



A new species of *Tafalisca* Walker, 1869 from the Iguaçu National Park, Brazil (Grylloidea, Eneopteridae, Tafaliscinae)

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Abstract

The aim of this work was to describe a new cricket species from the Iguaçu National Park, Southeastern Brazil. We characterize the genitalia and external morphology of *Tafalisca paranaensis* n. sp. and the genitalia of *Tafalisca paulista* Rehn, 1918 providing a comparison between these species.

Key words: Tafaliscini, cricket, Neotropical, Atlantic Forest, taxonomy

Resumo

O objetivo deste trabalho foi descrever uma nova espécie de grilo do Parque Nacional do Iguaçu, Sul do Brasil. Nós caracterizamos a genitália e a morfologia externa de *Tafalisca paranaensis*, sp. n. e a genitália de *Tafalisca paulista* Rehn, 1918 fornecendo uma comparação entre estas espécies.

Palavras chave: Tafaliscini, grilo, Neotropical, Mata Atlântica, taxonomia

Introduction

The genus *Tafalisca* was erected by Walker (1869) for the species *T. lurida*, which morphological description was based on one female collected at Costa Rica.

Rehn (1918) described *Tafalisca paulista*, a new species from city of Franca, state of Sao Paulo, Brazil. That author considered *T. paulista* as a closely related species to *T. brasiliiana* Saussure, 1878 (without type locality) and *T. bahiensis* Saussure, 1878 (type locality: Bahia, Brazil) and provided a description of its external morphology, without genitalia characterization. In that work, Rehn grouped *T. paulista* in the subfamily Eneopterinae.

Desutter (1987) created the subfamily Tafaliscinae, but provided no definition, adding three tribes to this taxon: Paroecanthini Gorochov, 1986 and two new ones, Diatrypini and Tafaliscini, both undefined. In a later work, Desutter (1988) provided the definitions of Tafaliscinae and its related tribes, erecting a new one, Neometrypini.

The monogeneric tribe Tafaliscini is characterized for these combination of characters: robust body; fifth joint of maxillary palpi rounded in the apex; tegmina and hind wings well developed; tegmina without stridulatory apparatus and strong longitudinal venation; hind tibia with four internal and five external spines; tympanum absent; ovipositor dorso-ventrally flattened (Desutter, 1988; Mesa & Garcia-Novo, 2001).

Tafaliscini is a widely distributed tribe in Neotropical region, being found in Costa Rica, Guadalupe, West Amazonia, Guyana, Bahia State and Southeast of Brazil. *Tafalisca* actually comprises 18 species and most of descriptions do not point the type localities (Desutter, 1988; Eades & Otte, 2010).

In our collection at the Zoology Department of Sao Paulo State University (Unesp, Botucatu city, Brazil) we have several specimens of *T. paulista* collected by Dr. Francisco A. G. Mello at Boraceia Biological Station, state of Sao Paulo. Considering that this genus is widely distributed and the descriptions of its species are incomplete, we provide a full description of a new species of *Tafalisca* from the Iguaçu National Park, Southern Brazil, the southernmost distribution of this genus so far. Besides, additional information about *T. paulista* by describing and comparing its general morphology and phallic complex with *T. paranaensis*, n. sp. is provided.

Methods

The specimens were collected manually at night in trails of Iguaçu National Park, a remnant of Atlantic Semideciduous Forest (25°37'40"S / 54°27'46"W) over leaves and shrubs and were not observed on leaf litter.

Drawings, descriptions and comparisons were made under stereomicroscope and for the measurements a graduate ocular was employed. The male genitalia were treated with an aqueous solution of 10% potassium hydroxide for 24 hours to remove membranes and analyzed under stereomicroscope.

Pictures were taken with a Sony H9 and a Canon Powershot digital camera attached on stereomicroscope and the images were analyzed using image edition software.

We employ the terminology of Desutter (1987, 1988, 1990) and Desutter-Grandcolas (2003) for the male phallic complex and female copulatory papilla.

Repositories: holotype and allotype are in the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZSP). Two female paratypes are in the Departamento de Zoologia, Instituto de Biociências-UNESP, Botucatu, SP, Brazil (UBTU).



FIGURE 1. *Tafalisca paranaensis*, new species.

Results

Tafalisca paranaensis de Mello & Dias, n. sp..

