

**Zeitschrift:** Contributions to Natural History : Scientific Papers from the Natural History Museum Bern

**Herausgeber:** Naturhistorisches Museum Bern

**Band:** - (2009)

**Heft:** 12/3

**Artikel:** Revision of the living members of the genus Tomocyriba Simon, 1900 (Araneae: Salticidae)

**Autor:** Szüts, Tamás / Scharff, Nikolaj

**DOI:** <https://doi.org/10.5169/seals-787029>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. [Siehe Rechtliche Hinweise.](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. [Voir Informations légales.](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. [See Legal notice.](#)

**Download PDF:** 08.02.2025

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

# Revision of the living members of the genus *Tomocyriba* SIMON, 1900 (Araneae: Salticidae)

Tamás Szűts & Nikolaj Scharff

## ABSTRACT

Contrib. Nat. Hist. 12: 1337–1372.

The living members of the genus *Tomocyriba* are revised and redefined, and a lectotype for the type species, *T. decollata* SIMON, 1900 is designated. A total of six species is recognized: *T. decollata* SIMON, 1900, *T. barbata* SIMON, 1900, *T. thaleri* sp. nov., *T. griswoldi* sp. nov., *T. berniae* sp. nov. and *T. ubicki* sp. nov. The genus is only known from Madagascar. Two new genera are established to accommodate new species and species that were formerly placed in the genus *Tomocyriba*. These are *Tomomingi* gen. nov. with seven species (*Tomomingi sjoestedti* (LESSERT, 1925) comb. nov., *T. kikuyu* (PRÓSZYŃSKI & ŽABKA, 1983) comb. nov., *T. holmi* (PRÓSZYŃSKI & ŽABKA, 1983) comb. nov., *T. keinoi* (PRÓSZYŃSKI & ŽABKA, 1983) comb. nov., *T. wastani* sp. nov., *T. nywele* sp. nov., *T. silvae* sp. nov.) and *Tomobella* gen. nov. with two species (*Tomobella fotsy* sp. nov., *T. andasibe* (MADDISON & ZHANG, 2006) comb. nov.). *Tomomingi* gen. nov. is only known from continental Africa and all known species of *Tomobella* gen. nov. are from Madagascar. *Tomocyriba masai* PRÓSZYŃSKI & ŽABKA, 1983 is proposed as a junior synonym of *T. sjoestedti* (LESSERT, 1925).

## Introduction

Members of the subfamily Hisponinae SIMON, 1901 are easy to recognize since they all have a unique carapace constriction behind the posterior median eyes (Figs. 5A–B). Simon (1901) originally placed these spiders in two different groups, Hispoeae and Tomocyribaeae, but noticed that they both had similar carapace constrictions. Three living and several extinct genera are currently assigned to this subfamily (Platnick 2007, Wunderlich 2004), but only the living genera are considered here. These genera are *Hispo* SIMON, 1886, *Massagris* SIMON, 1900 and *Tomocyriba* SIMON, 1900. They have all been revised before (Wanless 1981: *Hispo*; Wesołowska 1993: *Massagris*; Prószyński &

Žabka 1983: *Tomocyriba*), but the original type material was not studied in the revisions of *Massagris* and *Tomocyriba*. We have been able to examine the type material of *Tomocyriba*, and we present here a revision of the genus.

*Tomocyriba* was described by Simon (1900) to accommodate *Tomocyriba decollata* (the type species of the genus) and *T. barbata*, both from Antongil, Madagascar. Simon (1901) placed the new genus in the Pluridentati within a new group that he named Tomocyribaeae. In the diagnosis of the genus, Simon distinguished *Tomocyriba* from *Astea* by the carapace constriction behind the PME. The name *Tomocyriba* was meant to indicate relationship with the genus *Cyrba* SIMON, 1876. In the same work Simon (1901) also established the species group Hispoeae, including the genera *Hispo* SIMON, 1886 and *Massagris* SIMON, 1900. For both groups, Simon (1901) mentioned a characteristic carapace constriction behind the PME.

Almost 25 years later, Lessert (1925) described the first *Tomocyriba* species from continental Africa, *Tomocyriba sjoestedti*, from Mt. Meru in Tanzania. Another four new African *Tomocyriba* species were described by Prószyński & Žabka (1983) from mountains in Kenya (*T. holmi*, *T. keinoi*, *T. kikuyu*, *T. masai*) and recently Maddison & Zhang (2006) described a new *Tomocyriba* species (*T. andasibe*) from Madagascar. In total, the genus *Tomocyriba* comprises 8 living species, according to Platnick (2007).

During the revision we have been able to examine large amounts of unidentified material from Madagascar and Africa, tentatively assigned to *Tomocyriba*, and thereby learned that the species can be divided into several well defined morphological groups that we here describe as separate genera. The species previously described by Prószyński & Žabka (1983), Maddison & Zhang (2006) and Lessert (1925) are moved to new genera, and several additional new species are described from both Africa and Madagascar. After having removed these species from *Tomocyriba*, we are left with a much better defined *Tomocyriba sensu stricto* (*T. decollata* and *T. barbata*), to which we add 4 new species from Madagascar. The division into separate genera is supported by a preliminary phylogenetic analysis based on morphology (Szűts & Scharff, in prep.).

The phylogenetic position of *Tomocyriba* has been discussed by several authors, but only recently the phylogenetic position and composition of Hisponinae have been tested by modern phylogenetic methods. Based on molecular data, Maddison & Needham (2006) found support for a monophyletic Hisponinae (*Massagris*, *Tomocyriba* and *Hispo*) and support for a basal phylogenetic position within Salticidae. Morphological data have not yet been included in any modern phylogenetic analyses. Simon (1900) indirectly suggested that *Tomocyriba* should be related to Boetheae and Cyrbeae (thus the subfamily

Spartaeninae), and in a posthumous paper, Roewer (1965) suggested a relationship between *Tomocyriba* and species within the species group Ballae. A relationship between the genera *Hispo*, *Massagris* and *Tomocyriba* was first suggested by Clark (1974; p. 20; [*Massagris*] "*is very close to Tomocyriba SIMON, 1900, probably the same?*"), and again by Wanless (1981; p. 180; "*Hispo is closely related to the genera Massagris and Tomocyriba*"). As an alternative, Prószyński & Żabka (1983) suggested close relationship between *Tomocyriba* and *Euophrys* C. L. KOCH, 1834, based on the presence of a coiled embolus in both genera. The phylogenetic placement and relationships of *Hispo*, *Massagris* and *Tomocyriba* are the subject of a separate paper (Szűts & Scharff, in prep.).

## Materials and Methods

The specimens were studied with methods described by Wanless (1978). Specimens were examined and illustrated using a Leica MZ16A stereoscopic microscope with a camera lucida. Further details were studied using a Leica DMRXE compound microscope with a drawing tube. Scanning electron micrographs were taken with a JEOL JSM-840 scanning electron microscope at ZMUC. Digital images were taken with a Nikon DXM1200F attached to the Leica MZ16A microscope and edited using the software packages Auto-Montage and Adobe Photoshop. All morphological measurements are given in millimetres.

Specimens are deposited in the

ZMUC	Zoological Museum, University of Copenhagen
CAS	California Academy of Sciences, San Francisco
MNHN	Musée national d'Histoire naturelle, Paris
MHNG	Musée d'Histoire Naturelle, Geneva
UZIU	Zoological Museum, University of Uppsala
NHRS	Natural History Museum, Stockholm

Abbreviations:

ALE	anterior lateral eye
AME	anterior median eye
ap	apical division
e	embolus
ma	median apophysis
OCA	ocular area
PLE	posterior lateral eye

PME	posterior median eye
pp	prolateral peak of the tegulum
RTA	retrolateral tibial apophysis

## Taxonomy

### Hisponinae SIMON, 1900

Type genus: *Hispo* SIMON, 1886 (Figs. 6C & 7C).

Genera included: *Hispo* SIMON, 1886 (Figs. 6C, 7C); *Massagris* SIMON, 1900; *Tomocyriba* SIMON, 1900 (Figs. 6A, 7A); *Tomomingi* gen. nov. (Figs. 6B, 7B); *Tomobella* gen. nov. (Figs. 6D, 7D).

Note: Simon (1901) placed the genera *Hispo* and *Massagris* in his Hispoeae species group and *Tomocyriba* in his Tomocyribaee species group, but the genera are now frequently listed as hisponines/Hisponinae (Maddison 1995, Maddison & Hedin 2003, Maddison & Zhang 2006). We hereby formally establish the subfamily Hisponinae.

Diagnosis: The genera belonging here all have a carapace constriction behind the posterior median eyes (Figs. 5A–B, 6–7) and a first metatarsus with one pair of spines or less (except *Tomobella andasibe* (MADDISON & ZHANG, 2006), which has two pairs of spines).

Description: All hisponines, except *Tomobella andasibe*, have one pair of spines on metatarsus I (*Tomocyriba* sensu stricto, *Tomomingi* gen. nov. (Fig. 15E), and *Tomobella* gen. nov.), or just one single spine (*Massagris* and *Hispo*). Male palp with a 'paracymbium' (Figs. 12C, 15A–C, 17B–C) sensu Galiano (1962, Fig. 1). Males often have a hook-shaped median apophysis (*Hispo*: Wanless 1981: figs. 1a–b, 2e, *Tomomingi*: Figs. 4B–C, 5D–E, 12A–C, 14B–C), but it can also be straight (*Massagris*), very small (*Tomocyriba berniae* Fig. 11B, *T. decollata* Fig. 8A), or absent (*Tomobella* gen. nov. Fig. 18). Embolus sitting on a distinctive sclerite that is attached to the tegulum with a membrane. This sclerite may also carry additional processes (see *Massagris* – Wesołowska 1993). The homology of this sclerite is uncertain, but it is present in many hisponines and is also present in other salticid genera (like

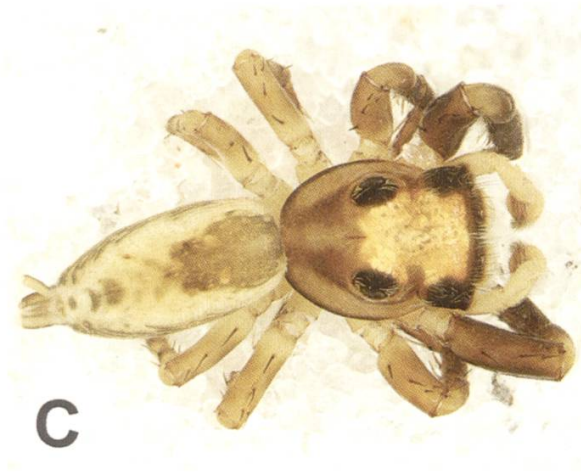
Fig. 1. Habitus of Hisponinae males, dorsal view. Genus *Tomocyriba*. – A: *T. decollata* SIMON; – B: *T. thaleri* sp. nov.; – C: *T. berniae* sp. nov.; – D: *T. ubicki* sp. nov.; Genus *Tomomingi* gen. nov.: – E–F: *T. nywele* sp. nov.; – G: *T. silvae* sp. nov.; – H: *T. wastani* sp. nov.



**A**



**B**



**C**



**D**



**E**



**F**



**G**



**H**

*Asemona*). Galiano (1962: Fig. 1) labelled this sclerite as "division apicale" in *Lyssomanes* and *Chinoscopus*. We follow Galiano here and label the sclerite as "apical division" thereby implying homology between these sclerites in *Lyssomanes*, *Chinoscopus* and hisponines. The female vulva is always provided with a "cul-de-sac" duct. It looks glandular in the microscope, and we call it "glandular duct", but we do not know its exact function (*Hispo*: Wanless 1981: figs. 3f, 4e, 5j (arrow-'c') 11d (arrow-'a'); *Massagris*: Wesołowska 1993: 16–17; *Tomocyriba sensu stricto*: Fig. 4E–F, 8D (arrow-"gl"), 10D, H (arrow-"gl"), 11D, I; *Tomomingi*: 12E, 14E, *Tomobella*: 18D, H).

### ***Tomocyriba* SIMON, 1900**

*Tomocyriba*; Simon 1900: 388; Simon (1901): 440–442; Roewer (1965): 81–83. Type species – *Tomocyriba decollata* SIMON, 1900 – by original designation.

Diagnosis: The species belonging here can be distinguished from other salticid species by their high carapace and high clypeus (Figs. 2A–D, 6A, 7A). PLE-s are situated on a small tubercle. Male palp with a prolateral peak (Figs. 3A–C, 5C) and a very small median apophysis (Figs. 8B, 11A–B), or the median apophysis may be absent altogether (Figs. 9C–D, 10B, F). Female vulva (Figs. 4E–F, 8D–E) with long and thin sperm ducts, that gradually change into ducts with thicker and more spermathecae-like walls (Figs. 4E–F). Another characteristic part of the vulva is the long thin "glandular duct" (Figs. 8D–E). Spermathecae bipartite. First tibiae with 2 pairs of spines.

Description: Medium to large sized salticid spiders ranging from 4 to 6 mm in total length. Carapace high, highest at PLE-s and with a steep thoracic slope, starting immediately after the PLE's (Fig. 8H). Clypeus high, convex, as seen from the side (Fig. 8H). Chelicerae long and slender. Abdomen long and slender. Legs I of male with long patella.

Male palp with long femur, and tibia with a poorly developed apophysis (Figs. 3A–B). Embolus situated on the separated, apical part of the bulb, on the expanded palp (Figs. 3F, 5C), median apophysis very small, often missing. Tegulum with a "peak" situated at the prolateral side of the bulb (Figs. 5C, 8A, 9A, 10A, E, 11A, F).

Female epigynum weakly sclerotized (Figs. 8C, 10C, G, 11D), vulva with long thin-walled sperm ducts (Figs. 4E–F) which gradually change into wide thick-walled ducts (Figs. 4E–F). Each sperm duct is also provided with a long, thin cul-de-sac duct (glandular duct) (Figs. 4F, 8D, 10D, H, 11E, I).

