Insects belonging to Cercopidae are known as spittlebugs due to the bubble nest produced by the nymphs. This family forms a large group of xylem feeding insects with approximately 1500 worldwide species included in 150 genera. Most species are distributed in the tropical and subtropical regions. Adults feed on leaves or stems of a wide variety of plants, nymphs can feed on roots and in some cases they complete their development above the ground (CARVALHO & WEBB 2005).

The Neotropical genera of Cercopidae have been usually defined by characters of the head and pronotum, and by the number of spines on the hind leg. The same set of characters also form the basis of the tribal classification proposed by FENNAH (1968).

An ongoing study on Neotropical cercopids has revealed a new genus of Ischnorhininae. The new genus and the new species are described and illustrated. Also, we propose a new combination: *Aeneolamia bucca* Paladini & Cavichioli, 2013 is transferred to *Gervasiella* gen. nov. based on the results of a cladistic analysis. *Gervasiella* gen. nov. can be distinguished from the other cercopid genera by the following: postclypeus inflated with upper portion black and basal one yellowish; color of tyulus distinct from color of head and rostrum, barely reaching mesocoxae. *Gervasiella oakenshieldi* sp. nov. is diagnosed by having the head black with tyulus white, postclypeus in profile inflated and convex with a prominent longitudinal carina; tegmina black with two elongate white maculae near costal margin, one on anterior third and the other on posterior third.

**MATERIAL AND METHODS**

The specimens studied are deposited in the Coleção Entomológica Padre Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brazil (DZUP). Morphological terminology follows FENNAH (1968) and PALADINI & CRYAN (2012). Techniques for preparation of genital structures follow OMAN (1949). The dissected parts were stored in micro vials with glycerin. Photographs were obtained with a Leica DFC-550 digital camera attached to the stereomicroscope (Leica MZ16) and captured with the software IM50 (Image Manager; Leica Microsystems Imaging Solutions Ltd, Cambridge, UK), after montage using Auto-Montage Syncroscopy of Taxonline (Rede Paranaense de Coleções). Illustrations were made with the aid of a camera lucida and the final art were finalized using vectors with the software Corel-Draw version X5.

**ABSTRACT.** A new genus of spittlebug is described to include *Gervasiella oakenshieldi* sp. nov. (holotype male from Brazil, state of Paraná, municipality of Piraquara, Mananciais da Serra at 25°29’46”S, 48°58’54”W, 1000 m a.s.l., 15.XI.2008, P.C. Grossi leg., deposited in DZUP). In addition, *Aeneolamia bucca* Paladini & Cavichioli, 2013 is transferred to *Gervasiella* gen. nov. based on the results of a cladistic analysis. *Gervasiella* gen. nov. can be distinguished from the other cercopid genera by the following: postclypeus inflated with upper portion black and basal one yellowish; color of tyulus distinct from color of head and rostrum, barely reaching mesocoxae. *Gervasiella oakenshieldi* sp. nov. is diagnosed by having the head black with tyulus white, postclypeus in profile inflated and convex with a prominent longitudinal carina; tegmina black with two elongate white maculae near costal margin, one on anterior third and the other on posterior third.

**KEY WORDS.** Auchenorrhyncha; Neotropical Region; phylogeny; taxonomy.
TAXONOMY

Gervasiella gen. nov.

Type species. Gervasiella oakenshieldi sp. nov., by original designation.

Diagnosis. Gervasiella gen. nov. can be distinguished from all other cercopids genera by the following combination of characters: 1) postclypeus inflated with upper portion black and basal one yellowish; 2) tylus with a distinct color from the head; 3) rostrum barely reaching mesocoxae; 4) subgenital plates shorter than pygofer, in ventral view quadrangular with apex truncate; 5) paramere long and slender, apex rounded, a unique subapical spine quadrangular; 6) paramere’s spines located upon a lateral concavity similar to a hole; 7) aedeagus slender with quadrangular and wide base, one pair of dorsal processes long and slender turned upward.

