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A new Neotropical species of *Tanytarsus* van der Wulp, 1874 (Diptera: Chironomidae), with an unusual anal process

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Abstract

Male, female, pupa and larva of *Tanytarsus caipira* **sp. n.** are described and figured. Larvae were collected on the aquatic macrophyte *Mayaca fluviatilis* in a small pond in southeastern Brazil and reared to the adult stage. The male of *T. caipira* can be distinguished from all other described *Tanytarsus* species by the lack of a proper anal point and the long, forked, dorsal anal process. The pupa differs from other *Tanytarsus* species in having 2 pairs of taeniate setae on sternite VIII. The larva of *T. caipira* has a large Lauterborn organ placed on a short, weakly sclerotized pedicel.

Key words: Chironomidae, Tanytarsini, *Tanytarsus*, new species, Brazil

Introduction

The genus *Tanytarsus* van der Wulp, 1874 has a worldwide distribution, and is very species rich and abundant in all types of freshwater habitats. Up until now 37 *Tanytarsus* species have been recorded from the Neotropical Region (Cranston 2007; Sanseverino 2006). However, the pupae of only 13 of these species and the larvae of only 4 species are associated and described. During ecological surveys of freshwater habitats the identification of immatures is potentially problematic and often possible only to genus level, as can be exemplified by the high number of pupal morphotypes of Tanytarsini, including several *Tanytarsus* species, recorded in recent papers (e.g., Couceiro *et al*. 2006; Roque & Trivinho-Strixino 2007). The ability to identify larvae and pupae thus facilitates many aspects of basic biological research as well as biological monitoring and conservation programs.

In the Laboratório de Entomologia Aquática at the Universidade Federal de São Carlos, we have been rearing chironomid larvae to associate immatures and adults since the 1980's, resulting in the description of both adults and immatures of several *Tanytarsus* species as well as other chironomid species. The new species described below was collected in a small pond on the Universidade Federal de São Carlos Campus in southeastern Brazil, where the larva is associated with the aquatic macrophyte *Mayaca fluviatilis*, and reared in the laboratory to obtain all life stages.

Material and methods

Larvae were collected on stands of *Mayaca fluviatilis* and kept isolated in small bottles covered with fine mesh until the adults emerged. All material examined was slide-mounted in Euparal or Hoyer. The morphological terminology follows Sæther (1977, 1980), except the term "taeniae", which is used for the flattened

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setae on the pupal abdomen according to Langton (1994). Measurements are given as the value of the holotype [in brackets], followed by the range of the paratypes. Seta counts are given as the range only.
The holotype and most paratypes are deposited in the collection at the Laboratório de Entomologia Aquática, Universidade Federal de São Carlos (LEA-UFSCar), São Paulo, Brazil. One male, one female, one pupal exuviae and one larva paratype are deposited in the Museu de Zoologia, Universidade de São Paulo (MZUSP), São Paulo, Brazil.

***Tanytarsus caipira* sp. n.**
(Figs 1–15)

Type material: Holotype male, slide-mounted in Euparal. BRAZIL: São Paulo State, São Carlos, UFSCar Campus, x.1999, S. Trivinho-Strixino. Paratypes: 4 male as holotype; 4 females, 4 pupal exuviae, 5 larvae, as holotype except slide-mounted in Euparal or Hoyer, ix–x.1999; 1 female with associated pupal exuviae, as holotype except ix.1999; 1 female pupa with associated larval exuviae, as holotype except ix.1998.

Etymology. From the indigenous Tupi language, Caa-pira, meaning a rustic provincial backwoodsman. The name is to be regarded as a noun in apposition.

Diagnostic characters. The long, forked, dorsal anal process distinguishes the male of *T. caipira* from all other *Tanytarsus* species. The process resembles the bifid anal point of *Tanytarsus richardsi* Glover, 1973 from Australia. However, in *T. caipira* it is not the anal point proper that is forked, but a process superposed over the tergite margin. The hypopygium of *T. caipira* also differs from that of *T. richardsi* by the short digitus and by the V-shaped anal tergite bands, which is T-shaped in *T. richardsi*. The pupa differs from other *Tanytarsus* species in having 2 pairs of taeniate setae on sternite VIII. The larva of *T. caipira* has a large Lauterborn organ placed on a short, weakly sclerotized pedicel, a feature approaching the Australian species *T. richardsi*, *T. rosario* Cranston, 2000, *T. humphreyi* Cranston, 2000, and *T.* K10 Cranston, 2000.