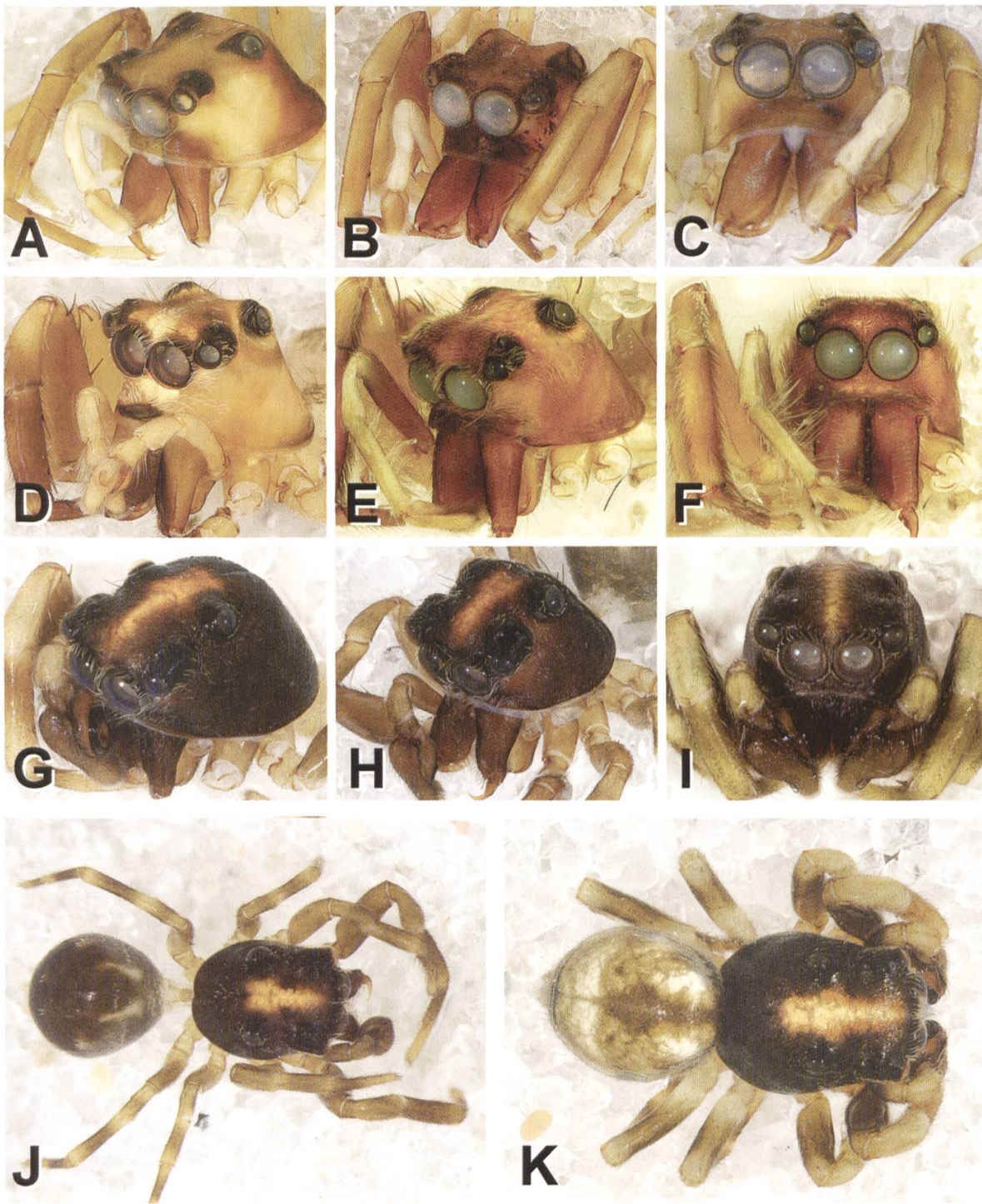


Fig. 2. Carapaces of Hisponinae males. Genus *Tomocyrba*. – A: *T. decollata* SIMON, fronto-lateral view; – B: *T. barbata* SIMON, fronto-lateral view; – C: *T. decollata* SIMON, frontal view; – D: *T. berniae* sp. nov., fronto-lateral view;  
 Genus *Tomomingi* gen. nov. – E: *T. nywele* sp. nov., fronto-lateral view; – F: *T. nywele* sp. nov., frontal view;  
 Genus *Tomobella* gen. nov. – G: *T. fotsy* sp. nov., fronto-lateral view; – H: *T. andasibe* (MADDISON & ZHANG), fronto-lateral view; – I: *T. fotsy* sp. nov., frontal view; – J: *T. andasibe* (MADDISON & ZHANG), dorsal view; – K: *T. fotsy* sp. nov., dorsal view.



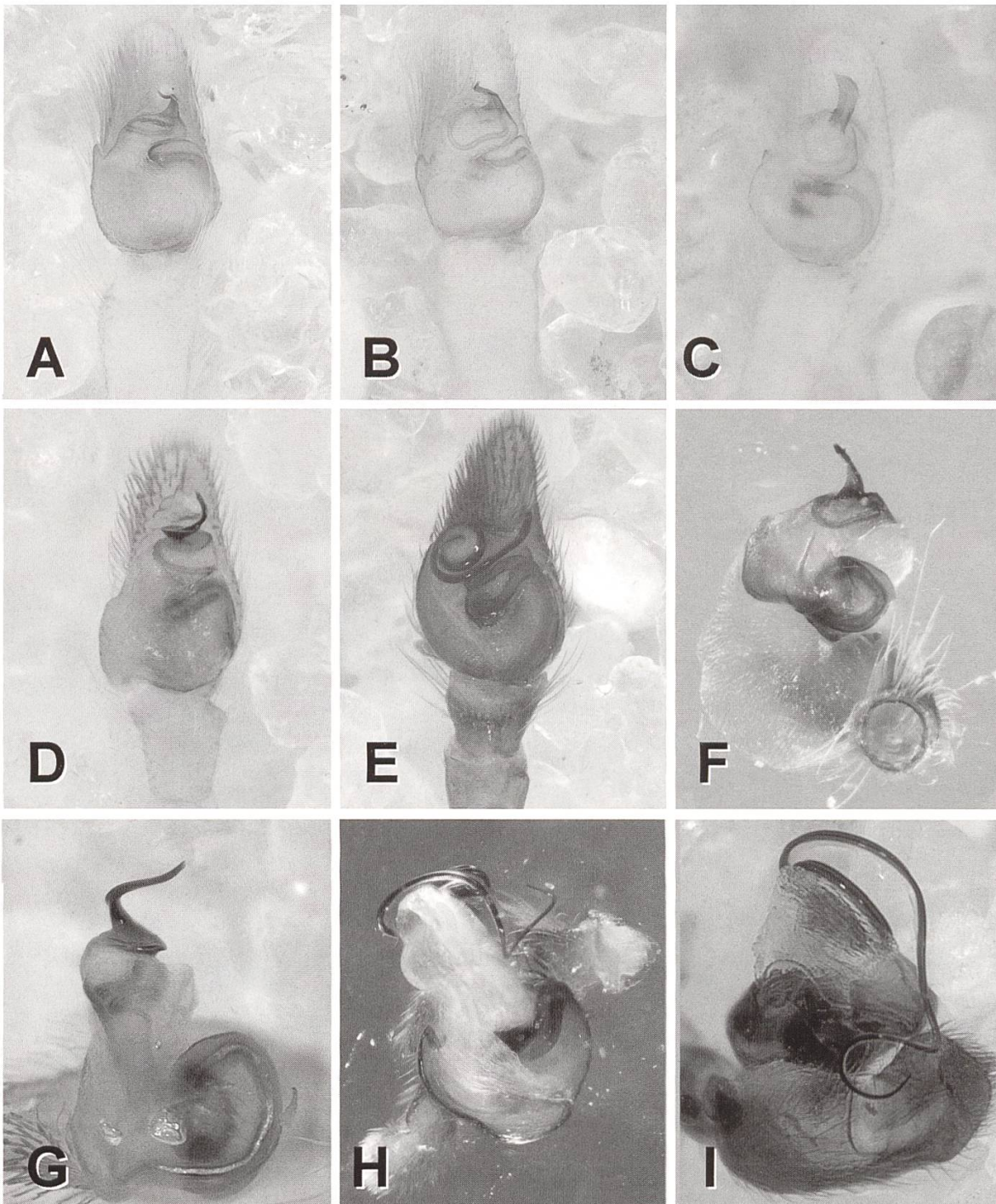


Fig. 3. Male palps of Hisponinae genera. – A: *Tomocyrba decollata* SIMON, lectotype; – B: *T. decollata* SIMON, paralectotype; – C: *T. barbata* SIMON, holotype; – D: *Tomomingi wastani* sp. nov.; – E: *Tomobella andasibe* (MADDISON & ZHANG); – F: *Tomocyrba thaleri* sp. nov., expanded palp; – G: *Tomomingi wastani* sp. nov., expanded palp; – H–I: *Tomobella fotsy* sp. nov., expanded palp.

Natural history/Habitat: Poorly known, but most specimens were caught in montane rain forests.

Distribution: Only known from Madagascar.

Composition: *T. decollata* SIMON, 1900, *T. barbata* SIMON, 1900, *T. thaleri* sp. nov., *T. griswoldi* sp. nov., *T. berniae* sp. nov. and *T. ubicki* sp. nov.

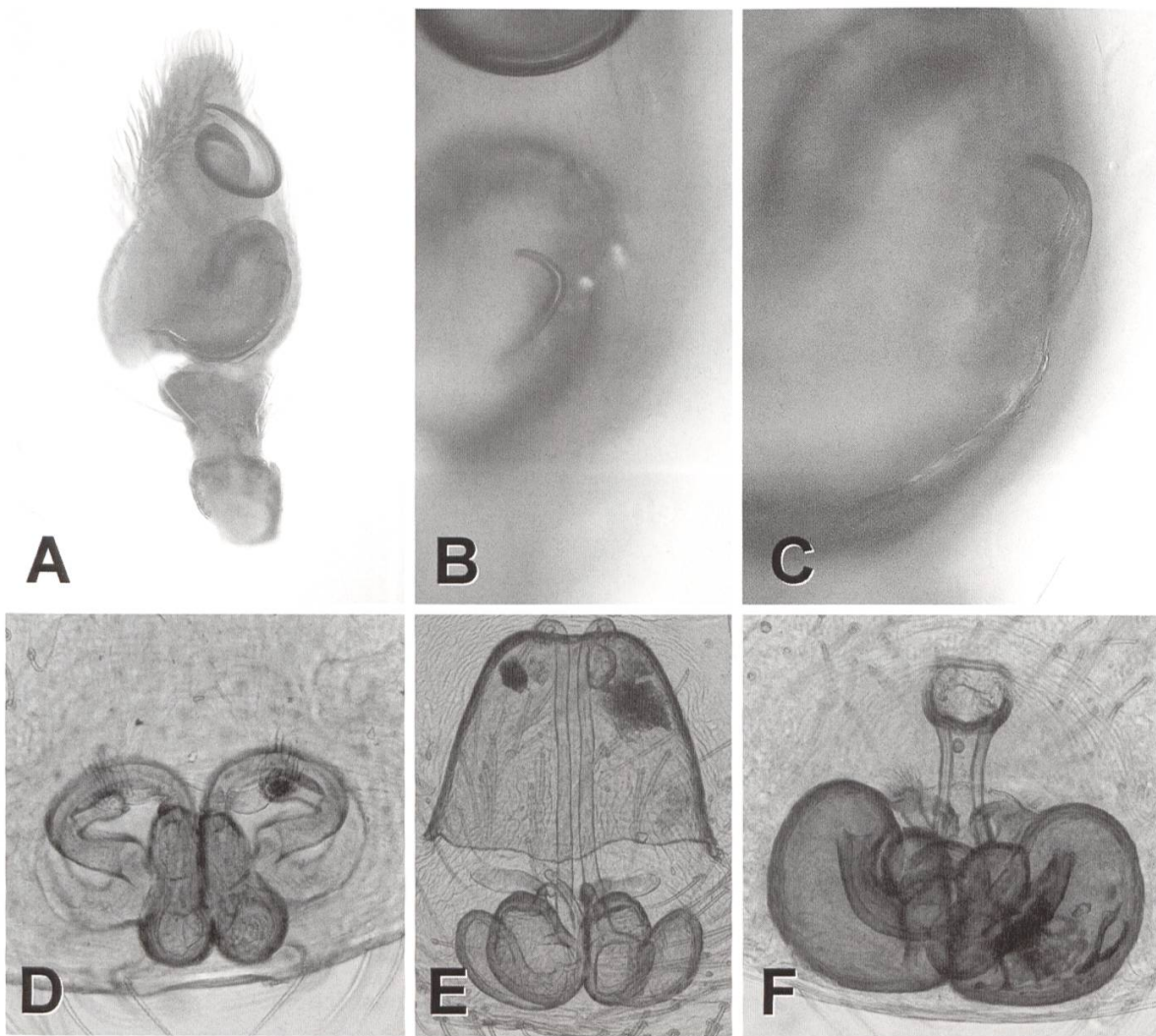


Fig. 4. – A: *Tomomingi silvae* sp. nov., male palp; – B: *T. silvae* sp. nov., median apophysis; – C: *T. silvae* sp. nov., median apophysis; – D: *Tomomingi nywele* sp. nov., vulva; – E: *Tomocyriba ubicki* sp. nov., vulva; – F: *T. berniae* sp. nov., vulva.

***Tomocyriba decollata* SIMON, 1900** (Figs. 1A, 2A, C, 3A–B, 6A, 7A, 8)

*Tomocyriba decollata*; Simon (1900): 388; Simon (1901): 440–442, figs. 493–495; Roewer 1965: 81, figs. 72, 73a.

Note: The syntype series consist of 2 males and 1 female from the same locality. The embolus of the male palps of the two male syntypes differs slightly in shape (Figs. 3A–B), and even though the differences are noticeable, both specimens are more than 100 years old and rather bleached, and we therefore don't want to separate the two type specimens into two different species. However, in order to avoid future confusion about the species we fix the status of one of the three syntypes as the sole name-bearing type of *Tomocyriba decollata*. We hereby designate the best preserved specimen as the lectotype of *T. decollata*.

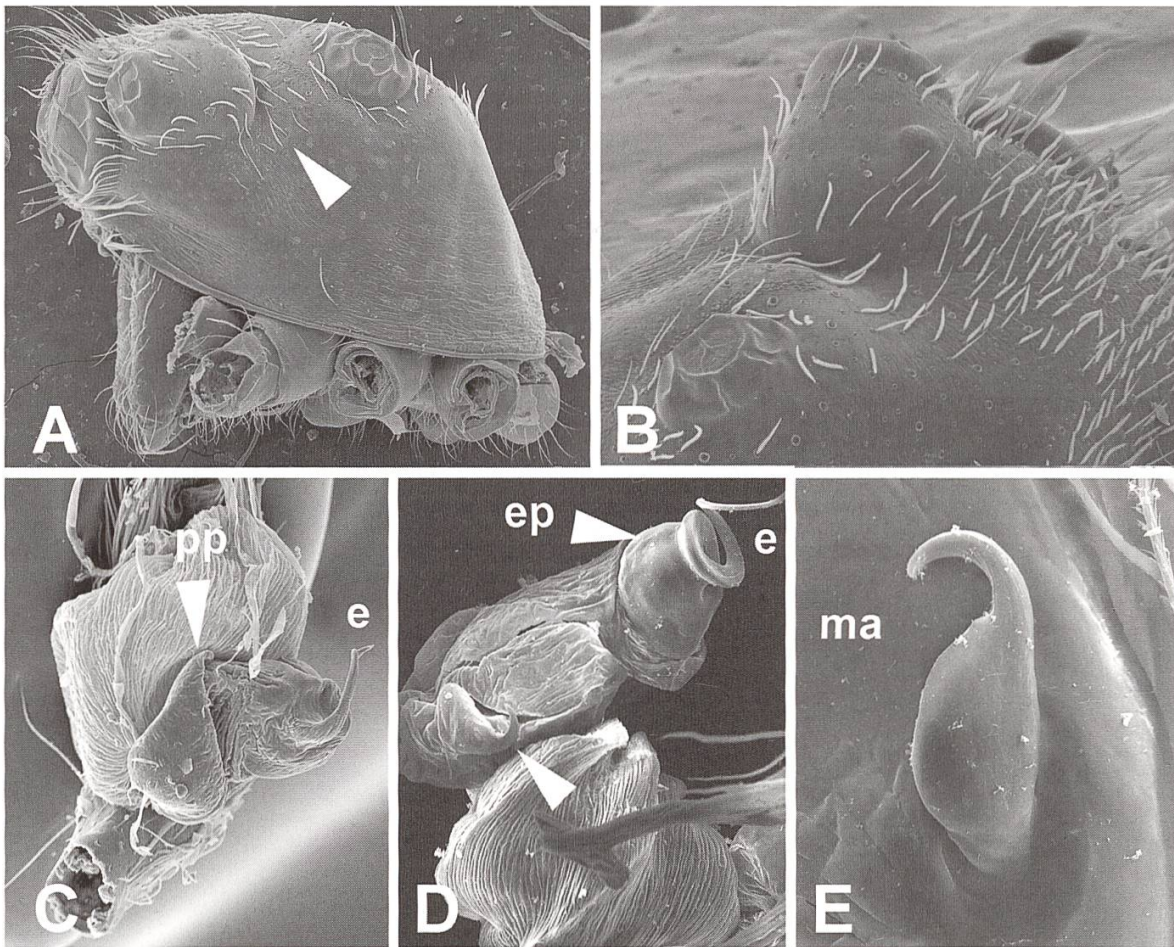


Fig. 5. – A: *Tomocyriba* sp. juvenile, carapace; – B: ditto, carapace constriction; – C: *Tomocyriba thaleri* sp. nov., expanded palp; – D: *Tomomingi nywele* sp. nov., expanded palp; – E: *Tomomingi nywele* sp. nov., median apophysis. Abbreviations: ep = apical division; e = embolus; ma = median apophysis; pp = prolateral peak.