Description. Head triangular with two deep impressions on the vertex near the median line; tylus quadrangular; ocelli near to each other than the compound eyes. Antennae with pedicel visible in dorsal view, flagellum normal in length, with ovoid basal body and an arista almost as long as pedicel; postclypeus inflated, convex in profile with a well-marked longitudinal carina; rostrum barely reaching mesocoxae. Pronotum hexagonal, surface smooth; anterior and lateral anterior margins straight; posterior and lateroposterior margins slightly sinuated; tegmina long and slender. Hindwings with Cu1 not thickened at base. Hind tibiae with two lateral spines and a row of apical spines; hind basitarsus with apical spines distributed in two irregular rows. Pygofer with one process between anal tube and subgenital plate in lateral view; subgenital plate quadrangular in ventral view. Aedeagus long, slender with one pair of dorsal processes; parameres slender, dorsal margin with two processes, one subapical spine quadrangular and sclerotized. First valvulae of ovipositor with two processes near the base; second valvulae with dorsal margin smooth.

Etymology. The genus is named in honor of Prof. Dr. Gervásio Silva Carvalho, a specialist of Neotropical cercopids, in recognition of his expertise and several contributions to the taxonomy of the group.

Remarks. Based on the tree resulting from the cladistics analysis (Figs. 12 and 13), Gervasiella gen. nov. is sister group of the clade including Prosapia Fennah, 1949, Aeneolamia Fennah, 1949 and Isozulia Fennah, 1953. In these genera the aedeagus presents a long and slender dorsal process inserted medially. Gervasiella gen. nov. is supported by two synapomorphies: paramere with a concavity under the spine (Figs. 14 and 15) and aedeagus base quadrangular (Figs. 16 and 17).

Gervasiella oakenshieldi sp. nov.

Figs. 1-11, 19

Measurements. Length, male 6.8 mm; females 6.7-7.8 mm.

Diagnosis. Head black with tylus white, postclypeus in profile, inflated and convex with a prominent longitudinal carina; tegmina black with two elongate white maculae near the costal margin, one on the anterior third and the other on the posterior third.

Description. Head triangular black; rostrum yellowish with the third segment black; compound eyes black, rounded, arranged transversely; vertex smooth, rectangular, with a prominent median carina; ocelli reddish near to each other than to compound eyes; tylus white, smooth, quadrangular, lacking a median carina; antennae black, pedicel scarcely setose, basal body of flagellum ovoid with an arista almost as long as the pedicle; postclypeus inflated, convex in profile with a wide longitudinal carina, lateral grooves slightly marked, apical portion black and two basal thirds yellowish. Thorax black; pronotum black, flattened, hexagonal, lacking median carina, anterior margin straight, lateral-anterior margins straight, lateral-posterior margin slightly sinuous, posterior margin with a light groove; scutellum black, with a slight central concavity and transversal grooves. Tegmina black with two white maculae: the first one elongated, located near the costal margin, extending from its base until the median third of the tegmina; the second one rounded located between the median and apical third; apical plexus of vein poorly developed; hindwings hyaline with brown venation; vein Cu1 not thickened at base; legs brownish; metathoracic tibia with two lateral spines (basal spine equal in size to spines in apical crown; apical spine larger than spines in apical crown); apical crown of spines on tibia consisting of two rows; basitarsus with one row of spines covered by sparse setae; subungueal process absent.

Male genitalia. Pygofer with one quadrangular process between the anal tube and subgenital plates; subgenital plates short, quadrangular with a rounded apex, dorsal margin produced in a rectangular process (Fig. 3); parameres long and slender with a quadrangular sclerotized spine turned backwards located over a concavity on the external side, dorsal margin with a finger like process turned to the inner side (Figs. 7 and 8); aedeagus cylindrical with a pair of dorsal processes long and slender turned upward, aedeagus base quadrangular and wide, apex quadrangular (Figs. 5 and 6).
Figures 1-11. Gervasiella oakenshieldi sp. nov.: (1-2, 9-11) female paratype, (3-8) male holotype: (1) habitus, dorsal view; (2) habitus, lateral view; (3) subgenital plates and pygofer, ventral view; (4) pygofer and subgenital plates, lateral view; (5) aedeagus, lateral view; (6) aedeagus, dorsal view; (7) paramere, lateral view; (8) paramere, dorsal view; (9) first valvulae of ovipositor, ventral view; (10) first valvulae of ovipositor, lateral view; (11) second valvulae of ovipositor, lateral view. Scale bars: 1-2 = 2 mm, 3, 4, 9-11 = 0.5 mm, 5-8 = 0.25 mm.
Figures 12-19. Phylogenetic relationships of Ischnorhininae and diagnostic characters of *Gervasiella* gen. nov.: (12) unique most parsimonious tree resulting from the analysis of morphological data with the implied weighting scheme using the optimal constant of concavity interval of K8-12, highlighting the position of *Gervasiella* gen. nov.; (13) clade including *Gervasiella* gen. nov.; (14) *Gervasiella bucca* comb. nov. paramere in lateral view; (15) *Gervasiella oakenshieldi* sp. nov. parameres in lateral view; (16) *Gervasiella bucca* comb. nov. aedeagus in dorsal view; (17) *Gervasiella oakenshieldi* sp. nov. aedeagus in dorsal view; (18) *Gervasiella bucca* dorsal habitus; (19) *Gervasiella oakenshieldi* sp. nov. dorsal habitus.
Female. First valvulae of ovipositor long and slender with acute apex and two basal process poorly developed, rounded, directed ventrally (Figs. 9 and 10); second valvulae long and slender, dorsal margin smooth (Fig. 11), third valvulae short and wide, with long setae ventrally.

