

New species of Metopiinae (Hymenoptera, Ichneumonidae) from Brazil

Araujo, CR.* and Pentead-Dias, AM.*

Departamento de Ecologia e Biologia Evolutiva, Universidade Federal de São Carlos – UFSCar,
Rod. Washington Luís, Km 235, CP 676, CEP 13565-905, São Carlos, SP, Brasil

*e-mail: carolina.r.araujo@gmail.com, angelica@ufscar.br

Received November 19, 2008 – Accepted March 31, 2010 – Distributed February 28, 2011

(With 22 figures)

Abstract

Two new species of *Trieces* and *Metopius* from Brazil are described and illustrated. These new species were found during a large study of the neotropical fauna of Metopiinae with emphasis in the fauna of Brazilian Atlantic Forest (Project BIOTA/FAPESP). Diagnosis and distribution information for each species are provided.

Keywords: distribution, *Metopius*, neotropical, taxonomy, *Trieces*.

Novas espécies de Metopiinae (Hymenoptera, Ichneumonidae) do Brasil

Resumo

Duas novas espécies de *Trieces* e *Metopius* do Brasil são descritas e ilustradas. Essas novas espécies foram encontradas durante um grande estudo da fauna neotropical de Metopiinae com ênfase na Mata Atlântica (Projeto BIOTA/FAPESP). São apresentadas diagnoses e informação sobre a distribuição para cada espécie.

Palavras-chave: distribuição, *Metopius*, neotropical, taxonomia, *Trieces*.

1. Introduction

The Metopiinae is a medium-sized cosmopolitan subfamily of Ichneumonidae with members distinguished by having the lower face and clypeus confluent and not separated by an impressed groove; most species possess a shelf-like protuberance below the antennal insertion and having the pronotum laterally concave and rather broadly rounded posteriorly, broadly occluding the spiracular sclerite. They are small to large, often blackish, brownish or occasionally aposematic, yellow and black-banded. Metopiines are koinobiont endoparasitoids of Lepidoptera, comprising approximately 700 described species world-wide, which are classified in 27 genera (Yu and Horstmann, 1997). In general the subfamily is quite well represented in all parts of the world from cool temperate habitats to the tropics. Townes, H. and Townes, M. (1966) included 8 genera and 24 species from the Neotropical region. Gauld et al. (2002) found 14 genera and 130 species of Metopiinae in Costa Rica fauna and De Santis (1980) have found only seven Metopiinae species in Brazil fauna distributed in four genera. Studying the material from the DCBU collection of the Departamento de Ecologia e Biologia Evolutiva da Universidade Federal de São Carlos, SP, Brazil, from different localities we have registered several new species and new occurrence of species for Brazilian fauna (Loffredo and Pentead-Dias, 2008a, b; Onody et al., 2009).

The purpose of this paper is to present the description of two new species of Neotropical Metopiinae to make the names available.

2. Material and Methods

Most of the specimens for this study were collected during the BIOTA/FAPESP Project to study the latitudinal distribution of Ichneumonoidea species in 18 localities of the Brazilian Atlantic rainforest from 07° 06' 54" S to 26° 21' 51" S. Some of the specimens were collected from the Brazilian savannah ("cerrado") and the Amazonian forest. All specimens for this study are deposited in the DCBU collection (Departamento de Ecologia e Biologia Evolutiva da Universidade Federal de São Carlos, SP, Brazil) and MZUSP (Museu de Zoologia da Universidade de São Paulo, São Paulo, SP, Brazil).