Material examined: Lectotype: 1 ♂ (Figs. 2A, C; 3A) from Antongil (Mocquerys), Madagascar, (MNHN; no. 20952/a) here designated.

Paralectotypes: 1 ♂ (Fig. 3B) and 1 ♀ from the same locality (MNHN; no. 20952/b).

Diagnosis: Male palp with unique configuration (Figs. 3A, 8A–B). Embolus short, apical part bent 90°, but without coils. Bulbus with a small spine-like median apophysis. Female epigynum with copulatory openings close together and copulatory ducts shaped like a "W" (Figs. 8C–E).

Description: Male Lectotype: Type material is old and bleached by ethanol (Figs. 1A, 2A, C). Carapace brown with white markings in and below the ocular area. The white markings continue as a white stripe through the fovea to the pedicel. Black rings around eyes. Abdomen pale with light brown markings, but without a clear pattern. First two legs brown, rest of legs light brown (Fig. 1A). Total length 5.53. Cephalothorax 2.30 long, 1.80 wide, 1.35 high at PLE.

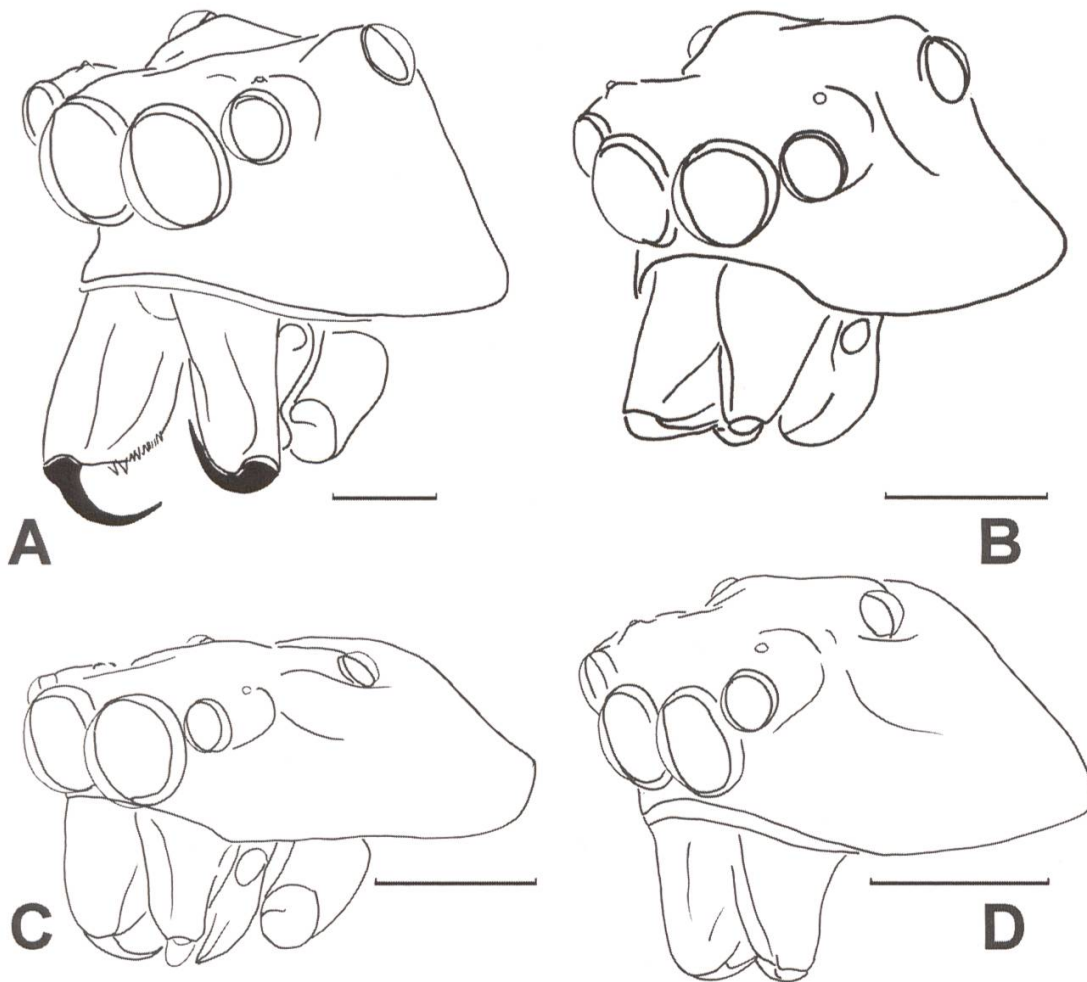


Fig. 6. Carapaces of Hisponinae genera, fronto-lateral view. – A: *Tomocyriba*; – B: *Tomomingi* gen. nov.; – C: *Hispo*; – D: *Tomobella* gen. nov. Scale bars 0.5 mm.

Abdomen 2.86 long, 1.42 wide. OCA 1.55 long, 1.66 wide (anteriorly), 1.48 wide (posteriorly). AME diameter 0.57, ALE 0.30, PME 0.06, PLE 0.32. Clypeus height 0.25 (0.44 times the diameter of AME). Chelicerae 0.90 long, with 9–10 prolateral and 6–7 retrolateral teeth of subequal length. Pedipalp as in Figs. 3A, 8A–B.

Female Paralectotype: Colour as in male, but paler, and with two black spots in the white markings of the ocular area. Cephalothorax with white bands laterally. Black rings around the eyes. Abdomen pale with light brown markings, but without a clear pattern (abdomen damaged). All legs light brown, almost white. Total length 5.20. Cephalothorax 1.84 long, 1.58 wide, 0.96 high at PLE. Abdomen 3.11 long, 1.81 wide. OCA 1.29 long, 1.39 wide (anteriorly), 1.35 wide (posteriorly). AME diameter 0.50, ALE 0.27, PME 0.06, PLE 0.28. Fovea 0.26 long. Clypeus height 0.05 (0.10 times the diameter of AME). Chelicerae 0.51 long, with 9–10 prolateral and 7–8 retrolateral teeth of

subequal length. Retrolateral teeth comb-like. Endites 3 times longer than wide. Epigynum as in Figs. 8C–E.

Variation: Male cephalothorax ranges in length from 1.98 to 2.30 (n=2; Mean=2.14). Male total length ranges from 5.01 to 5.53 (n=2; Mean=5.27).

Natural History/Habitat: No information available.

Distribution: Only known from the type locality, Antongil, Madagascar.

### ***Tomocyriba barbata* SIMON, 1900** (Figs. 2B, 3C, 9)

*Tomocyriba barbata*; Simon (1900): 388; Simon (1901): 440–442, figs. 493–495; Roewer (1965): 82, fig. 73b.

Material examined: Male holotype: Antongil (Mocquerys), Madagascar, 1 ♂ (MNHN; catalogue no. 17839).

Diagnosis: Male palp with unique configuration (Fig. 9). Embolus medium in length, wide, apical part shaped like the head of a bird (Fig. 9C) and with granulated surface. Clypeus with numerous long white setae forming a "moustache" (Fig. 2B).

Description: Male holotype: Type specimen is old and bleached by ethanol. Abdomen is lost. Carapace brown with light brown and white markings in and below the ocular area. The white colouration of the ocular area continues as a white stripe through the fovea to the pedicel. Black rings around eyes. First two legs brown, second two legs light brown with black annulations. Total length 4.00 (according to original description – abdomen now lost). Cephalothorax 1.71 long, 1.35 wide, 1.10 high at PLE. Abdomen cannot be measured. OCA 1.17 long, 1.31 wide (anteriorly), 1.23 wide (posteriorly). AME diameter 0.36, ALE 0.19, PME 0.06, PLE 0.27. Clypeus height 0.19 (0.53 times the diameter of AME). Chelicerae with 8 prolateral and 7 retrolateral teeth of subequal length. Retrolateral teeth comb-like. Endites 2 times as long as wide. Pedipalp as in Fig. 9.

Female: No females known.

Natural History/Habitat: No information available.

Distribution: Only known from the type locality, Antongil, Madagascar.

### ***Tomocyriba griswoldi* sp. nov.** (Figs. 10A–D)

Material examined: Male holotype: Madagascar, Antsiranana province, Marojejy Reserve, 8,4 km NNW from Manantenina, 14° 26' S, 49° 45' E, 700 m, 10.–

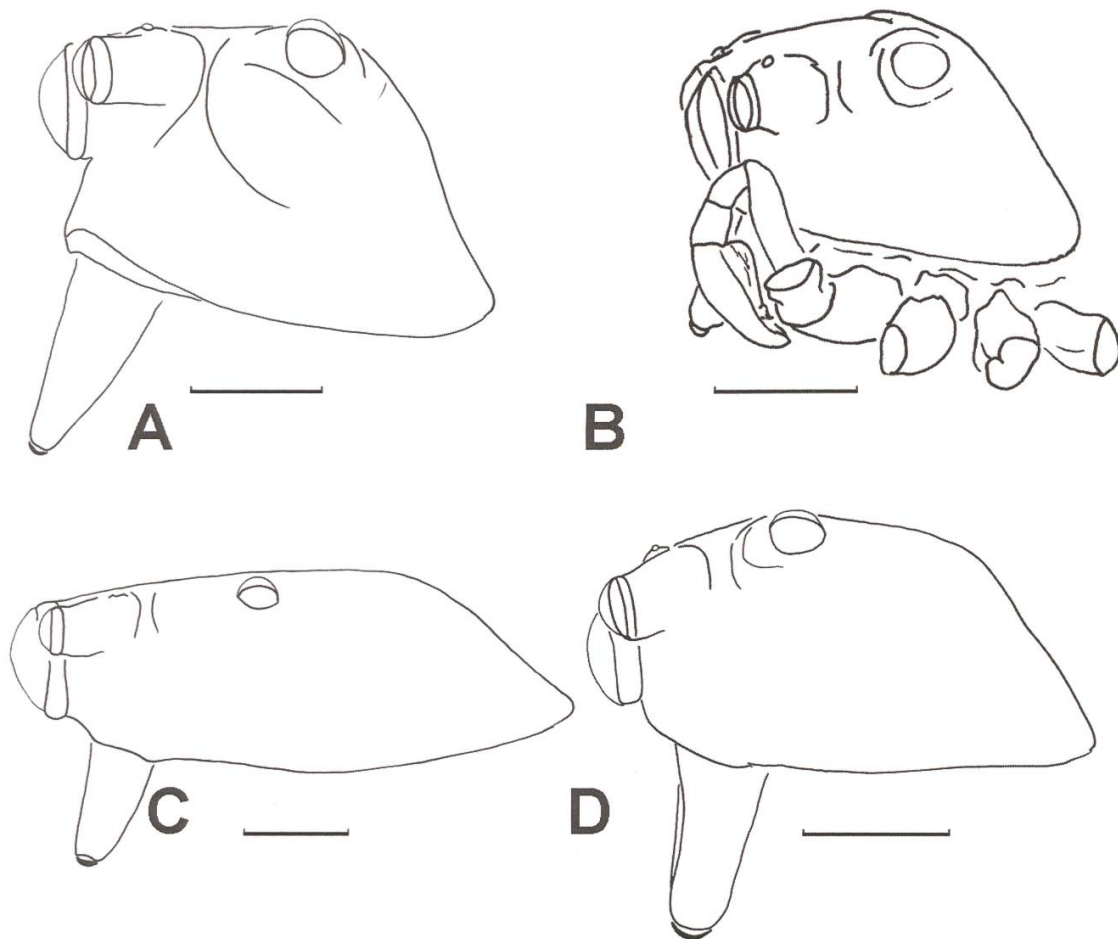


Fig. 7. Carapaces of Hisponinae genera, lateral view. – A: *Tomocyriba*; – B: *Tomomingi* gen. nov.; – C: *Hispo*; – D: *Tomobella* gen. nov. Scale bars 0.5 mm.

16. xi. 1993, C. Griswold, S. Larcher, J. A. Coddington, N. Scharff & R. Andriamasimanana leg. (deposited in CAS).

Paratypes: 1 ♂ and 2 ♀ together with the holotype (deposited in CAS).

Diagnosis: Male palp with a thick, short and straight embolus (Fig. 10A). Sperm ducts of female vulva make a 180° switchback right after copulatory openings (Fig. 10D), spermathecae situated between the thick-walled sperm ducts, glandular duct covered by spermathecae (Fig. 10D).

Description: Male holotype: The colours of this species are very similar to those of *T. decollata*. Carapace yellow laterally. Black rings around eyes. Abdominal pattern as in *T. thaleri* sp. nov. First leg dark brown, with yellow tarsus, other legs yellow. Total length 4.56. Cephalothorax 2.10 long, 1.60 wide, 1.36 high at PLE. Abdomen 2.40 long, 1.20 wide. OCA 1.34 long, 1.50 wide (anteriorly), 1.30 wide (posteriorly). AME diameter 0.50, ALE 0.25, PME 0.06, PLE 0.25. Clypeus height 0.29 (0.6 times the diameter of AME). Chelicerae 0.78 long, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 2.35 times longer than wide. Pedipalp as in Figs. 10A–B.

Female paratype: Colour as in male but more yellowish. Cephalothorax with light brown spots laterally. Black rings around eyes. Abdomen grey with white markings. All legs yellowish. Total length 4.80. Cephalothorax 2.10 long, 1.46 wide, 1.12 high at PLE. Abdomen 2.70 long, 1.70 wide. OCA 1.30 long, 1.40 wide (anteriorly), 1.24 wide (posteriorly). AME diameter 0.48, ALE 0.25, PME 0.07, PLE 0.28. Clypeus height 0.08 (0.15 times the diameter of AME). Chelicerae 0.63, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 2 times longer than wide. Epigynum as in Figs. 10C–D.

Variation: No significant variation was observed.

Natural History/Habitat: No information available.

Etymology: The species is named after Charles Griswold, one of the collectors of the new species.

Distribution: Only known from the type locality.