(Figs. 1–4; Table I)

Etymology: Species name allusive to the Paraná State, Brazil.

Material examined: Holotype male, Brazil, PR, Parque Nacional do Iguaçu, Trilha do Poço Preto, Foz do Iguaçu. 20-30.i.2008, Dias, P.G.B.S & de Mello, F.A.G. *leg.*; 2 female paratypes, same collectors and same locality

Repositories: Holotype and allotype [MZSP]; 2 females paratypes [UBTU].

Diagnosis. *T. paranaensis*, n. sp. differs *T. paulista* Rehn, 1918, in the following characters: relatively smaller size; cephalic and caudal margins of the pronotum lightly curved; shorter tegmina, reaching the half of abdomen (covering the entire abdomen in *T. paulista*); fore tibia with 5 spurs on inner face and 4 on outer (*T. paulista* presents 5 on both faces); membranous area of pseudepiphallus dorsum with almost straight post-lateral angles; pseudepiphallic parameres robust, like an ax. The figure 5 shows the differences between male genitalia of *T. paranaensis*, n. sp. and *T. paulista*.

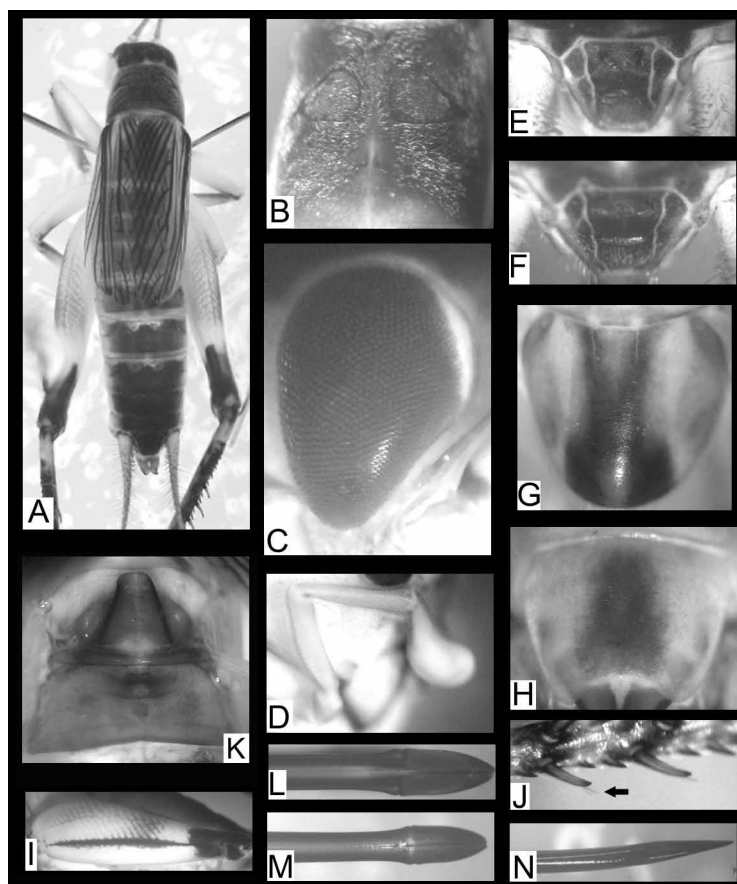


FIGURE 2. *Tafalisca paranaensis*, n. sp. general morphology plate. **Male:** A—Habitus, dorsal; B—Pronotum in dorsal view; C—Eye in lateral view; D—Maxillary palp in lateral view; E—Supra-anal plate; G—Subgenital plate; I—Hind femur in lateral view; J—Superior view of hind tibia (the arrow shows the tuft of bristles on the spurs apex); K—Metanotal structure. **Female:** F—Supra-anal plate; H—Subgenital plate; L, M, N—Apical valves of ovipositor in dorsal, ventral and lateral views, respectively.