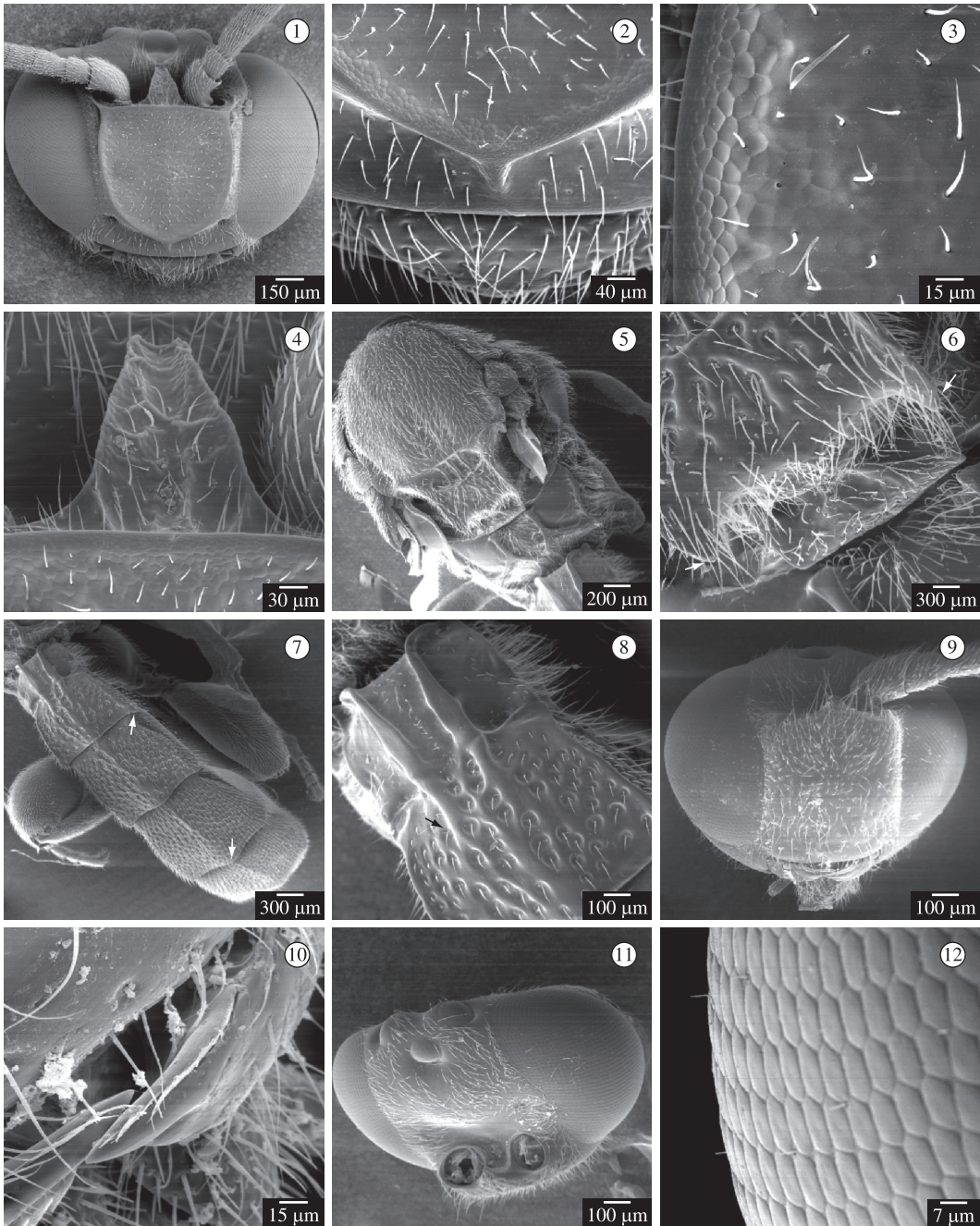
Terminology follows that of Gauld et al. (2002).

Metopius tingua sp. n. (Figures 1-8; 19; 21)

Metopius Panzer, 1806 is a large cosmopolitan genus comprising about 166 described species (Yu and Horstmann, 1997; Yu et al., 2005). All specimens are readily recognised by the shield-shaped lower face. *Metopius femoratus* Cresson, 1874, *M. bicarinatus* Morley, 1912, *M. scutatifrons* Cresson, 1874 and *M.*

variegatus Morley, 1912 have been recorded from the Neotropical region by Townes, H. and Townes, M. (1966). Gauld et al. (2002) found eight new species in Costa Rican fauna. *Metopius bicarinatus* and *M. variegatus* have been recorded from the Brazilian fauna (De Santis, 1980).