### ***Tomocyrra thaleri* sp. nov.** (Figs. 1B, 3F, 5C, 10E–H)

Material examined: Male holotype: Madagascar, Antananarivo province, 3 km 41° NE Andranomay, 11.5 km 147° SSE Anjozorobe, 18° 28' 24" S, 47° 57' 36" E, 5.–13. xii. 2000, montane rain forest, B. Fischer & C. Griswold leg.

Paratypes: 7 ♂ and 7 ♀ from the same locality as the holotype. The holotype and these paratypes are deposited in CAS. 1 ♀ from Ambohitanely, vii. 1947 (deposited in MRAC, catalogue number MRAC-215406).

Diagnosis: Male palp with relatively long embolus, originating from the median part of the bulbus (Fig. 10E). Embolus bent 90° at the tip. Female epigynum with a shallow pit, accommodating the entrance openings, sperm ducts gradually become thick-walled, with chambers very similar to the spermathecae (Fig. 10H). Spermathecae large and elongated.

Description: Male holotype: Colours very similar to those of *T. ubicki* sp. nov. and *T. decollata*. Carapace brown, OCA with mottled pattern (reddish), and with a white stripe running through the fovea to the pedicel. Abdomen grey, pale white dorsally, and with a few brown markings. First leg brown with yellow patella and tarsus, other legs light brown (Fig. 1B). Cymbium dark grey (almost black), other palpal segments pale yellow. Total length 4.80. Cephalothorax 1.88 long, 1.54 wide, 1.24 high at PLE. Abdomen 2.40 long, 1.24 wide. OCA 1.24 long, 1.38 wide (anteriorly), 1.16 wide (posteriorly). AME diameter 0.47, ALE 0.25, PME 0.06, PLE 0.25. Clypeus height 0.31 (0.65 times the diameter of AME). Chelicerae 0.81 long, with 7 prolateral and 5 retrolateral teeth of subequal length. Endites 2.6 times longer than wide. Pedipalp as in Figs. 10E–F.

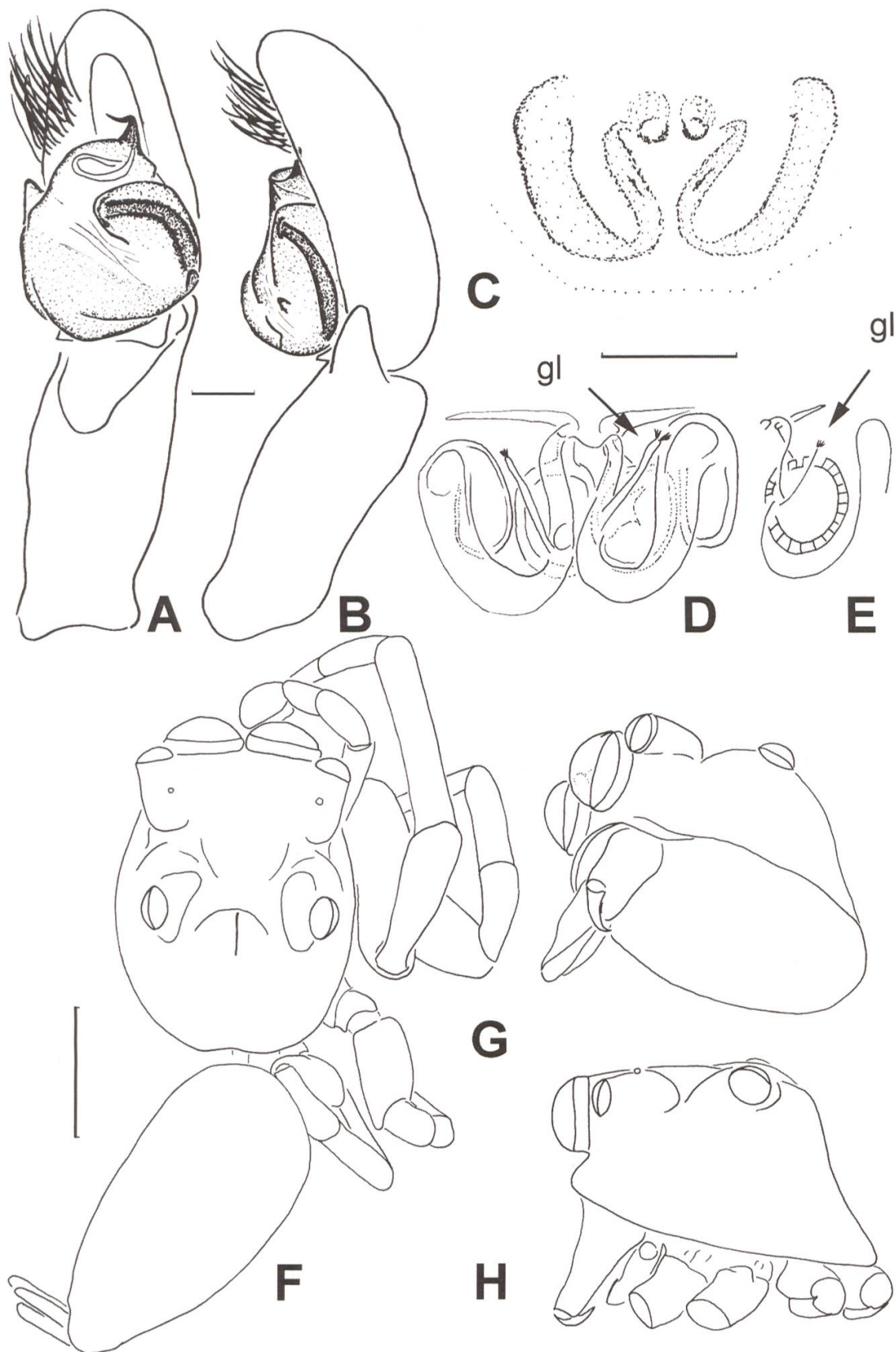
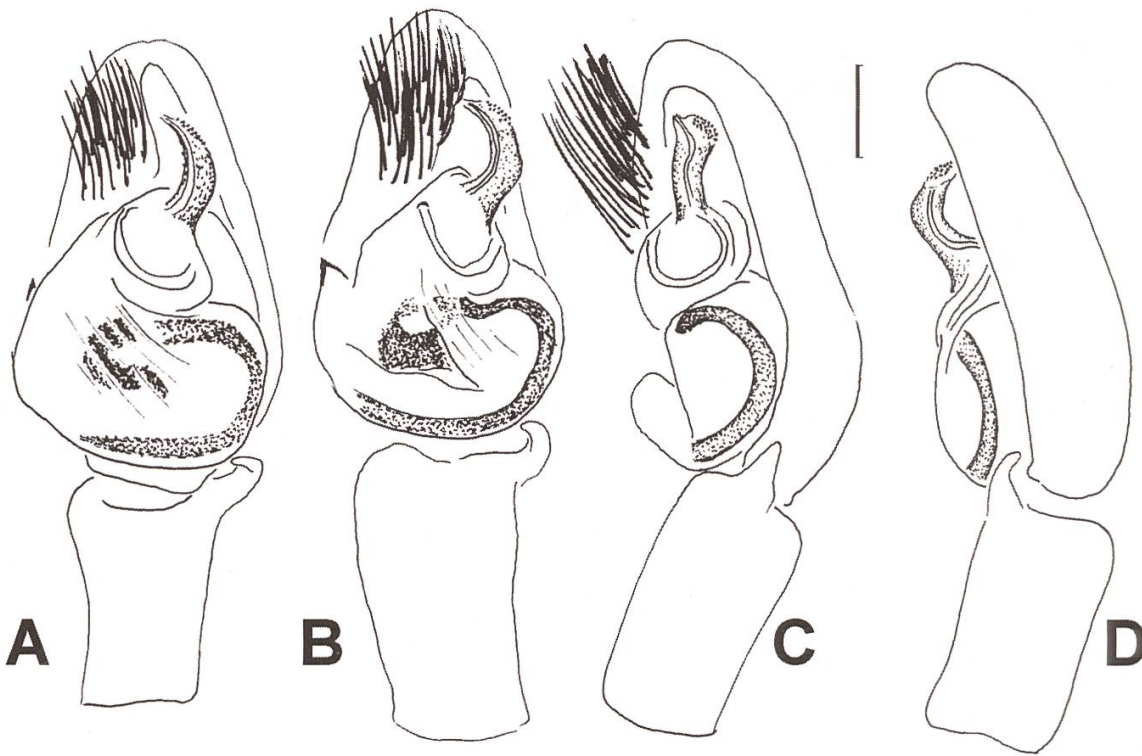


Fig. 8. *Tomocyriba decollata* SIMON. – A: male palp, ventral view; – B: male palp, retrolateral view; – C: female epigynum, ventral view; – D: female vulva, ventral view; – E: schematic drawing of vulva; – F: lectotype male, habitus dorsal view; – G: carapace, ventro-lateral view; – H: carapace, lateral view. Scale bars 0.1 mm for A–D, 1.0 mm for F–H. Abbreviations: gl = glandular duct.





**Fig. 9.** *Tomocyrrba barbata* SIMON, male palp. – A: prolateral-ventral view; – B: ventral view; – C: ventral-retrolateral view; – D: retrolateral view. Scale bar 0.1 mm.

Female paratype: Colour yellowish. Cephalothorax yellowish-brown, with one median and two lateral bands. Black rings around eyes. OCA with paler mottled pattern. Abdomen grey, dorsally white, with dark markings, but without a clear pattern. All legs yellowish.

Total length 4.80. Cephalothorax 1.90 long, 1.38 wide, 1.16 high at PLE. Abdomen 2.80 long, 2.10 wide. OCA 1.16 long, 1.28 wide (anteriorly), 1.14 wide (posteriorly). AME diameter 0.43, ALE 0.25, PME 0.05, PLE 0.25. Clypeus height 0.07 (0.19 times the diameter of AME). Chelicerae 0.62 long, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 2.4 times longer than wide. Epigynum as in Figs. 10G–H.

Variation: Male total length ranges from 3.40 to 4.80 (n=6; Mean=3.96), cephalothorax ranges in length from 1.54 to 2.00 (n=6; Mean=1.77). Female total length ranges from 4.20 to 5.60 (n=6; Mean=4.90), cephalothorax ranges in length from 1.90 to 2.20 (n=6; Mean=1.99).

Natural History/Habitat: All specimens have been found in montane rain forest.

Etymology: The species is named after the late Konrad Thaler, to honour his many important contributions to European arachnology.

Distribution: Only known from the type locality.

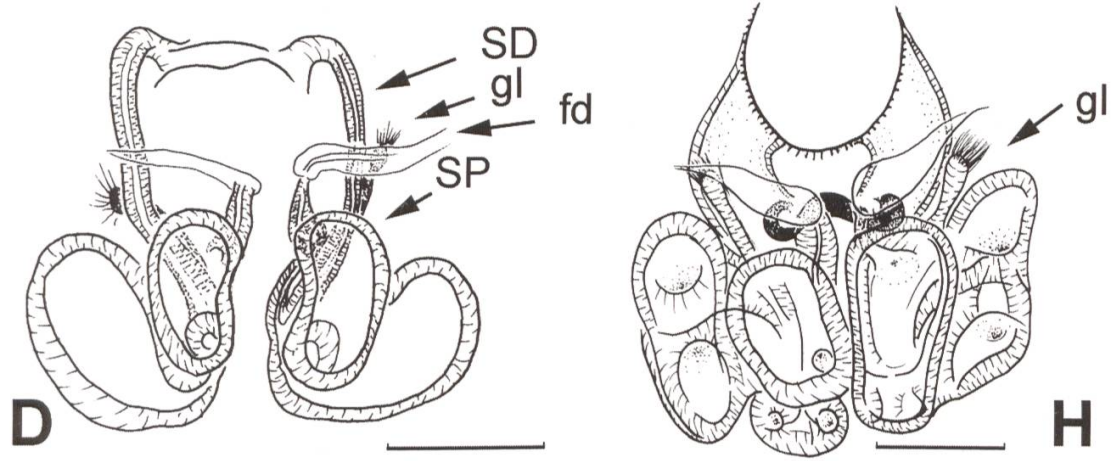
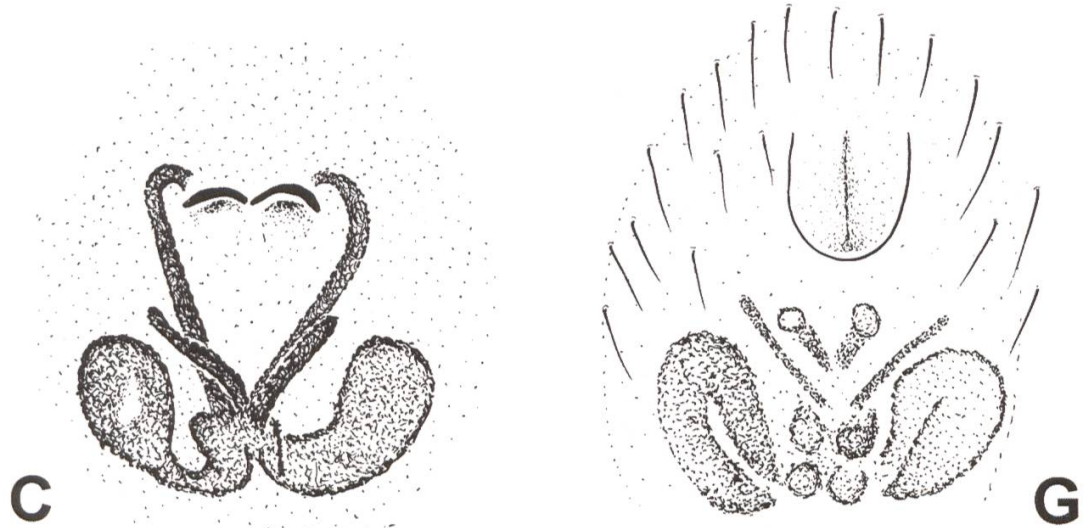
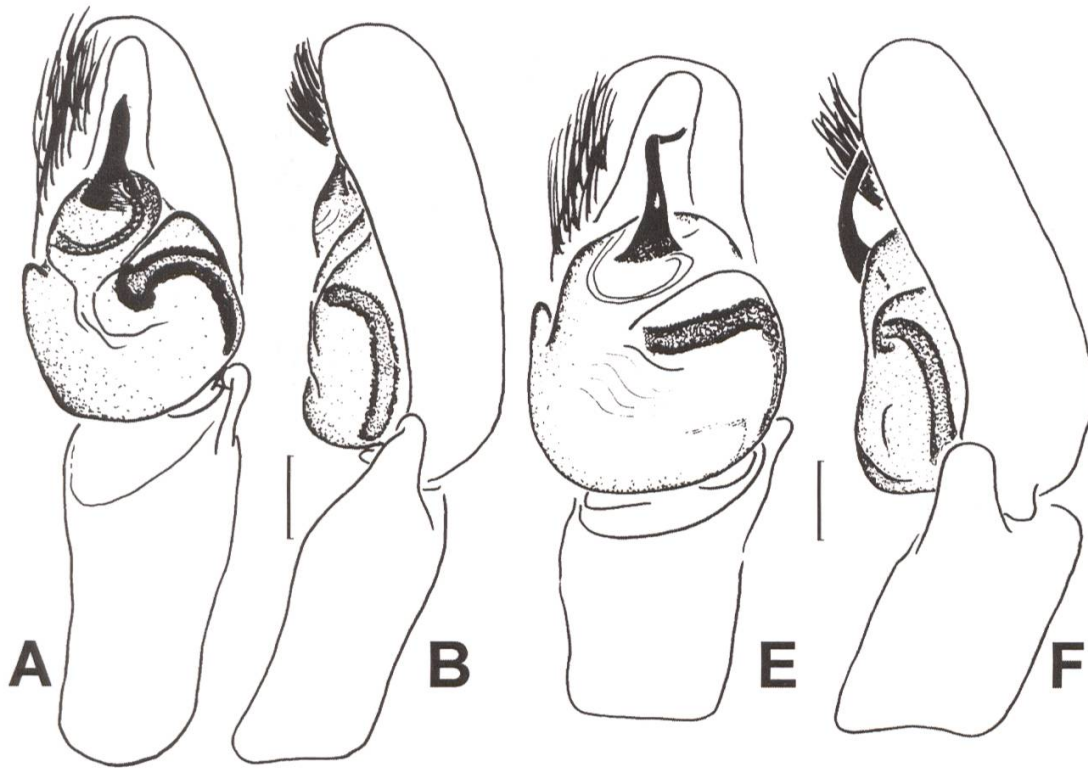


Fig. 10. *Tomocyriba griswoldi* sp. nov. – A: male palp, ventral view; – B: male palp, retrolateral view; – C: female epigynum, ventral view; – D: female vulva, dorsal view; *Tomocyriba thaleri* sp. nov.; – E: male palp, ventral view; – F: male palp, retrolateral view; – G: female epigynum, ventral view; – H: female vulva, dorsal view. Scale bars 0.1 mm. Abbreviations: fd = fertilization duct; gl = glandular duct; SD = sperm ducts; SP = spermatheca.

