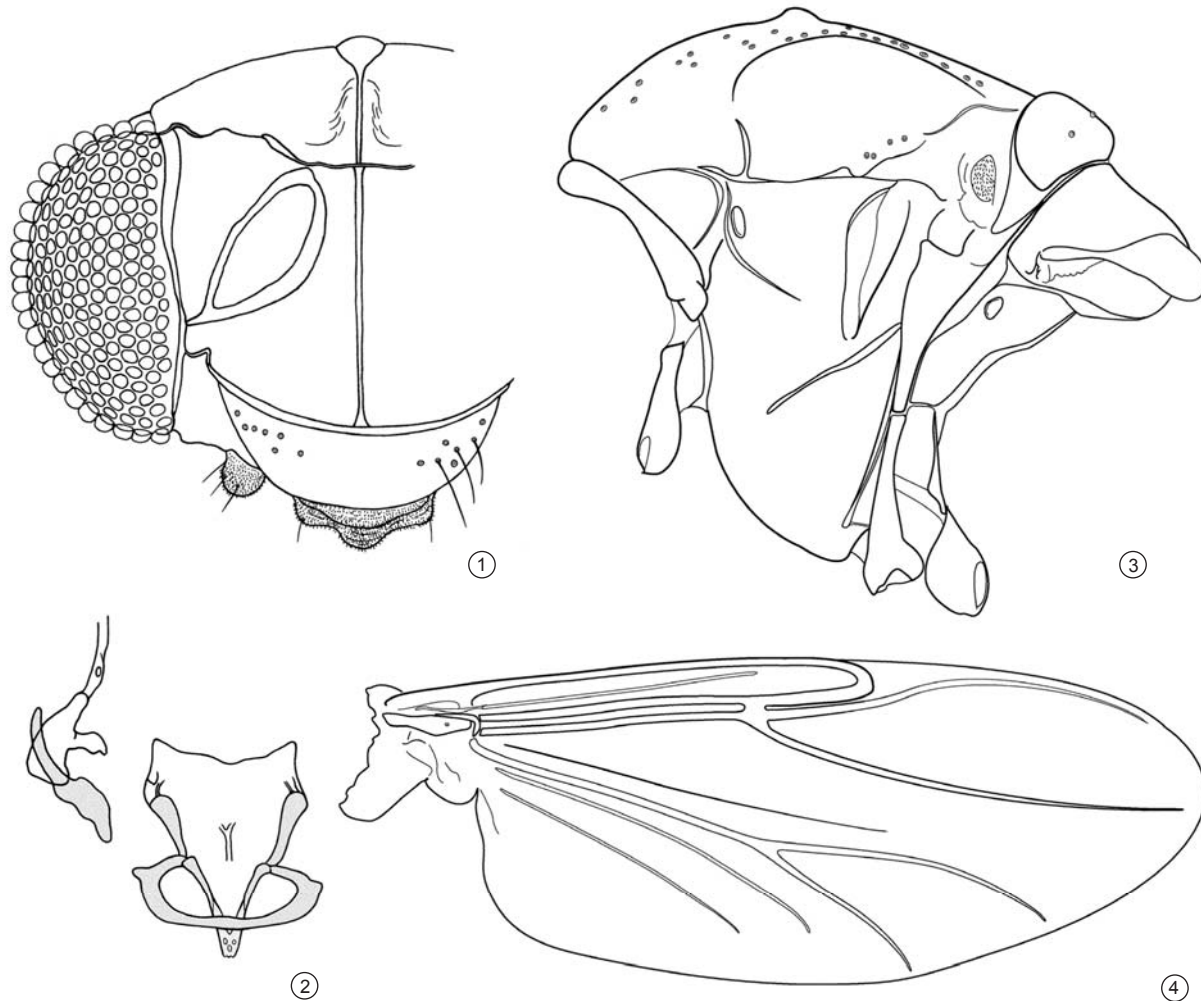
Abdomen (Figure 5). Tergites II–VIII with median group of setae on strong protuberance; number of setae on tergites I–VIII: 0-1, 0; 8-19, 14; 14-23, 18; 12-27, 20; 13-33, 24; 11-26, 20; 3-15, 9; 2-21, 10.

Genitalia (Figures 6-7). Gonocoxite IX 83-104, 95  $\mu\text{m}$  long; with 8-13, 11 weak setae. Tergite IX large, with lateral margins downturned, completely covering cerci, with 27-38 weak setae. Postgenital plate well developed. Cercus 65-90, 79  $\mu\text{m}$  long; 11-18, 15  $\mu\text{m}$  wide; with about 30 weak setae. Seminal capsule 133-154  $\mu\text{m}$  long including 40-47  $\mu\text{m}$  long neck; neck 7-14  $\mu\text{m}$  wide at apex. Notum 184-205, 193  $\mu\text{m}$  long; labia fused and sclerotized (Figure 8). Gonapophysis VIII apparently undivided, large (Figure 9); covering apodeme lobe (Figure 10).