Description: Male: size rather large and robust (Figs. 1, 2A). Top of head oblique in lateral view and rounded in frontal view; occiput border with two triangular pale spots; occiput and vertex dark brown; Black eyes, with a small unpigmented area on superoventral margin (Fig. 2C); antennal scape whitish yellow, with brown basis; lateral ocelli small, close of antennal scape; median ocellus larger than lateral ones, located between the antennal scapes; frons, gena and clypeus pale light brown; labrum whitish yellow; maxillary palpi pale light brown, the fifth joint rounded, arcuate, lightly yellow than the others (Figs. 2D, 3E); the fourth joint longer than fifth. Disc of pronotum velvety, dark brown above reddish brown background (Figs. 1, 2B); cephalic margin darker, velvety, slightly concave (Fig. 2B); caudal margin almost straight; lateral lobes with rounded borders, as colored as the disc. Legs I and II whitish yellow with a thin dark stripe on outer and inner femur surface (Fig. 1); tibiae and femurs I and II same colored with proximal area darkened mainly on ventral face (Fig. 1); 3 spurs on tibia I ventrocaudal extreme and 4 on tibia II; hind femur whitish yellow with a longitudinal contrasting dark stripe and dark brown narrow bands positioned over this stripe; apical extreme dark brown (Figs. 1, 2I); tibia III as long as femur, dark brown with a yellow spot on anterior extremity; dorsal spurs: five large spurs without apical bristles on inner face intercalated by several strong spines and 4 smaller spurs on outer face, equipped with a small tuft of apical bristles (Fig. 2J), the space between these spurs is intercalated by spines; apical spurs: the middle one is largest on both sides; basitarsus lighter than tibia, the others as colored as the tibia; basitarsus armed with 3 dorsal spines on outer face, 2 on inner face and one pair of ventro-apical spurs. Well developed tegmina, reaching the fifth abdominal tergite (Figs. 1, 2A); stridulatory vein or specialized areas for sound communication, such as harp and mirror, absent; dorsal field with 11-12 oblique veins, lateral field with 7 veins; hind wings white and delicate, as long as the tegmina; metanotal

structure well developed (Fig. 2K). Abdomen glabrous, dorsally brownish, darkening from the last tergites, laterally light brown, also darkening towards the terminalia (Figs. 1, 2A); sternites light brown, with a pair of longitudinal dark stripes in the last four sternites; supra-anal plate dark brown, the anterior margin concave and the posterior trapezoidal, pilose, with central smooth spots as in figures 2E, 3B; subgenital plate light brown with a darker spot in post-central zone (Figs. 2G; 3D). **Phallic complex:** (Fig. 4A-C) main lobe of pseudepiphallus with a “V” like posterior invagination, its dorsum with a membranous area with almost straight post-lateral angles; pseudepiphallic parameres like an ax; well developed rami; well developed ectophallic apodemes, parallel.