***Tomocyra berniae* sp. nov.** (Figs. 1C, 2D, 4F, 11A–E)

Material examined: Male holotype: Madagascar, Fianarantsoa province, Parc Nationale Ranomafana, Vohiparara, 21° 14' S, 47° 24' E, 900 m, 5.–7. xii. 1993, C. E. Griswold, S. Larcher, J. A. Coddington, N. Scharff & R. Andriamasimanana leg. (deposited in CAS).

Paratypes: 3 ♂ and 1 ♀ together with the holotype. 1 ♂ and 2 ♀ from Madagascar, Antananarivo province, 3 km 41° NE Andranomay, 11.5 km 147° SSE Anjozorobe, 18° 28' 24" S, 47° 57' 36" E, 5.–13. xii. 2000, montane rain-forest, B. Fischer & C. Griswold leg. (all paratypes deposited in CAS).

Diagnosis: Body pale yellow (Fig. 1C). Male palp with unique dorsal tibial apophysis (Fig. 11C). Embolus very short, wide, curved upwards at the tip (Figs. 11A). Small median apophysis present (Figs. 11A–B; can be seen as a small triangular sclerite). Female epigynum with one copulatory opening (Figs. 4F, 11D–E), thick-walled sperm ducts covering the spermathecae in ventral view (Fig. 11E). Only fertilization ducts visible in dorsal view.

Description: Male holotype: Colour pale yellow. Cephalothorax light brown with a yellow median stripe. Lateral stripes extending from ocular area to the pedicel (Fig. 1C). OCA with orange mottled pattern. Black rings around eyes. Clypeus yellow, with a black spot on the rim and a white mottled spot just below the AME (Fig. 2D). Abdomen light grey, paler on the dorsum, and with a dark "scutum-like" pattern. First leg dark brown with a pale yellow patella, other legs light brown (Fig. 1C). Total length 5.20. Cephalothorax 2.40 long, 1.80 wide, 1.44 high at PLE. Abdomen 2.60 long, 1.30 wide. OCA 1.24 long, 1.54 wide (anteriorly), 1.24 wide (posteriorly). AME diameter 0.50, ALE 0.25, PME 0.06, PLE 0.32. Clypeus height 0.38 (0.75 times the diameter of AME). Chelicerae 1.0 long, with 7 prolateral and 5 retrolateral teeth of subequal length. Endites 2.2 times longer than wide. Pedipalp as in Figs. 11A–C.

Female paratype: Colour as in male. Cephalothorax yellow, OCA with pale mottled pattern. Black rings around eyes. Abdomen grey with lighter markings, but without a clear pattern. All legs pale yellow. Total length 4.40. Cephalothorax 1.70 long, 1.40 wide, 1.16 high at PLE. Abdomen 2.40 long, 1.60 wide. OCA 1.04 long, 1.30 wide (anteriorly), 1.10 wide (posteriorly). AME diameter 0.43, ALE 0.25, PME 0.06, PLE 0.25. Clypeus height 0.10 (0.22 times the diameter of AME). Chelicerae 0.68 long, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 2 times longer than wide. Epigynum as in Figs. 11D–E.

Variation: Male total length ranges from 3.60 to 5.20 (n=5; Mean=4.52), cephalothorax ranges in length from 1.80 to 2.50 (n=5; Mean=2.10). Females without significant variation.

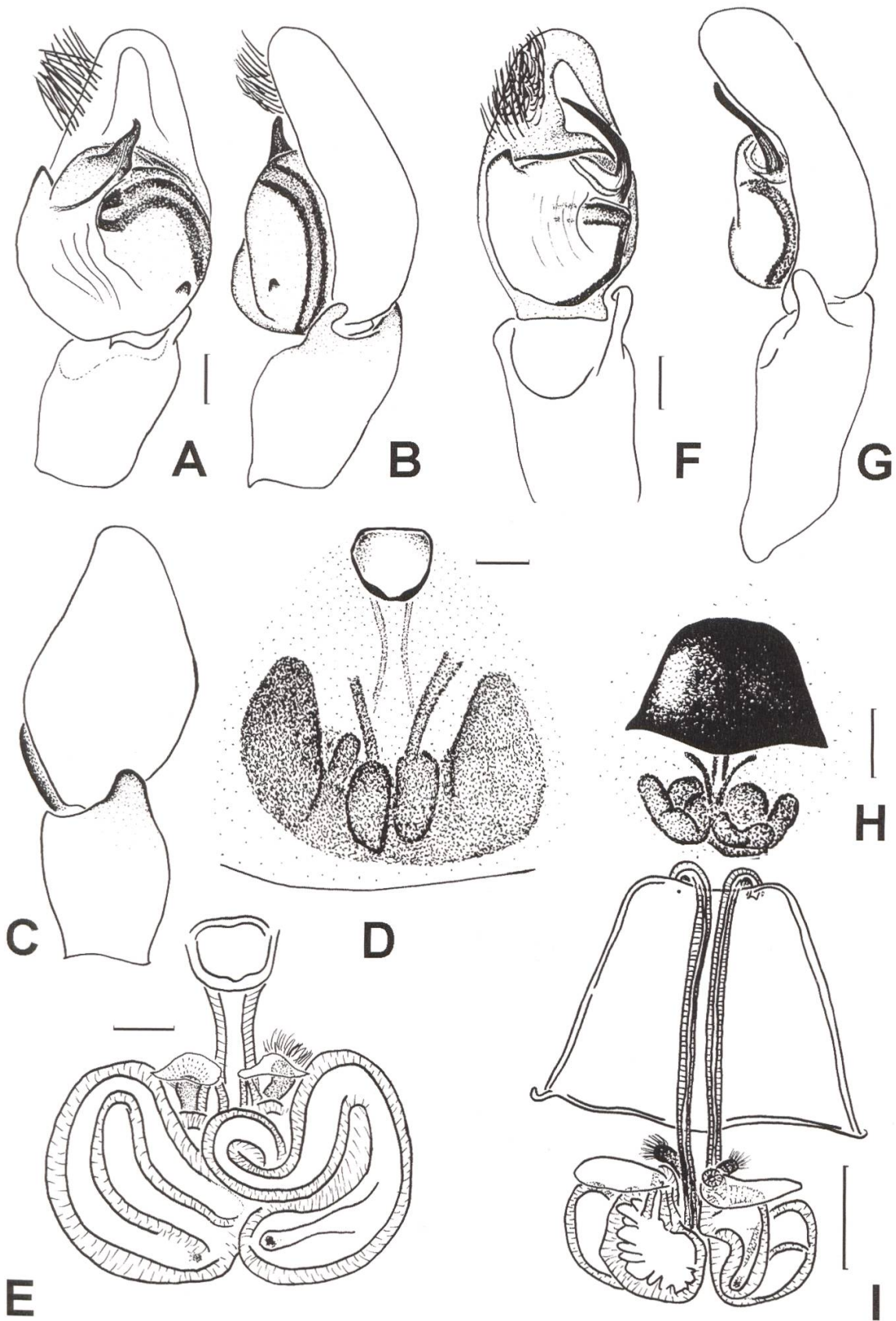


Fig. 11. *Tomocyrrba berniae* sp. nov. – A: male palp, ventral view. – B: male palp, retrolateral view; – C: male palp, dorsal view; – D: female epigynum, ventral view; – E: female vulva, dorsal view. *Tomocyrrba ubicki* sp. nov.: – F: male palp, ventral view; – G: male palp, retrolateral view; – H: female epigyne, ventral view; – I: female vulva, dorsal view. Scale bars 0.1 mm.

Natural History/Habitat: All specimens were collected in montane rain-forest.

Etymology: The species is named after Bernadett Solymosi, the wife of the first author.

Distribution: Known from Fianarantsoa province (Vohiparara) and Antananarivo province (near Andranomay), Madagascar.

***Tomocyrba ubicki* sp. nov.** (Figs. 1D, 4E, 11F–I)

Material examined: Male holotype: Madagascar, Antsiranana prov. Marojejy Reserve, 8.4 km NNW from Manantenina, 14° 26' S, 49° 45' E, 700 m, 15.–16. xi. 1993, C. E. Griswold, S. Larcher, J. A. Coddington, N. Scharff & R. Andriamasimanana leg. (deposited in CAS).

Paratypes: 3 ♀ together with the holotype (deposited in CAS); 1 ♂ from Antsirabe, x./xi. 1970, J. Gossuin leg. (deposited in MRAC, catalogue number MRAC 142547).

Diagnosis: Male palp with an almost rectangular bulbus (Fig. 11F), embolus situated at the retrolateral side of the tegulum, medium in length and slightly bent. Female epigynum with a well sclerotized plate (shaped like a helmet; Fig. 11H), sperm duct switchback after the copulatory opening. Spermathecae covering the thick-walled ducts (Figs. 4E, 11H–I).

Description: Male holotype: Carapace brown, OCA pale yellow. The white colouration of the ocular area continues as a white stripe through the fovea to the pedicel. OCA covered with yellow and white hairs. Fovea with white hairs. Black rings around eyes covered with yellow hairs, and orange hairs are present between AME-s. Abdomen pale white with markings, but without a clear pattern (abdominal pattern strongly resembles that of *T. decollata* and *T. thaleri* sp. nov.). First leg brown, other legs light brown (Fig. 1D). Total length 6.40. Cephalothorax 2.34 long, 1.88 wide, 1.48 high at PLE. Abdomen 3.22 long, 1.2 wide. OCA 1.50 long, 1.86 wide (anteriorly), 1.50 wide (posteriorly). AME diameter 0.62, ALE 0.36, PME 0.08, PLE 0.36. Clypeus height 0.13 (0.22 times the diameter of AME). Chelicerae 1.13 long, with 9 prolateral and 5 retrolateral teeth of subequal length. A large tooth is present on the outer side of the basal segment of the chelicera. Endites 2.33 times longer than wide. Pedipalp as in Figs. 11F–G.

Female paratype: Colour as in male, but paler. Cephalothorax brown with paler OCA. The colouration of the ocular area continues as a white stripe through the fovea to the pedicel. OCA covered with yellowish hairs. Abdomen grey with whitish markings, but without a clear pattern. First leg dark brown,

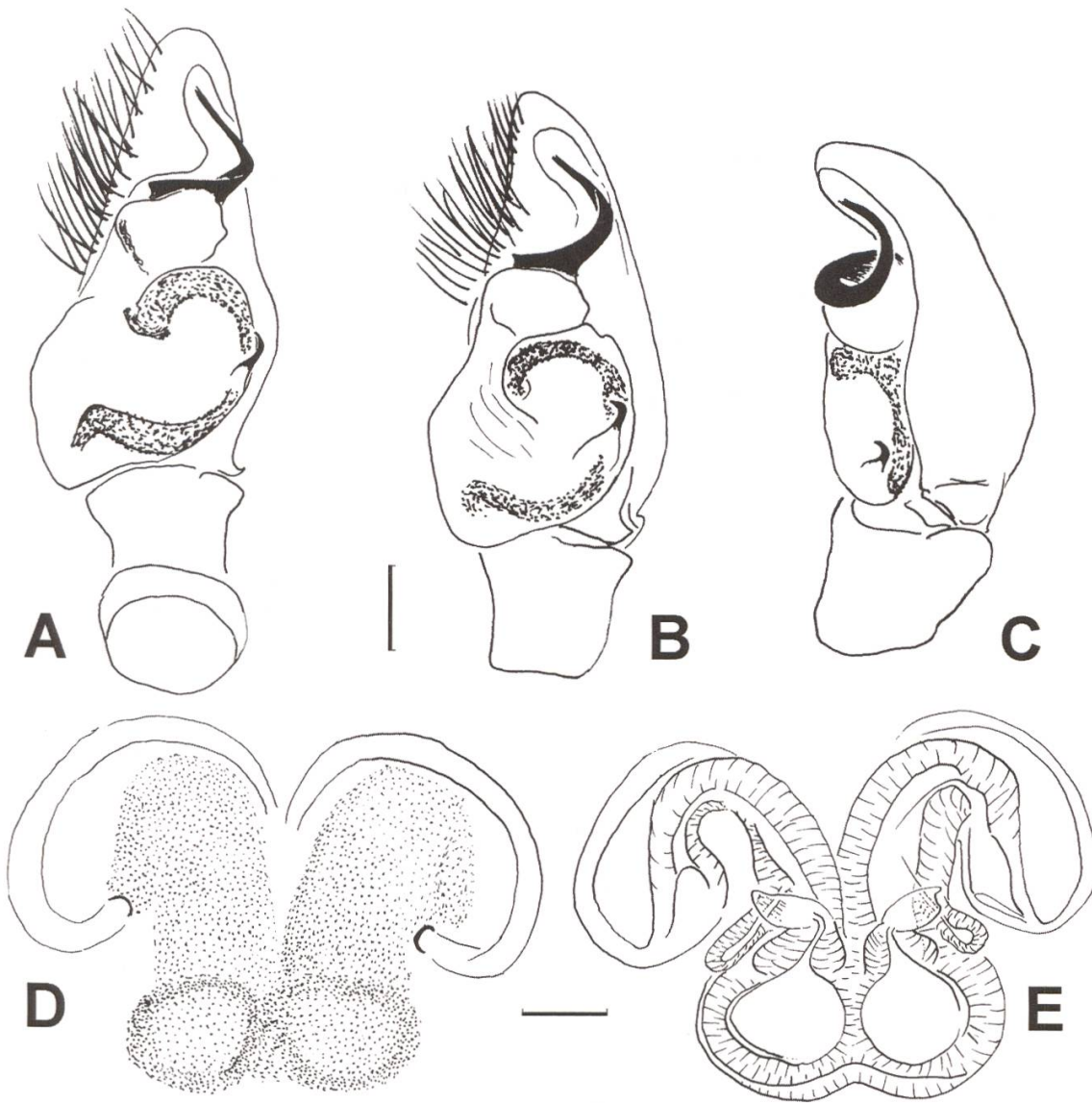


Fig. 12. *Tomomingi wastani* sp. nov., copulatory organs. – A: male palp, ventral view; – B: male palp, ventral-retrolateral view; – C: male palp, dorso-retrolateral view; – D: female epigynum, ventral view; – E: female vulva, dorsal view. Scale bars 0.1 mm.

other legs brown. Total length 6.40. Cephalothorax 2.60 long, 1.90 wide, 1.44 high at PLE. Abdomen 3.40 long, 2.20 wide. OCA 1.50 long, 1.90 wide (anteriorly), 1.56 wide (posteriorly). AME diameter 0.63, ALE 0.38, PME 0.08, PLE 0.38. Clypeus height 0.06 (0.1 times the diameter of AME). Chelicerae 0.93 long, with 8 prolateral and 5 retrolateral teeth of subequal length. Endites 2.80 times longer than wide. Epigynum as in Figs. 11H–I.