## Discussion

Mendes et al. (2004) performed a phylogenetic analysis of 34 genera, including genera near *Eukiefferiella* Thienemann and *Corynoneura* Winnertz. The *Corynoneura* group of genera appeared to be monophyletic and included *Corynoneura*, *Ichthyocladius*, *Kaniwhaniwhanus* Boothroyd, *Onconeura* Andersen et Sæther, *Tempisquitoneura* Epler, and *Thienemanniella* Kieffer.

The internal structures of the female genitalia of *Ichthyocladius* shows clear similarities to *Corynoneura* and *Thienemanniella* (see Sæther 1977), with large, apparently undivided gonapophysis VIII, covering the apodeme lobe; large oval seminal capsules; and fused, fully sclerotized labia.



**Figures 1-4.** *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004, female. 1, head; 2, tentorium, stipes, and cibarial pump; 3, thorax; 4, wing.  
**Figuras 1-4.** *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004, fêmea. 1, cabeça; 2, tentorium, stipes, e bomba cibarial; 3, tórax; 4, asa.

**Table 1.** Length (in  $\mu\text{m}$ ) and proportions of the legs of *Ichthyocladius kronichticola* Mendes, Andersen et Sæther (n = 3-4).

**Tabela 1.** Comprimento (em  $\mu\text{m}$ ) e proporções das pernas de *Ichthyocladius kronichticola* Mendes, Andersen et Sæther (n = 3-4).

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>
fe	562-666, 594	396-443, 418	418-482, 447
ti	540-630, 588	371-428, 402	497-605, 553
ta <sub>1</sub>	349-403, 374	310-385, 337	274-331, 295
ta <sub>2</sub>	126-144, 138	104-126, 112	126-137, 132
ta <sub>3</sub>	61-76, 69	50-68, 62	58-72, 64
ta <sub>4</sub>	25-32, 29	25-29, 27	22-29, 25
ta <sub>5</sub>	25-43, 36	29-36, 34	25-40, 34
LR	0.61-0.67, 0.63	0.72-0.91, 0.84	0.49-0.56, 0.54
BV	5.41-6.06, 5.73	4.58-5.42, 4.90	4.65-5.57, 5.07
SV	3.06-3.30, 3.16	2.25-2.78, 2.45	3.28-3.62, 3.39
BR	1.9-3.0	2.7-3.0, 2.9	2.0-2.7, 2.3

The genus *Ichthyocladius* lives on catfishes of the families Austroblepidae, Loricariidae and Trichomycteridae (Roque et al. 2004, Nessimian et al. 2003). *Ichthyocladius kronichticola* was re-

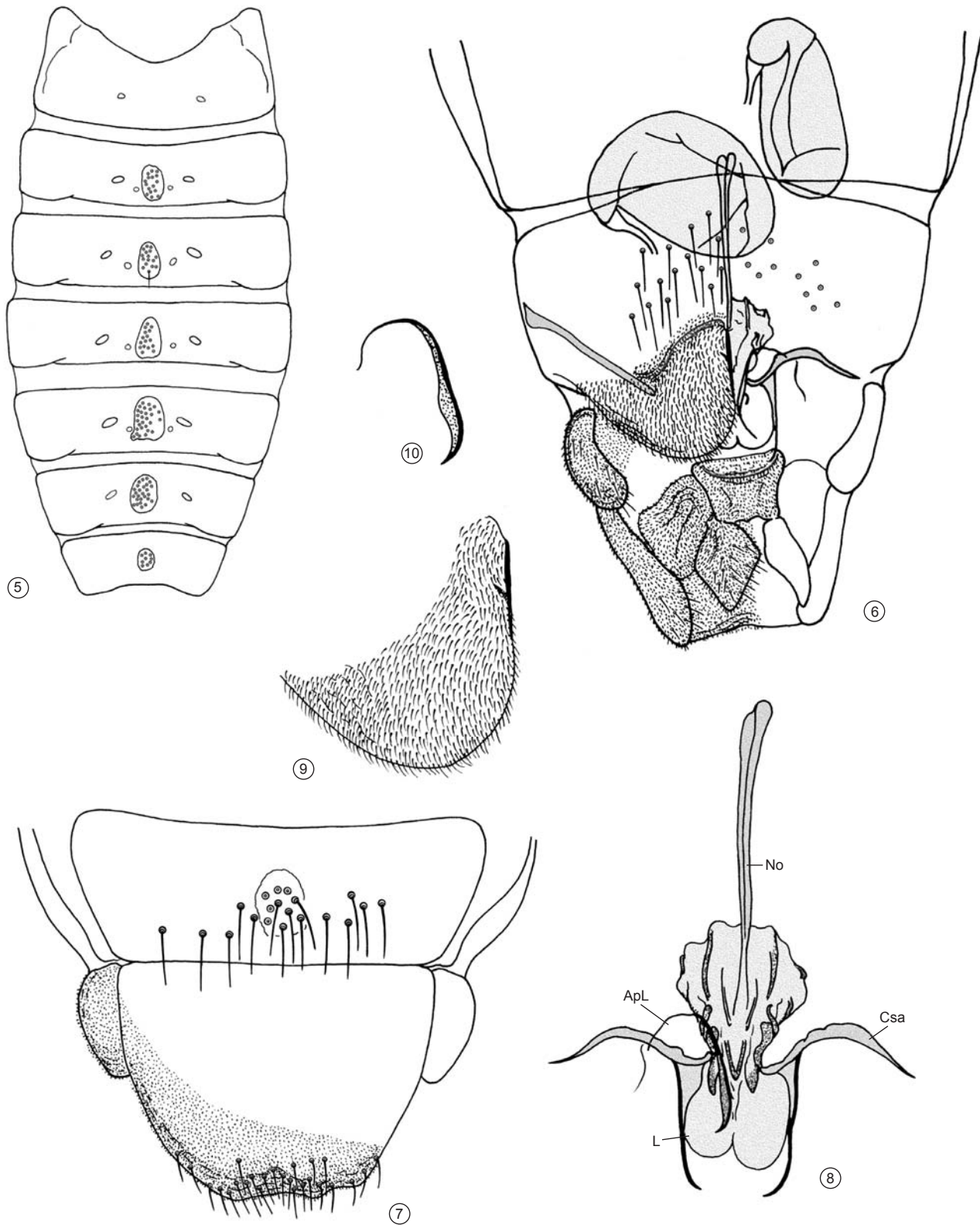
corded as associated with *Kronichthys* sp. (Loricariidae) by Mendes et al. (2004). Now it has also been recorded on *Trichomycterus mirissumba* Costa, 1992 (Trichomycteridae).