Material examined. Holotype ♂, (DCBU) BRAZIL, Nova Iguaçu, RJ, Reserva Biológica do Tingüá, 22° 45' 33" S / 43° 27' 04" W, Malaise trap, 8-11.III.2002, S.T.P. Amarante col. Paratype: (DCBU) BRAZIL, 1 ♀, Amazonas 26 km NE Manaus, Reserva Ducke, Malaise trap, VIII.1988, J. A. Rafael col.



Figures 1-8. *Metopius tingua* sp. n.: 1, head (frontal view); 2, facial carinae and clypeus, showing incomplete median vertical carina; 3, coriaceous sculpture on face; 4, interantennal lamella; 5, mesosoma (dorsal view); 6, scutellum, showing lateral projections; 7-8, metasoma (dorsal view); 7, tergites I-V showing posterolateral projections and medioventral triangular prominences; 8, two first tergites. **Figures 9-12.** *Tricees intervaleas* sp. n.: 9, head (frontal view); 10, mandibles; 11, head (dorso-frontal view); 12, eye, without dense pubescence.

Etymology. The name refers to Reserva Biológica do Tinguá, where the holotype specimen was collected.

Diagnosis. *Metopius tingua* sp. n. differs of *M. quambus* Gauld and Sithole, 2002 by scutellum black with lateral longitudinal carina and posterior margin, including the two lateral short points light yellow; propodeum and metapleuron yellow (♀) or yellow with black marks (♂); metasoma yellowish; all tergite I light yellow; legs yellow; tergite III with lateral longitudinal carina present on anterior 2/3; male with 34 flagellomeres.

Description

Male: fore wing (Figure 19) length 4.9 mm; lower face without a median vertical carina extending from apex of clypeus to median ventral margin of carina around facial shield (Figures 1, 2); shield-shaped lower face with coriaceous microsculpture (Figures 2, 3); maxillary palp with second palpomere weakly swollen subapically, strongly clavate; interantennal lamella long, with rugose sculpture (Figure 4), extending about 0.6 of way to median ocellus, tapered, strongly concave and with upper end truncate and free from frons (Figures 1, 4); frons with little median prominence; lateral ocellus separated from eye by slightly less than its own maximum diameter. Antenna moderately short, weakly setaceous, with 34 flagellomeres, the median ones almost quadrate. Pronotum closely punctate on upper periphery, centrally smooth, its lower 0.3 or so with a few longitudinal rugae; mesoscutum coarsely punctate (Figure 5), with notaular area slightly rugose; scutellum very strongly transverse, with posterior end of lateral longitudinal carina produced into a long point that barely reaches 0.5 of metanotum (Figures 5, 6); mesopleuron centrally finely and moderately sparsely punctate; metapleuron with few pubescence dorsally, ventrally smooth with isolated rugae. Propodeum with lateromedian longitudinal carinae parallel anteriorly, rather evenly rounded posteriorly; anterior transverse carina well behind front margin of propodeum where it joins the lateromedian longitudinal carina; area externa trapezoidal, large, with few setiferous pubescence. Metasoma (Figures 7-8) with tergite I in profile clearly shorter than tergite II, anteriorly very steeply rounded, with lateral and lateromedian longitudinal carinae strong and complete, the later parallel; tergite II about 1.0 times as long as posteriorly broad, weakly broadened so that posterior margin is 1.3 times as broad as the anterior one, with lateromedian longitudinal carina present anteriorly, extending 0.4 of length of tergite (Figure 8); lateral longitudinal carina strong and lateral to this very coarsely punctate, almost reticulate, posterolaterally with a small tooth (Figure 7); tergite III with lateral longitudinal carina extending 0.8 of length of tergite, with a rounded promontory posterolaterally; tergites II-IV medioventrally with triangular prominence (Figure 7); tergite IV as tergite III but without a distinct longitudinal carina; laterotergites IV-V weakly sclerotised; tergites V-VII slightly transverse, finely punctate, tergite VII with hind margin sharp, but

not reflexed; subgenital plate hirsute peripherally; clasper apically subacute.