Natural History/Habitat: Specimens from Marojejy collected in rain forest.

Etymology: The species is named after Darell Ubick, who collected a significant proportion of the material studied.

Distribution: Only known from the type locality.

## ***Tomomingi* gen. nov.**

*Tomocyriba* (part); Lessert (1925): 429, figs. 1–4; Roewer (1965): 83, fig. 73c; Prószyński & Żabka (1983): 563–578, fig. 32.

Type species: *Tomomingi wastani* sp. nov.

**Etymology:** The genus name is a combination of *Tomo* (to indicate relationship with *Tomocyriba*) and *mingi* (Swahili for mountain). Gender masculine.

**Diagnosis:** Three pairs of spines on the first tibiae (other Hisponinae species have less). Carapace and clypeus not as high as those of *Tomocyriba* sensu stricto. The males can be recognised by a hook-shaped median apophysis, which has a wide oval base (Figs. 3G, 4B–C, 5D–E). Embolus coiled (tightly Fig. 15A or loosely Fig. 12A). Female vulva with non-modified sperm ducts (Figs. 12D–E, 14D–E; compare with Figs. 2A–D, 6A, 7A).

**Description:** Medium sized salticid spiders ranging from 4 to 5 mm in total length. Carapace medium in height, thoracic slope steep, ocular area usually covered with setae (scales not present). Chelicerae long and slender. Abdomen oval. First tibiae with three pairs of spines.

Male palp with short tibia, provided with a retrolateral outgrowth distally (Fig. 12C). This could be a remnant of the retrolateral tibial apophysis. Cymbium with a retrolateral pocket-like depression (Fig. 12C). Bulbus with a retrolateral hook-shaped median apophysis (Figs. 3G, 4B–C, 5 D–E), with a prolateral lobe and with an apical division on which the coiled or twisted embolus is situated.

Female epigynum weakly sclerotized (Figs. 12D, 14D), with a groove leading to the copulatory openings. Vulva with long thin-walled sperm ducts (Figs. 12E, 14E), with equal diameter throughout. A blind ending ("cul-de-sac") duct (or gland?) is present, and sperm duct without spermathecae-like thick walls, spermathecae bipartite.

**Natural history/Habitat:** Poorly known. Most of the specimens were caught in montane rain forests in East Africa. Recently Wayne Maddison (pers. com.) observed "*Portia*-like" (slow, with choppy gait – see Jackson & Pollard 1996) locomotion in a living specimen from Gabon.

**Distribution:** East and West Africa.

**Composition:** *Tomomingi holmi* (PRÓSZYŃSKI & ŻABKA, 1983) comb. nov., *T. keinoi* (PRÓSZYŃSKI & ŻABKA, 1983) comb. nov., *T. sjoestedti* (LESSERT, 1925) comb. nov., *T. kikuyu* (PRÓSZYŃSKI & ŻABKA, 1983) comb. nov., *T. wastani* sp. nov., *T. nywele* sp. nov., *T. silvae* sp. nov.

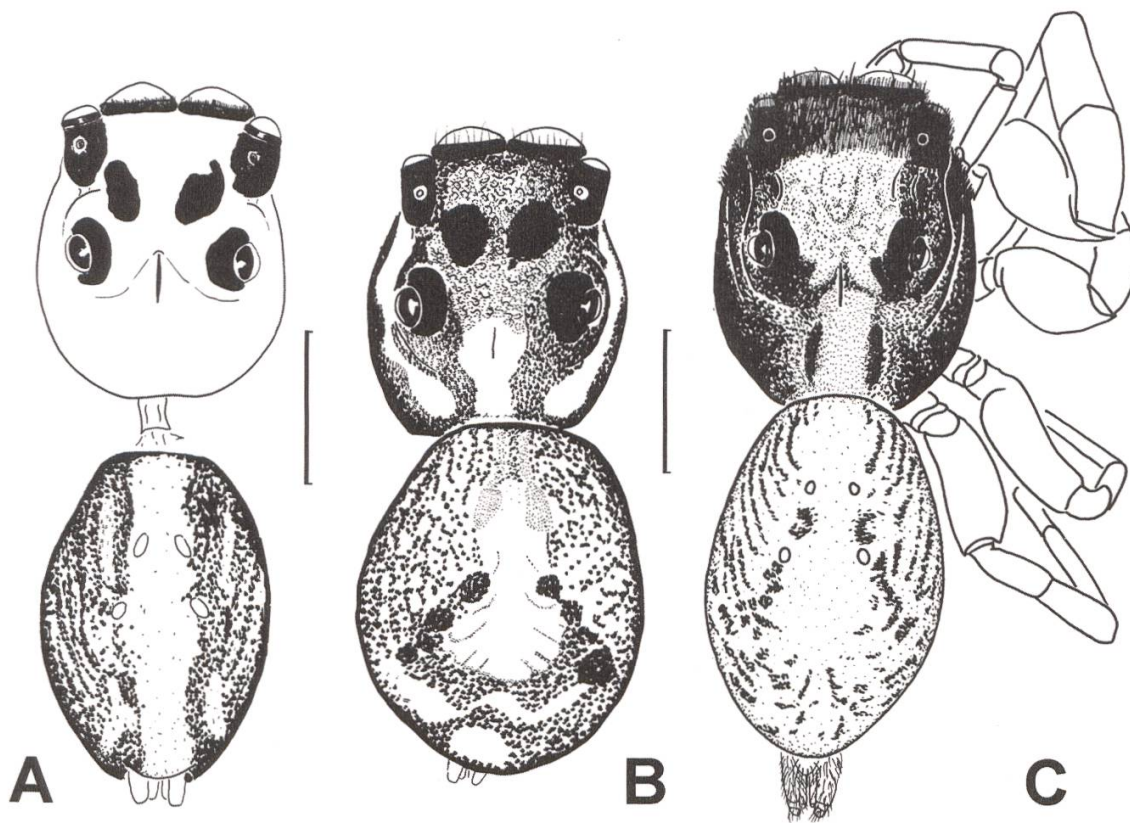


Fig. 13. *Tomomingi nywele* sp. nov., body colour. – A: female, dorsal view; – B: female, dorsal view; – C: male, dorsal view. Scale bars 0.1 mm.

***Tomomingi wastani* sp. nov.** (Fig. 1H, 3D, G, 12)

Material examined: Male holotype: Tanzania, Tanga, West Usambara Mts., Mazumbai Forest Reserve, 04° 49' S, 38° 30' E, 1400–1800 m, 11.–20. xi. 1995, sifting litter, C. E. Griswold, N. Scharff & D. Ubick leg. (deposited in CAS).

Paratypes: 1 ♂ and 4 ♀ together with the holotype. 2 ♂ and 5 ♀ from the same locality as the holotype (paratypes deposited in ZMUC).

Diagnosis: Male palp with unique configuration (Figs. 12A–C). Embolus medium in width, moderately long, loosely coiled. The sperm ducts of the female vulva wide in diameter, and spermathecae almost spherical.

Description: Male holotype: Carapace brown with a few yellow hairs in the ocular area (Fig. 1H). Thoracic region with a median white band that continues through the fovea to the pedicel. Abdomen with a pale white median band on a greyish background, and white bands laterally, merging with the median band posteriorly (Fig. 1H). All legs yellowish brown except femur I, tibia I, and metatarsus I (Fig. 1H), which are brown. Total length 3.13. Cephalothorax 1.50 long, 1.00 wide, 0.75 high at PLE. Abdomen 1.55 long, 1.30 wide. OCA 0.80



long, 0.92 wide (anteriorly), 0.80 wide (posteriorly). AME diameter 0.31, ALE 0.18, PME 0.02, PLE 0.22. Fovea 0.11 long. Clypeus height 0.04 (0.12 times the diameter of AME). Chelicerae 0.50 long. Endites 2 times longer than wide. Pedipalp as in Figs. 12A–C.

Female Paratype: Colour as in male, but paler. Cephalothorax light brown laterally with whitish bands. Abdomen pale white with light brown markings, but without a clear pattern. All legs light brown, almost whitish. Total length 3.00. Cephalothorax 1.50 long, 1.10 wide, 0.80 high at PLE. Abdomen 1.48 long, 1.20 wide. OCA 0.80 long, 1.00 wide (anteriorly), 0.80 wide (posteriorly). AME diameter 0.31, ALE 0.19, PME 0.03, PLE 0.22. Fovea 0.19 long. Clypeus height 0.025 (0.8 times the diameter of AME). Chelicerae 0.38 long, with 4 prolateral and 5 retrolateral teeth of subequal length. Endites 2 times longer than wide. Epigynum as in Figs. 12D–E.

Variation: Male total length ranges from 2.65 to 3.13 (n=3; Mean=2.90), cephalothorax ranges in length from 1.30 to 1.50 (n=3; Mean=1.39).

Natural History/Habitat: Most specimens have been taken from litter sifting of primary montane rain forest.

Etymology: The species name, a Swahili noun in apposition meaning "moderate", refers to the moderate length of the male embolus.

Distribution: Only known from the type locality, West Usambara Mountains, Tanzania.

***Tomomingi nywele* sp. nov.** (Figs. 1E–F, 2E–F, 4D, 5D–E, 13–14)

Material examined: Male holotype: Tanzania, Iringa Region and District, Uzungwa Scarp Forest Reserve, 11 km SE Massisiwe, Kihanga Stream, 08° 22' 05.7" S, 35° 58' 41.6" E, 1800 m, 17.–27. v. 1997, canopy fogging, L. L. Sørensen leg. (deposited in ZMUC).

Paratypes: 1 ♀ together with the holotype; 11 ♂ and 11 ♀ from same locality (same data); 1 ♀, same locality, from litter and logs on ground, P. de Place Bjørn, J. A. Coddington, J. Miller, N. Scharff, B. Nyundo, J. Heinonen, S. Larcher, E. Mulungu & I. Zilihona leg. (paratypes deposited in ZMUC).

Diagnosis: Male palp with a long, thin embolus, loosely coiled (Figs. 14A–C). Epigynum of female with a small sclerotized plate and a long groove that leads to the copulatory openings (Fig. 14D).

Description: Male holotype: Carapace light brown with white marking in the ocular area, that continues as a white stripe through the fovea to the pedicel. Abdomen pale white, with light brown markings, but without a clear pattern. First two legs dark brown, rest of legs light brown and with pale white femora

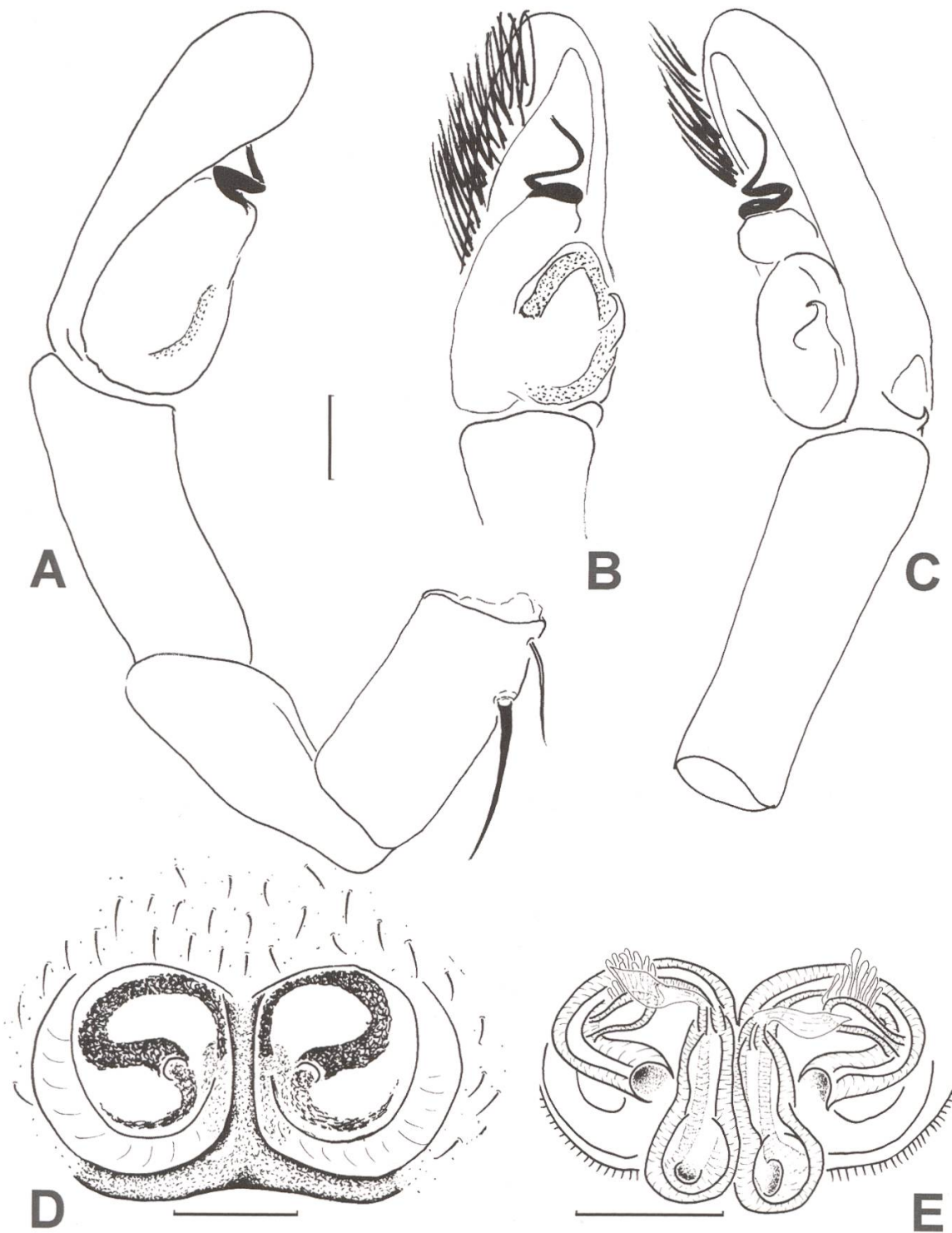


Fig. 14. *Tomomingi nywele* sp. nov., copulatory organs. – A: male palp, prolateral view; – B: male palp, ventral view; – C: male palp, retrolateral view; – D: female epigynum, ventral view; – E: female vulva, dorsal view. Scale bars 0.1 mm.