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## References

- FITTKAU, E.J. 1974. *Ichthyocladius* n. gen., eine neotropische Gattung der Orthoclaadiinae (Chironomidae, Diptera) deren Larven epizoisch auf Welsen (Astroblepidae und Loricariidae) leben. Ent. Tidskr., Suppl. 95:91-106.
- MENDES, H.F. 2002. Rearing Tanytopodinae, Telmatogetoninae and Orthoclaadiinae in Brazil, an empirical approach. Chironomus Newsletter 15:29-32.



**Figures 5-10.** *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004, female. 5, abdominal tergites; 6, genitalia, ventral view; 7, genitalia, dorsal view; 8, gonapophysis IX with notum (No), labia (L), apodeme lobe (ApL), and coxoesternapodeme (Csa); 9, gonapophysis VIII; 10, apodeme lobe.

**Figuras 5-10.** *Ichthyocladius kronichticola* Mendes, Andersen et Sæther, 2004, fêmea. 5, tergitos abdominais; 6, genitália, vista ventral; 7, genitália, vista dorsal; 8, gonapófise IX com noto (No), lábios (L), lobo do apódema (ApL), e coxoesternapódema (Csa); 9, gonapófise VIII; 10, lobo do apódema.

- MENDES, H.F., ANDERSEN, T. & SÆTHER, O.A. 2004. New species of *Ichthyocladius* Fittkau, a member of the *Corynoneura*-group (Diptera: Chironomidae: Orthoclaadiinae), with a review of the genus. *Stud. Neotrop. Fauna Environ.* 39:15-35.
- NESSIMIAN, J.L., AMORIM, R.M., HENRIQUES-OLIVEIRA, A.L. & SANSEVERINO, A.M. 2003. Chironomidae (Diptera) do Estado do Rio de Janeiro: levantamento dos gêneros e habitats de ocorrência. *Publ. Avul. Mus. Nac.* 98:3-16.
- ROQUE, F.O., TRIVINHO-STRIXINO, S., JANCOSO, M. & FRAGOSO, E.N. 2004. Records of Chironomidae larvae living on other aquatic animals in Brazil. *Biota Neotrop.* 4(2):1-9.
- SÆTHER, O.A. 1969. Some Nearctic Podonominae, Diamesinae and Orthoclaadiinae (Diptera: Chironomidae). *Bull. Fish. Res. Bd Can.* 107:1-154.
- SÆTHER, O.A. 1977. Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies, keys. *Bull. Fish. Res. Bd Can.* 197:1-211.
- SÆTHER, O.A. 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Ent. scand., Suppl.* 16:1-51.
- SPIES, M. & REISS, F. 1996. Catalog and bibliography of Neotropical and Mexican Chironomidae (Insecta, Diptera). *Spixiana, Suppl.* 22:61-119.