Male (n = 5)

Small, total length about 2 mm. Body color greenish in life, yellowish in alcohol. Head greenish yellow, antennal flagellum and plume yellowish, maxillary palp yellowish. Thorax greenish with yellow mesonotal stripes, scutellum and postnotum greenish.

Head. Antennal flagellomeres [738] 705–748 µm long, AR = [0.76] 0.75–0.88. Length of palpomeres 2–5 (in µm): [34] 32–40, [101] 96–104, [114] 104–120, [169] 160–200. Temporal setae 6–8, in single row. Clypeus with 10–12 setae.

Thorax. Acrostichals 12–14, dorsocentrals 6–8, prealar 1. Scutellum with 4 setae in single row.

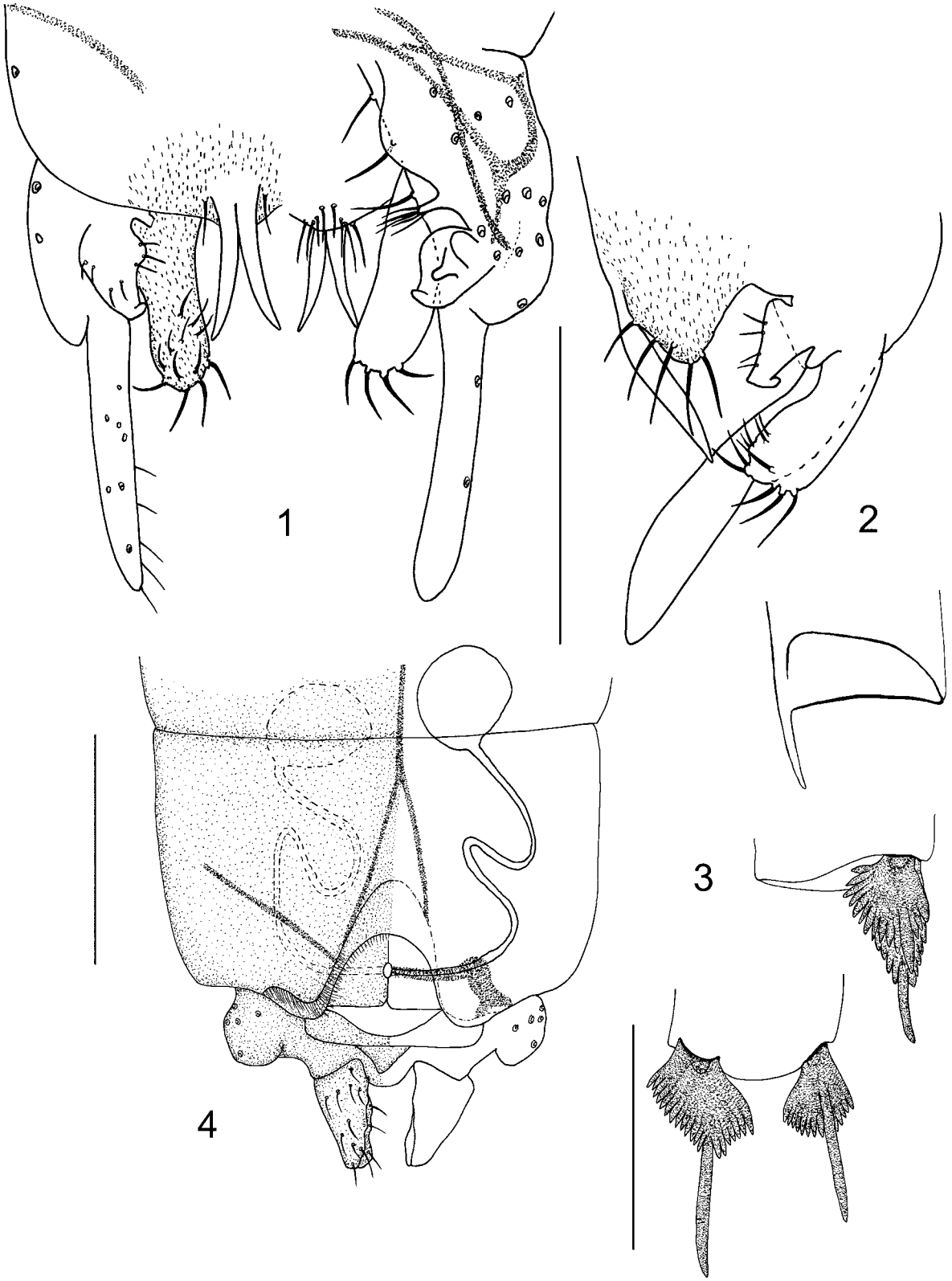
Wing. Length [1.27] 1.24–1.31 mm, width [0.37] 0.36–0.38 mm; transparent with yellowish veins. FCu ending distal to RM; VR = [1.17] 1.09–1.22; C ending close to R_{4+5} and before M_{1+2}. Macrotrichia present on all veins, except M and proximal half of Cu.