Head black with mouthparts, face and frontal orbits whitish; scape yellow, flagellum orange with distal 15 flagellomeres blackish (Figure 21). Mesosoma black with upper hind part of pronotum, pair of lateromedian longitudinal yellow marks centrally extending from anterior margin almost to hind margin, scutellum and dorsellum with light yellow marks; subalar prominence and circular patch on upper part of mesopleuron bright yellow (Figure 21). Metasoma yellowish, with tergite I whitish; tergite II-IV yellowish with anterior 0.3 of length whitish (Figure 21). Anterior two pairs of legs yellow, with coxa, trochanter and base of femur whitish; hind legs yellowish brown, with base of coxa and femur weakly whitish; hind tarsus yellow (Figure 21). Fore wings weakly infumate (Figure 21).

Female: 32 flagellomeres; second maxillary palpomere globose; mesopleuron mostly yellow; propodeum and metapleuron yellow.

This new species belongs to the group traditionally called the subgenus *Peltales*, which Gauld et al. (2002) preferred to call the *Metopius errantius* species-group, recognised by the tergites I and II being more or less fused (Figures 7, 8). The specimens were collected in midland undisturbed habitats in the Amazonian and Atlantic forests of Brazil.

Trieces intervales sp. n. (Figures 9-18; 20; 22)

Trieces Townes, 1946 is a large cosmopolitan genus comprising 66 described species, occurring mainly in northern temperate habitats (Yu and Horstmann, 1997; Yu et al., 2005). It is characterised by a sharp-sided metasoma with more or less no discernible laterotergites on the anterior six segments, by the flat and strong laterally carinate scutellum, and by the flattened mesopleuron. Townes, H. and Townes, M. (1966) cited a single species, *T. platysoma* Townes, 1946, recorded from the Neotropic region. Gauld et al. (2002) described 11 new species from Costa Rica.