Etymology. Noun in genitive singular after to a fictional character surname of the novel The Hobbit, Thorin Oakenshield; in honor to J.R.R Tolkien an English writer known as the author of classic fantasy books.

Remarks. *Gervasiella oakenshieldi* sp. nov. (Figs. 1-2 and 19) superficially resembles *Gervasiella bucca* comb. nov. (Fig. 18) in having the same color pattern but the paramere is slender, with the concavity under the spine less pronounced (Fig. 15).


**Gervasiella bucca**

(Paladini & Cavichioli, 2013) comb. nov.

Figs. 14, 16, 18


Diagnosis. General coloration black; tegmina with basal red macula and one apical red stripe; Pygofer short with finger-like process between anal tube and subgenital plates; aedeagus with one pair of dorsal, slender processes directed upward.

Remarks. *Gervasiella bucca* was originally described in *Aeneolamia* due to a superficial resemblance in the morphology of the male genitalia, although other features indicated that those species were not congeneric. Subsequently, *Gervasiella gen. nov.* was erected to accommodate *G. bucca* and the newly described *G. oakenshieldi* sp. nov., based on the examination of additional specimens from Southern Brazil (from the municipality of Piraquara, Paraná State). Diagnostic traits of this genus were previously mentioned in the generic diagnosis. These features were later recovered as synapomorphies validating the monophyly of *Gervasiella gen. nov.*, as inferred in our morphology-based phylogenetic analysis of Ischnorhininae that included both *G. bucca* and *G. oakenshieldi* sp. nov.

**CLADISTIC ANALYSIS**

List of new characters. The complete list of characters can be found in Paladini et al. (2015) and the full data matrix is available in Appendix S1. The two new characters included in the analysis are: Male genitalia: (109) Paramere, lateral view, concavity under the main spine: (0) absent; (1) present; and (110) Aedeagus, shape of base in dorsal view: (0) rectangular; (1) quadrangular. The data matrix included 102 taxa and 110 characters (Appendix S1). The equal weights analysis produced 30 equally parsimonious trees (length = 1061 steps, CI = 14, RI = 61). The strict consensus cladogram had 59 collapsed nodes. The relationships among genera were poorly resolved. In the analysis with implied weighting scheme the best K range for the data matrix presented here was 8-12; this range was chosen based on Paladini et al. (2015). The five trees obtained with the best K range were had the same topology (Fig. 12) which will be used as the hypothesis to infer the phylogenetic relationship and monophyly of *Gervasiella gen. nov.* The topology obtained in the present analysis is similar to that of Paladini et al. (2015) except for the inclusion of the new genus. Only unambiguous characters were optimized in the resultant cladogram.

The main goal of this cladistics analysis was to evaluate and to support the description of a new genus. The clade *Gervasiella gen. nov.* (Fig. 13) has a relative Bremer support of 71 and a Bootstrap support of 99. The genus is supported by two synapomorphies: paramere with a concavity located under the main spine (109); and aedeagus with a quadrangular base (110). and 10 a homoplasious character-state transformations: vertex shape narrow (3a); antennae with basal body of flagellum ovoid (6b); posterior margin of pronotum slightly grooved (31a); tegmina venation almost indistinct (37a); tegmina with apical plexus of veins reduced (40b); basitarsus of the posterior leg with two rows of spines (47a); subgenital plates short compared to pygofer (53a); apex of subgenital plates truncate (50a); spine of paramere oriented vertically (69a); ovipositor with two basal processes (103a).

*Gervasiella gen. nov.* is included in the clade Tomaspini and is sister group to *Prosapia, Aeneolamia*, and *Isozulia*.

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