(Figs. 1E–F, 13C). Total length 4.81. Cephalothorax 2.20 long, 1.70 wide, 1.25 high at PLE. Abdomen 2.40 long, 1.60 wide. OCA 1.05 long, 1.26 wide (anteriorly), 1.20 wide (posteriorly). AME diameter 0.48, ALE 0.25, PME 0.05, PLE 0.28. Fovea 0.29 long. Clypeus height 0.16 (0.33 times the diameter of AME).

Chelicerae 0.84 long, with 4 prolateral and 5 retrolateral teeth of subequal length. Endites 2 times longer than wide. Pedipalp as in Figs. 14A–C.

Female Paratype: Colour as in male, but paler, and with two black spots in the white patch of the ocular area. Cephalothorax with white lateral stripes (Fig. 13B). Abdomen pale white with light brown markings, but without a clear pattern. All legs light brown, almost white. Total length 3.40. Cephalothorax 1.50 long, 1.26 wide, 0.98 high at PLE. Abdomen 1.86 long, 1.44 wide OCA 0.90 long, 1.01 wide (anteriorly), 0.99 wide (posteriorly). AME diameter 0.38, ALE 0.19, PME 0.04, PLE 0.23. Fovea 0.17 long. Clypeus height 0.06 (0.16 times the diameter of AME). Chelicerae 0.58 long, with 4 prolateral and 5 retrolateral teeth of subequal length. Endites 2 times longer than wide. Epigynum as in Figs. 14D–E.

Variation: Male cephalothorax ranges in length from 1.50 to 2.20 (n=9; Mean=1.95). Female cephalothorax ranges in length from 1.50 to 2.00 (n=9; Mean=1.84). Male total length ranges from 3.05 to 4.81 (n=9; Mean=4.14). Female total length ranges from 3.40 to 4.95 (n=9; Mean=4.05). Both sexes are also represented by paler specimens (Figs. 1E–F, 13A–B).

Natural History/Habitat: Most specimens have been collected from the canopy of primary montane rain forest (Sørensen & al. 2002).

Etymology: The species name, a Swahili noun in apposition meaning "hair", refers to the hairy appearance of the males.

Distribution: Only known from the type locality, in the interior of the Uzungwa Scarp Forest Reserve, Uzungwa Mountains, Tanzania.

***Tomomingi sjoestedti* (LESSERT, 1925) comb. nov.** (Figs. 6B, 7B, 15)

*Tomocyrra sjöstedti*; Lessert (1925): 429; Roewer (1965): 83.

*T. sjoestedti*; Prószyński & Żabka (1983): 567.

*T. masai* PRÓSZYŃSKI & ŻABKA, 1983; Prószyński & Żabka (1983): 567. – new synonymy

Material examined: Syntype series: 2 ♂ and 1 ♀ syntypes of *Tomocyrra sjoestedti* from Mt. Meru, Tanzania, Zone forestière des pluies (syntypes deposited in NHRS). 2 ♂ and 1 ♀ from the same locality (deposited in MHNG). 1 ♂ of *Tomocyrra masai* (holotype deposited in UZIU; catalogue no. 1814a) from Mt. Kilimanjaro S. Bismarck hut no. 206, 2800 m, 12. iii. 1969, Å. Holm leg.

Remark: The male palps of the type materials of *T. sjoestedti* and *T. masai* are so similar that we suggest that *T. masai* PRÓSZYŃSKI & ŻABKA, 1983 is a junior synonym of *Tomomingi sjoestedti* (LESSERT, 1925).

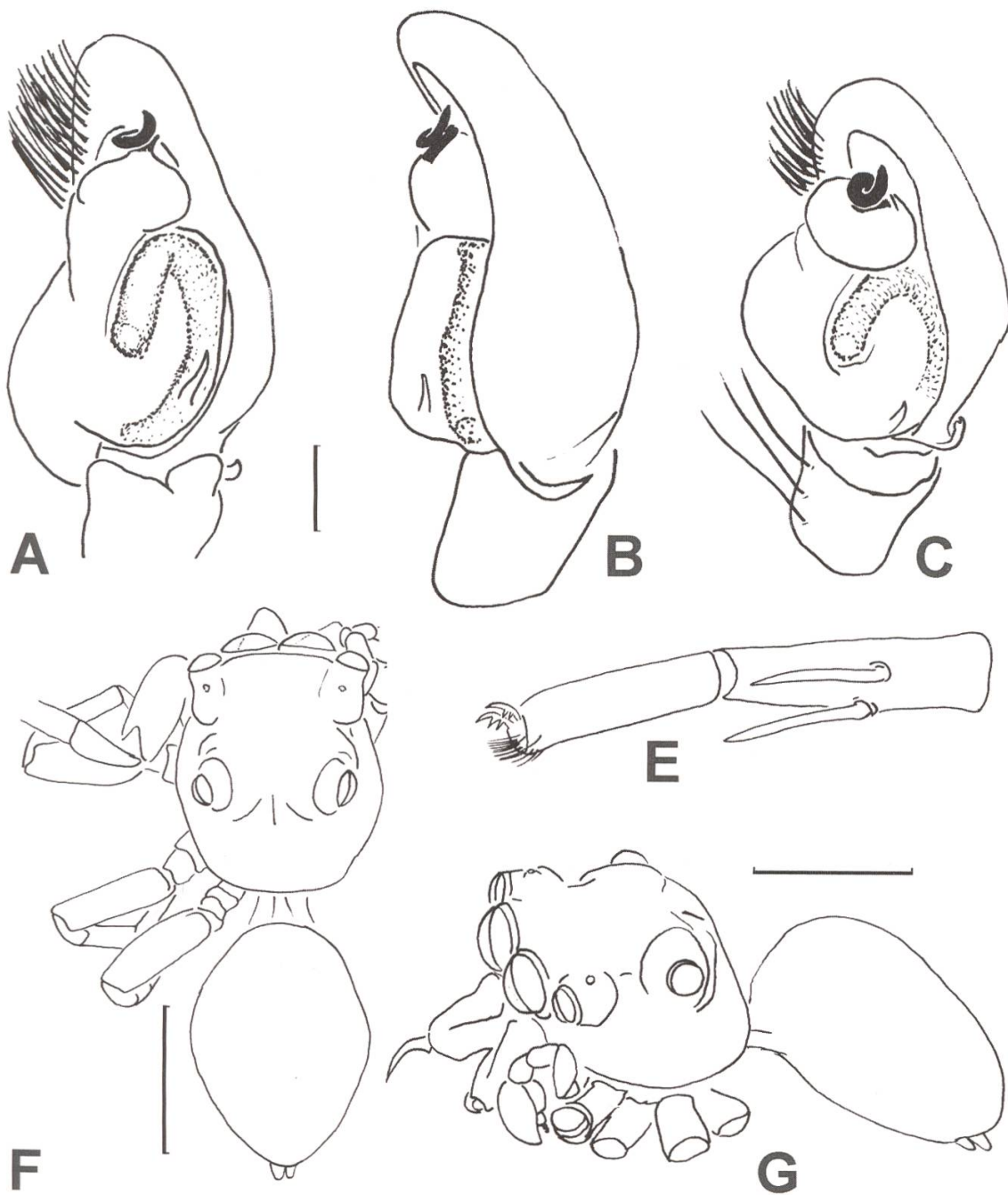


Fig. 15. *Tomomingi sjoestedti* (LESSERT). – A: male palp, ventral view; – B: male palp, retrolateral view; – C: male palp, dorso-retrolateral view; – D: male syntype, dorsal view; – E: metatarsus of leg I, dorsal view; – F: male syntype, dorso-lateral view. Scale bars 0.1 mm.

Diagnosis: Male palp with a short and twisted embolus (Figs. 15A–C). Median apophysis straight, without hook. Epigynum of female with a small plate and a characteristic groove that leads to the copulatory openings.

Description: See: Prószyński & Żabka (1983): 567, 570–571, figs. 13, 18–19.

Variation: Male cephalothorax ranges in length from 1.50 to 2.20 (n=9; Mean=1.95). Female cephalothorax ranges in length from 1.50 to 2.00 (n=9; Mean=1.84). Male total length ranges from 3.05 to 4.81 (n=9; Mean=4.14). Females total length ranges from 3.40 to 4.95 (n=9; Mean=4.05).

Natural History/Habitat: Specimens have been collected in montane rain forest on Mt. Kilimanjaro and Mt. Meru, Tanzania.

Distribution: Only known from Mt. Meru and Mt. Kilimanjaro, Tanzania.

***Tomomingi kikuyu* (PRÓSZYŃSKI & ŽABKA, 1983) comb. nov.** (Figs. 16A–B)

*Tomocyriba kikuyu*; Prószyński & Žabka (1983): 572, figs. 14–15, 22–23.

Material examined: Male holotype from Kikuyu Escarpment, Kenya, 2030 m, 3. iii. 1970, Å. Holm leg. (deposited in UZIU; catalogue no. 1843).

Diagnosis: Males can be recognized by the long and coiled embolus (Figs. 16A–B).

Description: See Prószyński & Žabka (1983): 572, figs. 22–23.

Natural History/Habitat: Holotype has been collected in montane rain forest.

Distribution: Only known from the type locality.

***Tomomingi holmi* (PRÓSZYŃSKI & ŽABKA, 1983) comb. nov.** (Figs. 16C–D)

*Tomocyriba holmi*; Prószyński & Žabka (1983): 572, figs. 10–12, 24–25, 29, 32.

Material examined: Male holotype: Kenya, Aberdare Mts., Kabage Forest station, No. 192, 2300 m, 2. iii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1844a).

Paratypes: 1 ♀ together with the holotype; 1 ♂, Kenya, Aberdare Mts., Kabage Forest station no. 190, 2250 m 2. iii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1844 b); 1 ♂, Kenya, Aberdare Mts., Kabage Forest station no. 192, 2300 m, 2. iii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1844 c); 2 ♂, Kenya, Aberdare Mts., Kabage Forest station no. 202, 2300 m., 4. iii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1844d); 1 ♂, Kenya, Mt. Kenya, Ragati Forest Station no. 174, 2000 m, 23. ii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1844e); 1 ♂, Kenya, Aberdare Mts., Kabage Forest station no. 200, 2300 m, 3. iii. 1969, Å Holm leg. (deposited in UZIU).

Diagnosis: Males can be recognized by the long and coiled embolus, which has one more coil than *T. kikuyu* (Figs. 16C–D).

Description: See Prószyński & Žabka (1983): 572, 574, 576, figs. 24–25, 29, 32.

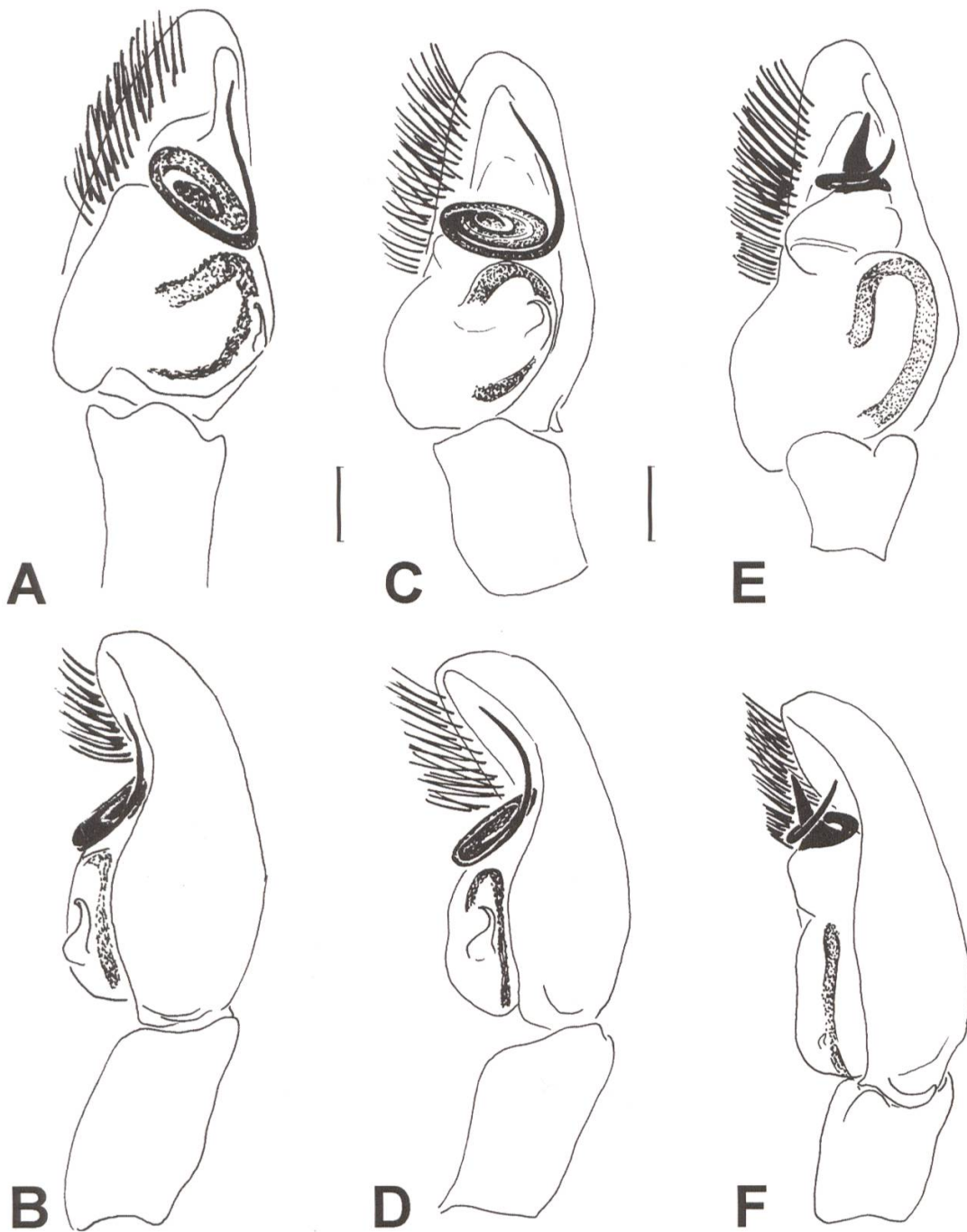


Fig. 16. Palps of *Tomomingi* species. – A–B: *T. kikuyu* (PRÓSZYŃSKI & ŻABKA); – C–D: *T. holmi* (PRÓSZYŃSKI & ŻABKA); – E–F: *T. keinoi* (PRÓSZYŃSKI & ŻABKA). Scale bars 0.1 mm.

Natural History/Habitat: Most specimens have been collected in montane rain forest.

Distribution: Only known from the Aberdare Mts., and Mt. Kenya, Kenya.

***Tomomingi keinoi* (PRÓSZYŃSKI & ŻABKA, 1983) comb. nov.** (Figs. 16E–F)

*Tomocyriba keinoi*; Prószyński & Żabka (1983): 571, figs. 20–21, 28 & 31.

Material examined: Male holotype: Kenya, Mt. Elgon, 2650 m., 22. ii. 1948, Å. Holm leg. (deposited in UZIU; catalogue no. 1842a).

Paratype: 1 ♀ from Kenya, Mt. Elgon, East side, Kaptega region no. 233, 2950 m., 25. iii. 1969, Å. Holm leg. (deposited in UZIU; catalogue no. 1842b).