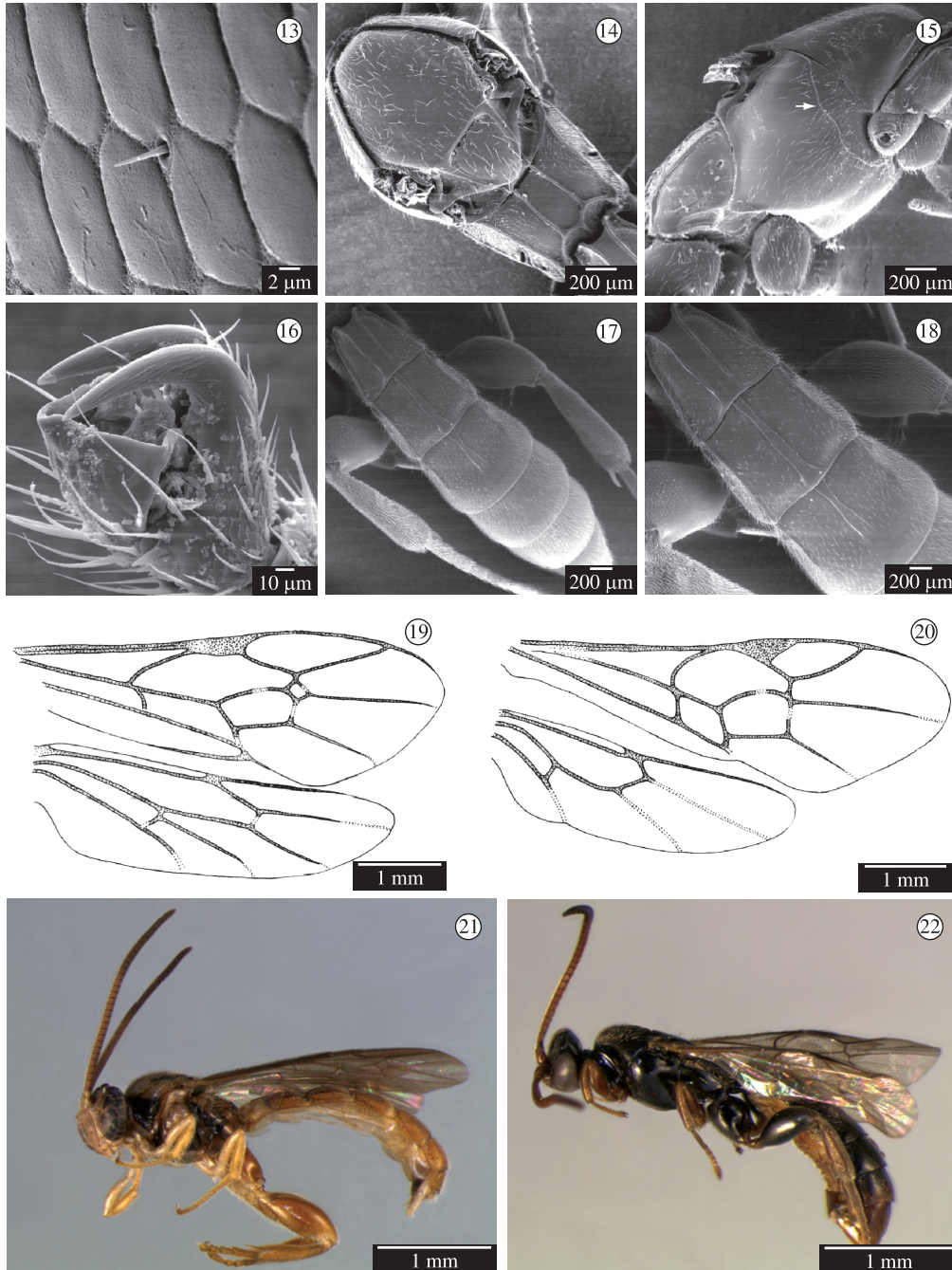
Material examined. Holotype ♀, (DCBU) BRAZIL, Ribeirão Grande, SP, Parque Estadual de Intervales, Base Barra Grande, Trilha da Anta, 24° 18' 18" S / 48° 21' 55" W, yellow pan-trap, 11-14.XII.2000, M.T. Tavares col. Paratypes: (DCBU, MZUSP) BRAZIL, 1 ♀, Quebrângulo, AL, Reserva Biológica Pedra Talhada, 09° 19' S / 36° 28' W, Malaise trap, 8-11. XI.2002, Penteado-Dias col; 1 ♀, Salesópolis, SP, Estação Biológica de Boracéia, Trilha dos Pilões, 23° 31' 56" S / 45° 50' 47" W, yellow pan-trap, 1-3. IV.2001, S.T.P. Amarante col.; 1 ♂ e 4 ♀, Ribeirão Grande, SP, Parque Estadual de Intervales, Base Barra Grande, Trilha da Anta, 24° 18' 18" S / 48° 21' 55" W, yellow pan-trap, 14-17.XII.2000, M.T. Tavares col.; 1 ♀, Ribeirão Grande, SP, Base Barra Grande, Trilha da Anta, 24° 18' 18" S / 48° 21' 55" W, yellow pan-trap, 11-14.XII.200, M.T. Tavares col.

Etymology. The name refers to the Parque Estadual de Intervales where the holotype was collected.

Diagnosis. *Trieces intervals* sp. n. is different from *T. riordinis* Gauld and Sithole, 2002 by the eyes without dense pubescence; maxillary palp 5-segmented with first and second palpomeres inflated; outer hind tibia spur slender, about 0.7 length of the inner; hind leg brown, with tibia basally whitish.

Description

Female: fore wing (Figure 20) length 4.1mm; lower face weakly swollen (Figure 9), antennae inserted subvertically, region behind ocelli steeply declivous, but not concave; lower face in anterior view, about 0.8 as high as wide, finely punctate over entire surface; maxillary palp



Figures 13-18. *Trieces intervals* sp. n.: 13, eye, showing the pubescence; 14, mesosoma (dorsal view), showing lateromedian longitudinal carina; 15, mesosoma (lateral view), showing epicnemial carina; 16, tarsal claws; 17-18, metasoma (dorsal view). **Figures 19-20.** Wings: 19, *Metopius tingua* sp. n.; 20, *Trieces intervals* sp. n. **Figures 21-22.** Habitus: 21, *Metopius tingua* sp. n. (male holotype); 22, *Trieces intervals* sp. n. (female holotype).