Legs. Foretibia with slender, pale spur; mid and hind tibia with two black combs, each bearing a single spur (Fig. 3). Lengths (in µm) and proportions of legs as in Table 1.

Hypopygium (Figs 1–2). Anal tergal bands V-shaped. Posterior margin of tergite IX with 2 dorsolateral and 8 ventral setae; dorsally with prominent bare, forked, process, [49] 44–52 µm long. Superior volsella bare, with distal margin hook-like, with 4 dorsal and 3 marginal setae. Digitus short, with rounded apex. Inferior volsella cylindrical, densely microtrichiose, bearing 4 long distal and 8 shorter dorsal setae. Median volsella short, with 6–8 short, spindle-shaped lamellae.

Female (n = 5)

Coloration as in male.



FIGURES 1–4. *Tanytarsus caipira* **sp. n.**, adults. 1. Male hypopygium, left dorsal, right ventral. 2. Male hypopygium, lateral. 3. Spurs of fore, mid and hind tibiae. 4. Female genitalia. Scale: 100 µm.

Head. Length of flagellomeres 2–5 (in µm): 72–80, 56–60, 56–64, 104–120; AR = 0.44–0.51. Length of palpomeres 2–5 (in µm): 28–40, 92–100, 92–108, 168–184. Temporal setae 6–8, in single row. Clypeus with 12–13 setae.

TABLE 1. Lengths (in µm) and proportions of legs *Tanytarsus caipira* **sp. n.**, male (n = 5).

	fe	ti	ta_1	ta_2	ta_3
p_1	[585] 585–600	[285] 270–300	[750] 735–765	[345] 345–375	[285] 285–315
p_2	[609] 585–630	[480] 465–495	[285] 285–300	[132] 120–135	[90] 90–105
p_3	[636] 630–645	[615] 600–630	[420] 405–445	[246] 240–270	[228] 225–240

continued.

	ta_4	ta_5	LR	BV	BR
p_1	[225] 225	[105] 105	[2.66] 2.45–2.83	[1.69] 1.63–1.66	[3.2] 3.2
p_2	[60] 60	[45] 45	[0.59] 0.58–0.62	[4.17] 4.17	[5.8] 5.8
p_3	[138] 135–150	[75] 75	[0.68] 0.67–0.70	[2.43] 2.43	[7.7] 7.7

Thorax. Acrostichals 10–12, dorsocentrals 7–8, prealar 1. Scutellum with 4 setae in single row.

Wing. Length 1.06–1.25 mm, width 0.38–0.41 mm. VR = 1.13–1.26. Setation as in male.

Legs. Tibial spurs as in male. Lengths (in µm) and proportions of legs as in Table 2.

TABLE 2. Lengths (in µm) and proportions of legs of *Tanytarsus caipira* **sp. n.**, female (n = 5).