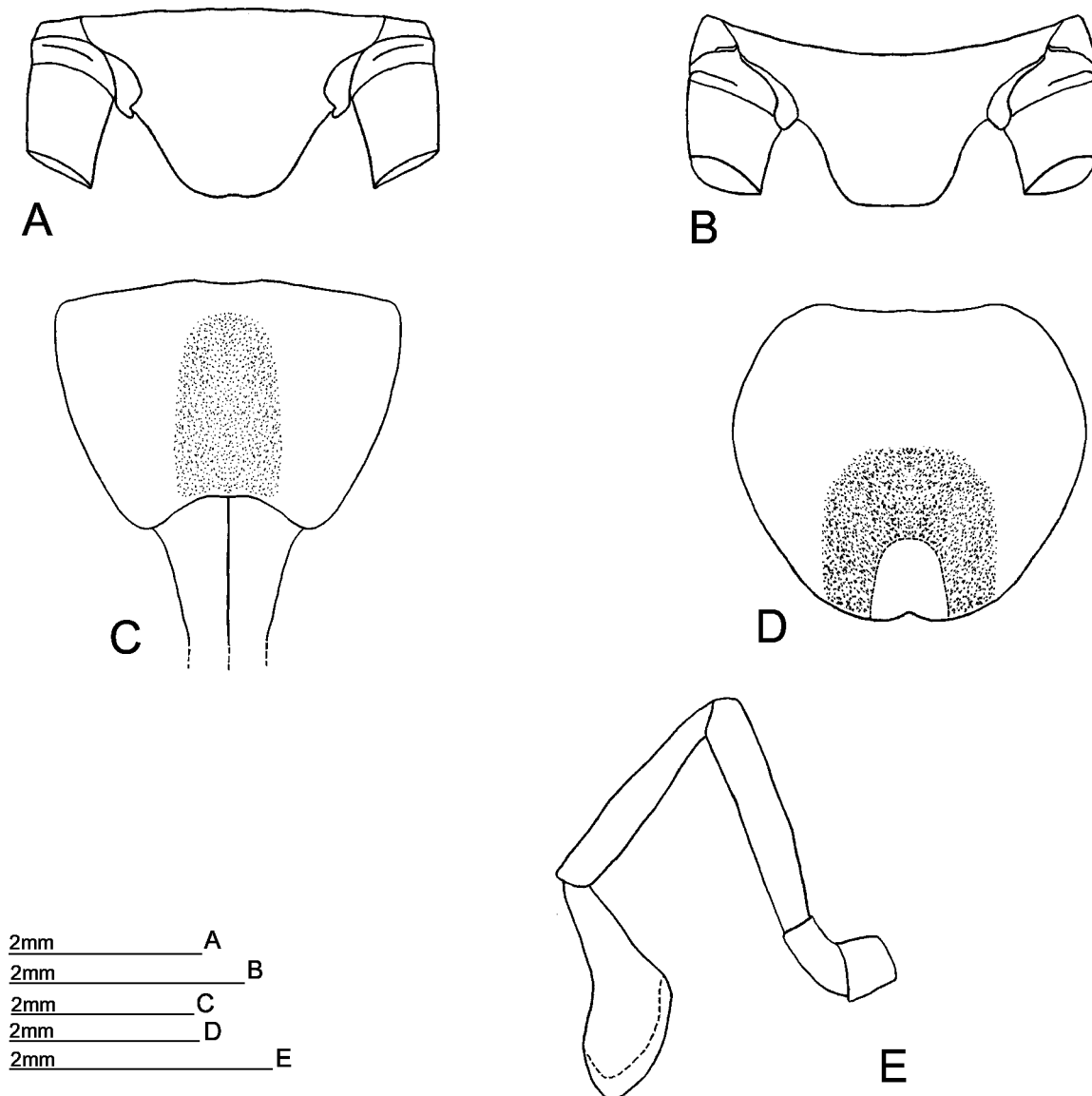


FIGURE 3. Drawings of plates and male palp of *Tafalisca paranaensis*, n. sp. **Male:** B—Supra-anal plate; D—Subgenital plate; E—Lateral view of maxillary palp. **Female:** A—Supra-anal plate; C—Subgenital plate

Female: general appearance bigger and stronger with same colour as male. Pronotum with caudal margin more distinctly convex; tegmina and fore wings extending beyond the fifth abdominal tergite. Supra-anal plate velvety, dark, with smooth spots (Figs. 2F, 3A); subgenital plate yellowish with medium brown spots (Figs. 2H, 3C). Ovipositor heavy, depressed, curved, reddish brown, figured with darkened lateral bands, the apical borders lightly serrated (Figs. 2L, M, N).