5-segmented; labial palp 4-segmented; second and third maxillary palpomere flattened and broadened, distal two slender; mandible with upper tooth obliquely truncate, long, lower tooth short and stout (Figure 10), malar space 0.9-1.0 times basal mandibular width (Figure 9); clypeal margin very slightly concave; interantennal process small and acute; frons weakly convex, sparsely punctate (Figure 11); surface of eye without fine conspicuous pubescence (Figures 12-13); gena evenly rounded behind the eye, posterior ocellus separated from eye 0.6 times its own maximum diameter. Antenna with 25-28 flagellomeres slightly elongate. Mesoscutum convex, sparsely punctate, without any impressions (Figure 14), scutellum smooth with sparse punctures; mesopleuron smooth with few very fine setiferous punctures dorsally, epicnemial carina complete, curved to meet anterior margin of pleuron just below subalar prominence (Figure 15); metapleuron smooth with a few rugae above and parallel to juxtacoxal carina (Figure 15). Propodeum (Figure 14) with lateromedian longitudinal carinae weakly divergent, the combined area externa + dentipara flat, with very fine setiferous punctures. Fore and mid legs with tarsal claw small and pectinate; outer mid tibial spur short, about 0.6 length of the inner; hind leg with tarsal claw simple (Figure 16); outer hind spur about 0.7 of the length of the inner. Metasoma (Figures 17-18) with tergite I with area between lateromedian and lateral longitudinal carina with sparse shallow punctures; tergites II-III with area between median and lateral longitudinal carina sparsely punctate; tergite III with lateral carinae extending about 0.6 of its length, the median are shorter (Figure 18).

Head black with mouthparts and lower face yellowish; antenna orange, distally blackish (Figure 22). Mesosoma black, tegula yellow, metasoma black with apical V and VI+ segments reddish (Figure 22). Fore and mid legs yellowish brown; hind leg brown with tibia basally whitish, tarsus yellowish brown (Figure 22). Wings weakly infumate, pterostigma black (Figure 22).

Male: similar to female in structure and colour.

Most of the specimens were collected in undisturbed mid altitude sites in the Atlantic forest of Brazil. They present a large latitudinal distribution from 09° 19' S to 24° 18' 18" S.

Acknowledgements — To FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo, PROJETO BIOTA) and CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) for financial support and to INCT Hympar Sudeste for caption of figures with Scanning Electron Microscope.

References

- DE SANTIS, L., 1980. *Catálogo de los himenopteros brasileños de la serie Parasítica, incluyendo Bethyloidea*. Curitiba: Editora Universidade Federal do Paraná, 395 p.
- GAULD, I., SITHOLE, R., GOMES, JU. and GODOY, C., 2002. The Ichneumonidae of Costa Rica. 2. *Memoirs of the American Entomological Institute*, vol. 66, 768 p.
- LOFFREDO, APS. and PENTEADO-DIAS, AM., 2008a. First record of *Schizopyga* Gravenhorst (Hymenoptera, Ichneumonidae, Pimplinae) from Brazil and a description of a new species. *Brazilian Journal of Biology*, vol. 68, p. 457-458.
- , 2008b. First record of *Ticapimpla vilmae* Gauld, 1991 (Hymenoptera, Ichneumonidae, Pimplinae) from Brazil. *Brazilian Journal of Biology*, vol. 68, p. 911.
- ONODY, HC., LOFFREDO, APS. and PENTEADO-DIAS, AM., 2009. Notes on the Brazilian *Brachycyrtus* Kriechbaumer species (Hymenoptera, Ichneumonidae Brachycyrtinae). *Brazilian Journal of Biology*, vol. 69, p. 981-982.
- TOWNES, H. and TOWNES, M., 1966. A catalogue and reclassification of Neotropical Ichneumonidae. *Memoirs of the American Entomological Institute*, vol. 8, 367 p.
- YU, DS. and HORSTMANN, K., 1997. A catalogue of Ichneumonidae (Hymenoptera). *Memoirs of the American Entomological Institute*, vol. 58, 1558 p.
- YU, DS., ACHTERBERG, CV. and HORSTMANN, K., 2005. *World Ichneumonoidea 2004*. Taxonomy, biology and distribution. Scientific names for information management. Taxapad CD version.