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5	LR	BV	BR
p_1	525–585	270–300	675–750	315–360	270–300	195–225	75–105	2.42–2.63	1.65–1.72	3.1
p_2	525–600	420–510	195–240	105–120	75–105	45–60	45	0.40–0.53	4.09–4.22	5.3
p_3	525–600	480–615	315–375	180–225	180–210	105–135	60–75	0.61–0.65	2.46–2.51	7.2

Abdomen. Yellowish green.

Genitalia (Fig. 4). Sternite VIII bearing 17–18 setae in irregular transverse band; floor under vagina large. Gonocoxapodeme VIII straight, running diagonally to anteromedian corner of sternite VIII. Gonapophysis VIII simple, rounded, with weakly curved caudolateral microtrichia. Gonocoxite IX with 4–5 setae. Tergite IX with about 15 strong setae. Postgenital plate triangular. Seminal capsule ovoid, without neck. Spermathecal duct with long loop.

Pupa (n = 5)

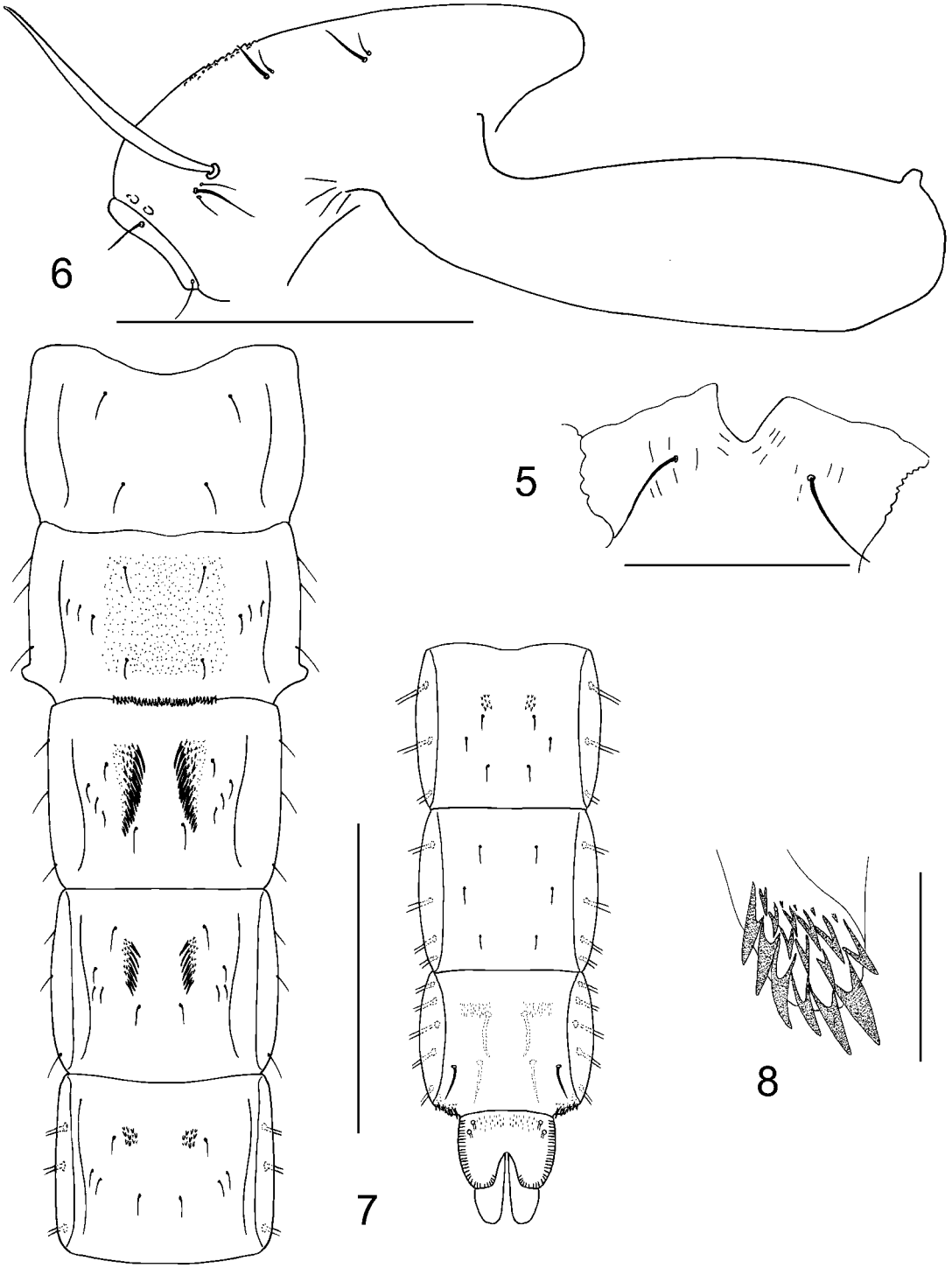
Cephalothorax. Cephalic tubercles and frontal warts absent (Fig. 5). Thoracic horn slender, 350 µm long, with few short spinules, tapering to distal point (Fig. 6). Wing sheath with well developed nose. Antepronotals 2, about 60 µm long. Precorneals 3, in semi triangular pattern; Pc_1 about 100 µm long, twice as long as Pc_2 and Pc_3. Two pairs of dorsocentrals; Dc_1 and Dc_3 longer than Dc_2 and Dc_4; distance between Dc_1/Dc_2 and Dc_3/Dc_4 140 µm.