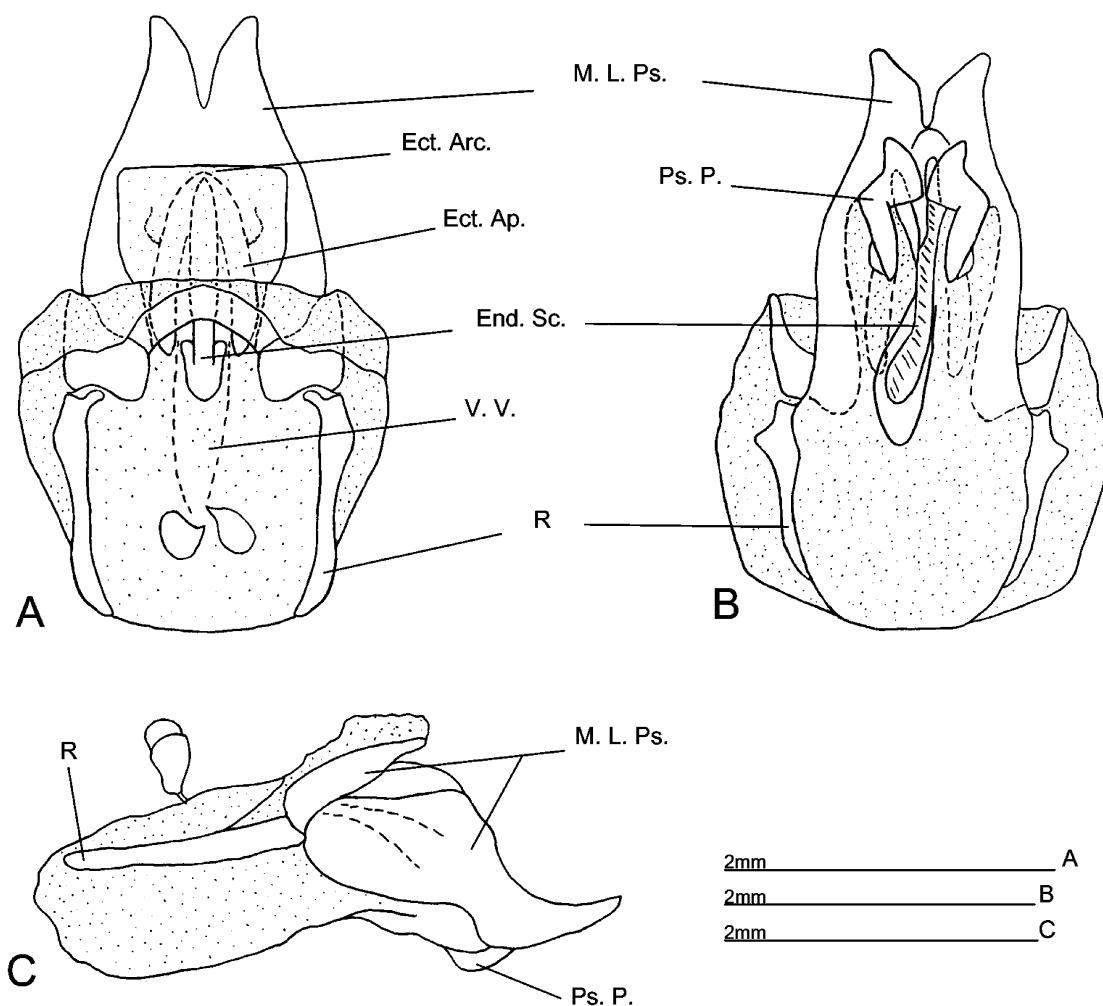


FIGURE 4. *Tafalisca paranaensis*, n. sp.—Phallic complex. A, B, C—Phallic complex in dorsal, ventral and lateral views, respectively. Conventions: Ect. Arc.—Ectophallic arc; Ect. Ap.—Ectophallic apodeme; End. Sc.—Endophallic sclerite; M. L. Ps.—Main lobe of pseudepiphallus; Ps. P.—Pseudepiphallic paramere; R.—Ramus; V. V.—Ventral valve.

TABLE I. Measurements (mm) of *Tafalisca paranaensis*, n. sp. BL—body length; HW—head width; IOD— interocular distance; PL—pronotum length; PW- pronotum width; FWL—forewing length; FWW—forewing width; HFL—hind femur length; HTL—hind tibia length; OL—ovipositor length.

Males (n=1)	BL	HW	IOD	PL	PW
Range	24,75	3,83	2,16	3,7	4,1
Mean	24,75	3,83	2,6	3,7	4,1
	FWL	FWW	HFL	HTL	OL
Range	10,75	3,13	11,75	10,63	/
Mean	10,75	3,13	11,75	10,63	/
Females (n=2)	BL	HW	IOD	PL	PW
Range	26,13–26,75	4,32–4,47	2,2–2,25	4,71–4,98	4,54–4,76
Mean	26,44	4,39	2,22	4,85	4,65
	FWL	FWW	HFL	HTL	OL
Range	12–13,88	3,25–3,50	12,63–13,63	11–12,38	11,25–12
Mean	12,94	3,38	13,13	11,69	11,63