Abdomen (Fig. 7). Abdominal exuviae 2.04–2.40 mm long. Tergite I bare, T II with median field of shagreen, T III–IV with paired longitudinal band of spines, T V–VI with paired point patches anteriorly, T VII bare, T VIII with paired anteriolateral field of fine shagreen, T IX with anterior field of shagreen. Hooklets continuous, occupying about 1/3 width of segment. Pedes spurii A absent; pedes spurii B present on segment II. Anal comb on segment VIII with 6–7 yellowish brown teeth in addition to 13–14 smaller ones (Fig. 8). Abdominal setation: segments II–IV with 3 L setae, V–VI with 3 lateral taeniae, VII–VIII with 4–5 lateral taeniae. Sternite VIII with 2 pairs of taeniate setae. Anal lobe with complete fringe of *c*. 24–26 taeniae and 2 dorsal taeniae on each side.

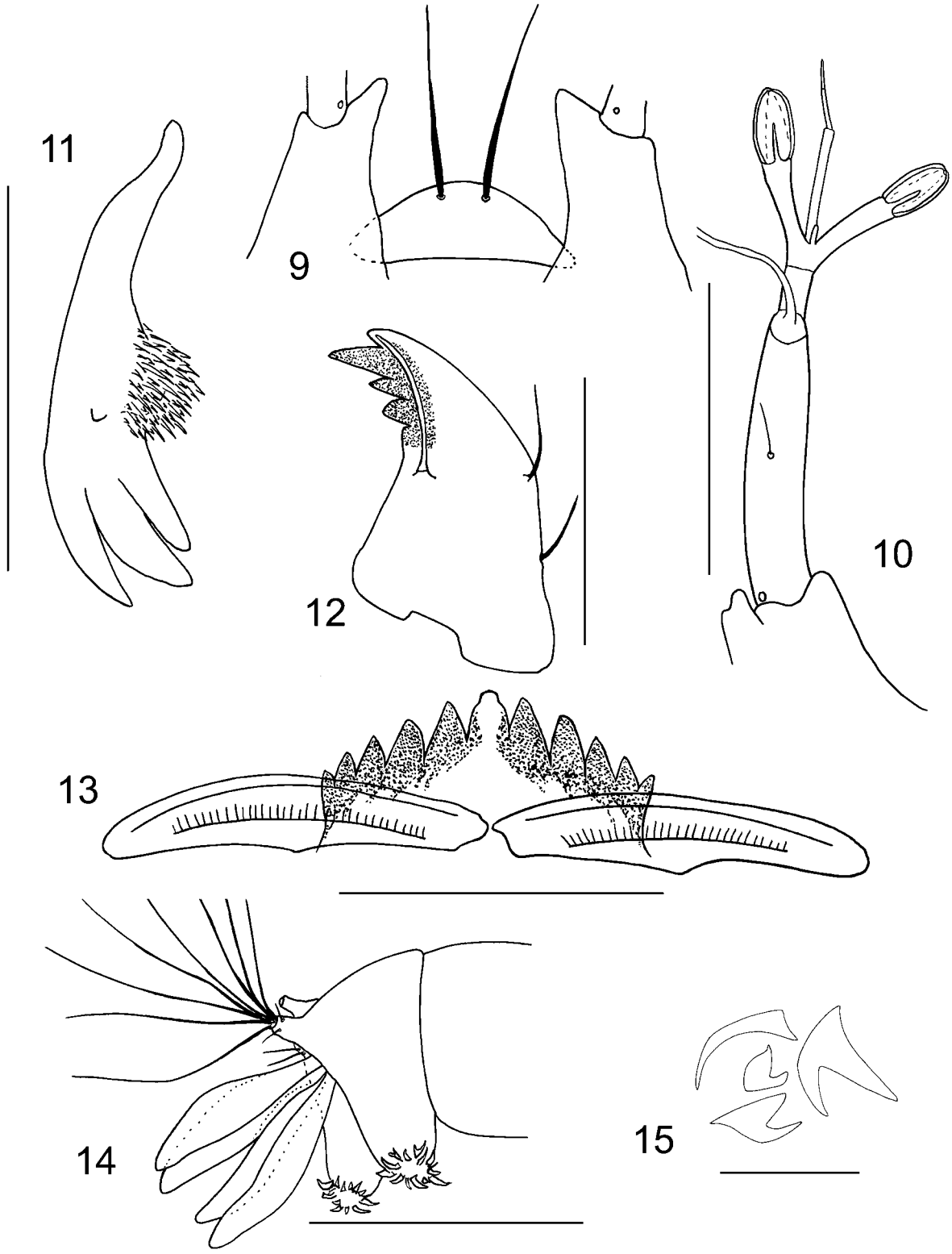
4th instar larva (n = 5)

Total length 4.16–4.92 mm. Color pale red.

Head. Width 216–240 µm, length 296–320 µm; IC = 0.75. Clypeus with S3 simple (Fig. 9). Antenna placed on short pedestal bearing single apical spur (Figs 9–10); basal segment longer than flagellum, with basal ring organ and small seta in proximal 1/2; AR = 1.04–1.30; segment 2 unsclerotized distally, shorter than segment 3. Lauterborn organs large, placed on 27 µm long pedicels. Pecten epipharyngis consisting of three indented scales. Premandible with three teeth (Fig. 11). Mandible 135–152 µm long, apical and inner teeth brown (Fig. 12). Mentum with pale median tooth and brown lateral teeth (Fig. 13).