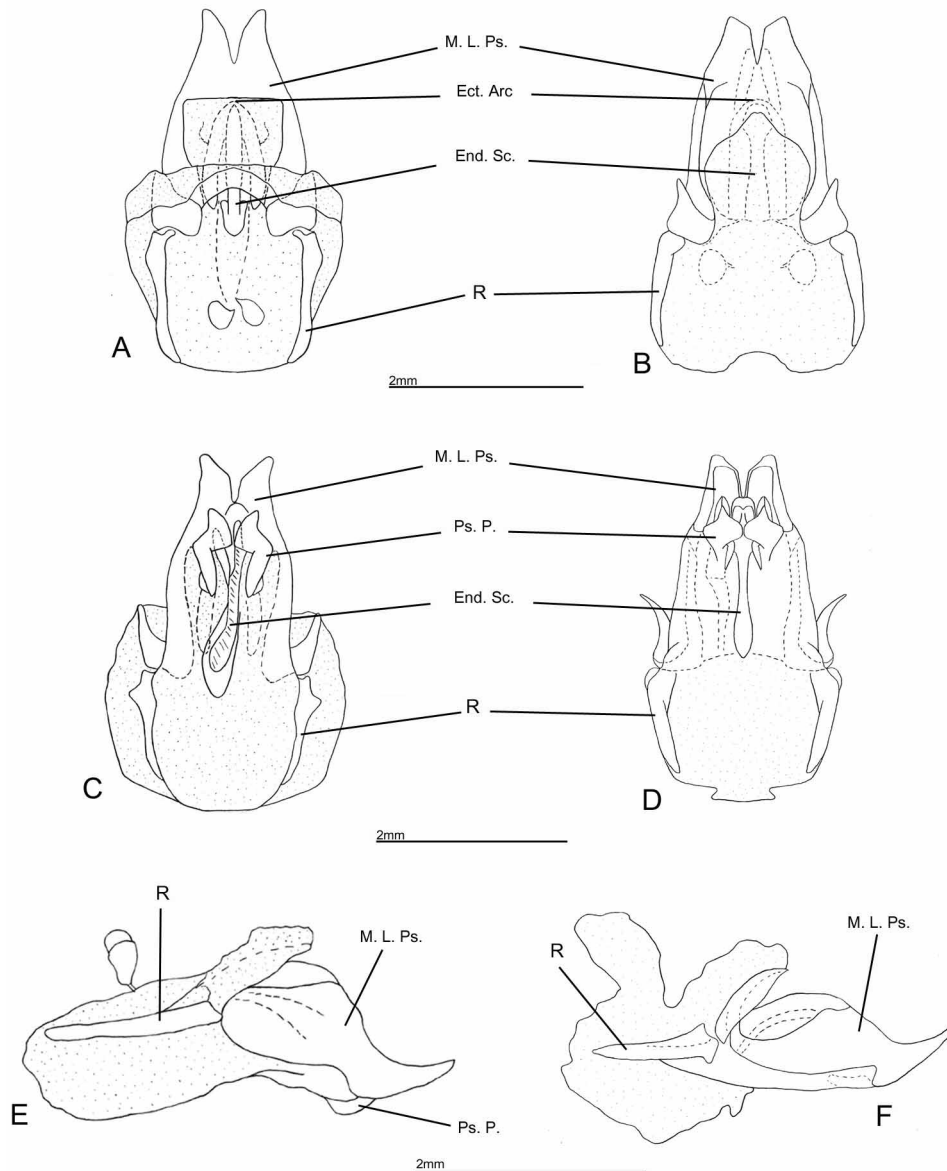


FIGURE 5. Comparison of the phallic complex of *Tafalisca paranaensis*, **n. sp.** and *Tafalisca paulista* Rehn, 1918. A, C, E—Phallic complex of *T. paranaensis*, **n. sp.** in dorsal, ventral and lateral views, respectively. B, D, F—Phallic complex of *T. paulista* Rehn, 1918 in dorsal, ventral and lateral views, respectively. Conventions: Ect. Arc.—Ectophallic arc; End. Sc.—Endophallic sclerite; M. L. Ps.—Main lobe of pseudepiphallus; Ps. P.—Pseudepiphallic paramere; R.—Ramus.

Measurements in mm. of holotype and paratype are provided in Table I.

***Tafalisca paulista* Rehn, 1918 phallic complex.** Posterior invagination of the main lobe of pseudepiphallus smaller than *T. paranaensis* **n. sp.**, with the apex straight and not curveted; membranous area of dorsum with a “U” like post-lateral angles; pseudepiphallic parameres similar to *T. paranaensis* **n. sp.** but less robust with thin apex; endophallic sclerite central, straight; well developed rami (Fig. 5B, D, F).

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