FIGURES 5–8. *Tanytarsus caipira* **sp. n.**, pupa. 5. Frontal apotome. 6. Thorax. 7. Abdominal tergites. 8. Anal comb. Scales: Fig. 5 = 100 µm; Figs 6–7 = 500 µm; Fig. 8 = 50 µm.



FIGURES 9–14. *Tanytarsus caipira* **sp. n.**, larva. 9. Clypeal seta S3 and antennal bases. 10. Antenna. 11. Premandible. 12. Mandible. 13. Mentum and ventromental plates. 14. Anal end, lateral view. 15. Claws of posterior parapods. Scales: Figs 9–13 = 100 μm; Fig. 14 = 500 μm; Fig. 15 = 50 μm.

Abdomen (Fig. 14) with anal tubules about 224 μm long. Posterior parapodes with large, smooth claws (Fig. 15).

Remarks. The presence of large Lauterborn organs mounted on a short pedestal may be a good character

grouping *T. caipira* with some Australian *Tanytarsus* species. However, this character is also found in some *Caladomyia* species, like *C. castelnaui* Säwedal, 1981 and *C. friederi* Trivinho-Strixino *et* Strixino, 2000. But in the *Caladomyia* larvae this pedestal is more strongly sclerotized in the proximal half than in the distal half, or it has annulations, characters not seen in the *Tanytarsus* larvae.

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