Other material examined: 1 ♂, Kenya, Mt. Elgon, East side, No. 68, 3050 m., 13. i. 1965, Å. Holm leg. (deposited in UZIU).

Diagnosis: Males can be recognized by the large, straight projection at the base of the embolus.

Description: See Prószyński & Żabka (1983): 571–572, figs. 20–21, 28, 31.

Natural History/Habitat: Most specimens have been collected in montane rain forest.

Distribution: Only known from Mt. Elgon, Kenya.

***Tomomingi silvae* sp. nov.** (Fig. 1G, 4A–C, 17)

Material examined: Male holotype: Equatorial Guinea, Bioko, Pico Basilé (current name Pico de Santa Isabel), 03° 36' 9" N, 08° 46' 38" E, 2300 m., 26.–27. ix. 1998, beating foliage, D. K. Dabney & D. Ubick leg. (deposited in CAS).

Diagnosis: Male palp with a short, wide and loosely coiled embolus (Figs. 4A, 17A–C). Median apophysis thin and delicate (Figs. 4B–C).

Description: Male holotype: Colour brown. Cephalothorax brown, with a light brown median stripe (Fig. 1G). Black rings around eyes. Abdomen grey, with brown markings. Scutum present. All legs brownish. Total length 2.80. Cephalothorax 1.26 long, 0.92 wide, 0.64 high at PLE. Abdomen 1.40 long, 1.00 wide. OCA 0.84 long, 0.80 wide (anteriorly), 0.76 wide (posteriorly). AME diameter 0.27, ALE 0.13, PME 0.03, PLE 0.18. Clypeus height 0.05 (0.18 times the diameter of AME). Chelicerae 0.38 long. Pedipalp as in Figs. 4A–C, 17.

Natural History/Habitat: No information available.

Etymology: The species is named after Diana Silva, collector of a significant proportion of the material studied.

Distribution: Only known from the type locality.

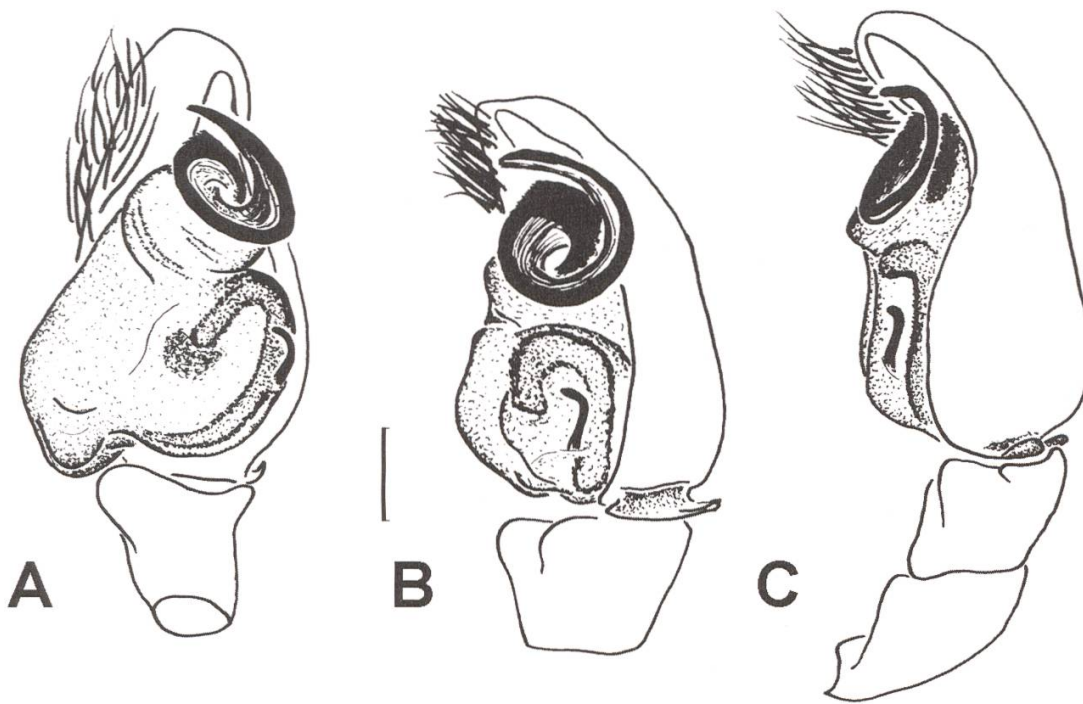


Fig. 17. *Tomomingi silvae* sp. nov.: – A: male palp, ventral view; – B: male palp, dorso-retrolateral view; –C: male palp, retrolateral view. Scale bar 0.1 mm.

### ***Tomobella* gen. nov.**

*Tomocyriba* (in part); Maddison & Zhang (2006): 33–35.

Type species: *Tomobella fotsy* sp. nov.

Etymology: The genus name is a combination of *Tomo* (to indicate relationship with *Tomocyriba*) and *bella* (Italian for beauty). Gender feminine.

Diagnosis: Robust Hisponinae spiders (Fig. 6D), with a long and high carapace, almost quadrangular in lateral view (Fig. 7D). First leg with short segments, first metatarsi with fine and long spines, almost reaching 80% of the length of the segment. Males can be easily recognised by the shiny abdominal scutum and the tight basal coils of the embolus.

Description: Small sized (about 3 mm), dark coloured, heavily sclerotized salticids. Thoracic slope starts at the last third of the carapace (Fig. 7D), some distance from the OCA (as in *Hispo* (Fig. 7C), but the carapace is relatively much higher in *Tomobella* gen. nov.). First half of the thoracic region is at the same level (height) as the OCA. Legs short, robust. *T. andasibe* (MADDISON & ZHANG, 2006) with two pairs of spines on the first metatarsi (which is unique within the subfamily). Females have long spines. Male abdomen with a strongly sclerotized dorsal scutum. Copulatory organs in unique configuration (Figs. 18A–B, E–F): males with embolus tightly coiled at its base and a prolateral



cymbial outgrow. Female vulva with membranous atria and large spermathecae (Figs. 18D, H).

Natural history: Not known.

Distribution: Only known from Madagascar.

Composition: *T. andasibe* (MADDISON & ZHANG, 2006) and *T. fotsy* sp. nov.

***Tomobella andasibe* (MADDISON & ZHANG, 2006) comb. nov.** (Figs. 2H, J, 3E, 18A–D)

*Tomocyrrba andasibe*; Maddison & Zhang (2006): 33–35.

Material examined: 2 ♂ and 1 ♀ from Madagascar, Antsiranana province, Parc Nationale Montage d'Ambre, 12,2 km 211° SSW Joffreville, 12° 35' 47" S, 49° 09' 34" E, 1300 m, 2.–7. ii. 2001, beating low vegetation in montane rain forest, B. Fischer & C. Griswold leg. (deposited in CAS).

Diagnosis: Both sexes with two pairs of spines on the first metatarsus. Carapace with a reddish-orange median line at OCA. Embolus of male palp long and with characteristic coil at base (Figs. 18A–B). Tip of embolus bent 90°.

Description: Male holotype: Cephalothorax dark brown with an reddish-orange mottled pattern on the OCA (Fig. 2H). Black rings around eyes. Abdomen with scutum, dorsally with two white lines on the anterior part and 2 pairs of white spots laterally (on the edge of scutum). All legs yellowish with black annuli (Fig. 2J). First metatarsus with two pairs of spines. Total length 2.88. Cephalothorax 1.42 long, 1.16 wide, 0.96 high at PLE. Abdomen 1.62 long 1.22 wide. OCA 0.98 long, 1.06 wide (anteriorly), 0.96 wide (posteriorly). AME diameter 0.35, ALE 0.23, PME 0.06, PLE 0.23. Fovea 1.01 long. Clypeus height 0.06 (0.25 times the diameter of AME). Chelicerae 0.56 long, with 7 prolateral and 5 retrolateral teeth of subequal length. Basal teeth (both prolateral and retrolateral) the largest. Endites 1.9 times longer than wide. Pedipalp as in Figs. 18A–B.

Female paratype: Colour as in males, but paler. Abdomen with 4 white spots (abdomen in poor condition). All legs light brown, with dark spots. Total length cannot be measured. Cephalothorax 1.44 long, 1.18 wide, 0.88 high at PLE. OCA 0.98 long, 1.14 wide (anteriorly), 0.96 wide (posteriorly). AME diameter 0.36, ALE 0.22, PME 0.06, PLE 0.22. Fovea 0.12 long. Clypeus height 0.075 (0.2 times the diameter of AME). Chelicerae 0.53 long, with 7 prolateral and 5 retrolateral teeth of subequal length. Endites 1.6 times longer than wide. Epigynum as in Figs. 18C–D.

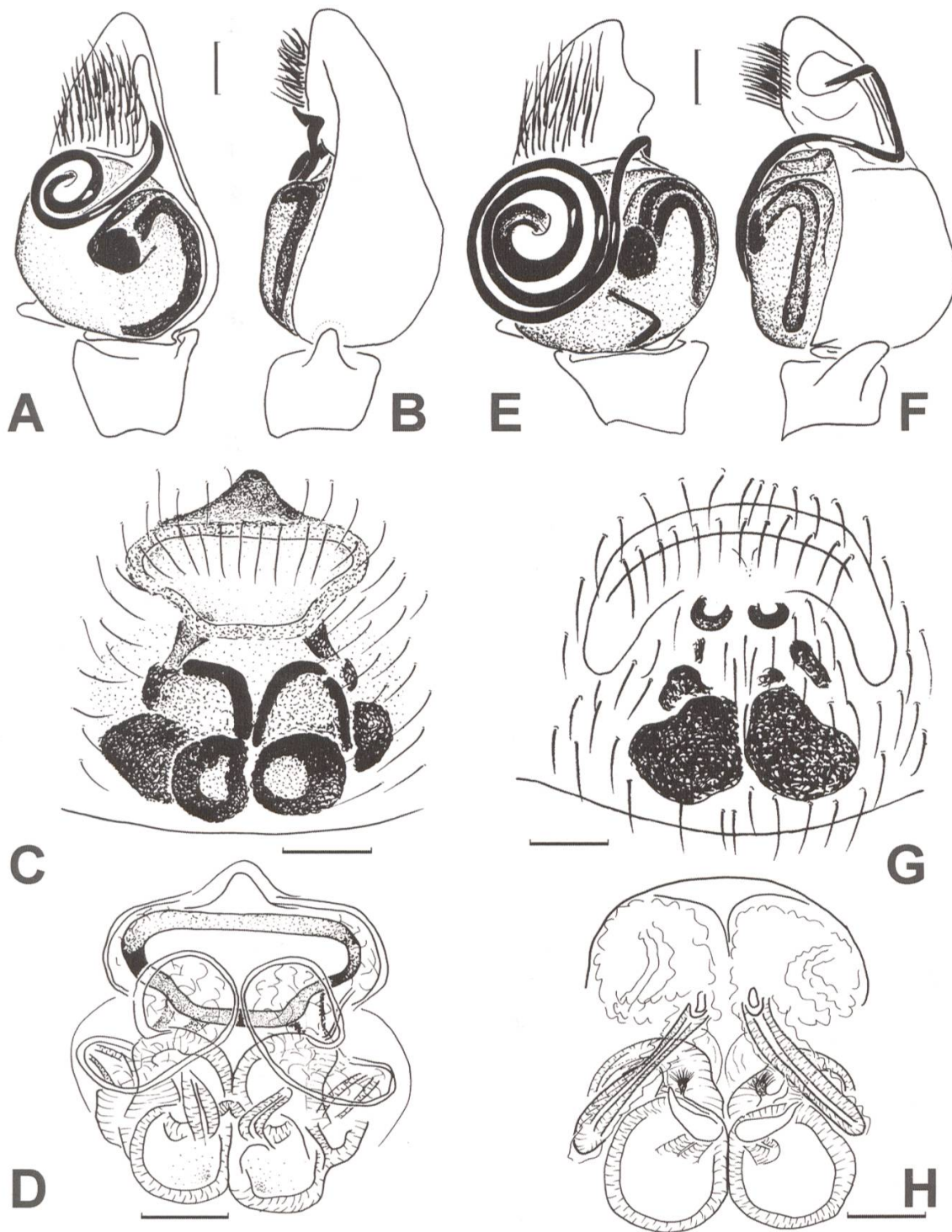


Fig. 18. *Tomobella* copulatory organs, *Tomobella andasibe* (MADDISON & ZHANG). – A: male palp, ventral view; – B: male palp, retrolateral view; – C: female epigynum, ventral view; – D: female vulva, dorsal view; *Tomobella fotsy* sp. nov.: – E: male palp, ventral view; – F: male palp, retrolateral view; – G: female epigynum, ventral view; – H: female vulva, dorsal view. Scale bars 0.1 mm.

Natural History/Habitat: The specimens were collected in montane rain forest.

Etymology: The species name, a Malagasy noun in apposition meaning "red", refers to the reddish stripe on the OCA.

Distribution: Only known from the type locality.

***Tomobella fotsy* sp. nov.** (Figs. 2G, I, K, 3H, I, 6D, 7D, 18E–H)

Material examined: Male holotype: Madagascar, Antananarivo province, 3 km 41° NE of Andranomay, 11,5 km 147° SSE of Anjozorobe, 18° 28' 24" S, 47° 57' 36" E, 1300 m, 5.–13. xii. 2000, beating low vegetation in a montane rain forest, B. Fischer & C.E. Griswold leg. (deposited in CAS).

Paratypes: 5 ♂ and 9 ♀ from the same locality as holotype (deposited in CAS).

Diagnosis: Embolus of male palp very long and provided with two basal coils (Figs. 18E–F). Cymbium with dorsal groove, that accommodates the embolus in the unexpanded palp (Fig. 18F). Male scutum with white pattern. Epigynum with well sclerotized copulatory openings (Fig. 18G).

Description: Male holotype: Cephalothorax dark brown with a red mottled pattern on the OCA (Fig. 2K). Abdomen with scutum which has a white mottled pattern and a brown area in the middle of the scutum. All legs with dark annuli. Total length 2.72. Cephalothorax 1.44 long, 1.14 wide, 0.84 high at PLE. Abdomen 1.24 long, 1.04 wide. Abdomen 1.62 long, 1.22 wide. OCA 0.80 long, 0.96 wide (anteriorly), 0.86 wide (posteriorly). AME diameter 0.31, ALE 0.19, PME 0.05, PLE 0.19. Clypeus height 0.06 (0.2 times the diameter of AME). Chelicerae 0.46 long, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 1.5 times longer than wide. Pedipalp as in Figs. 18E–F.

Female paratype: Colour as in males, but paler. Cephalothorax dark brown, with a reddish-brown longitudinal stripe in the OCA. Abdomen grey with white markings. All legs with dark annuli. Total length 3.28. Cephalothorax 1.44 long, 1.10 wide, 0.80 high at PLE. Abdomen 1.62 long, 1.22 wide. OCA 0.76 long, 0.96 wide (anteriorly), 0.80 wide (posteriorly). AME diameter 0.31, ALE 0.19, PME 0.04, PLE 0.16. Clypeus height 0.01 (0.04 times the diameter of AME). Chelicerae 0.44 long, with 8 prolateral and 6 retrolateral teeth of subequal length. Endites 1.66 times longer than wide. Epigynum as in Figs. 18G–H.

Variation: Male cephalothorax ranges in length from 1.42 to 1.60 (n=4; Mean=1.51). Female cephalothorax ranges in length from 1.36 to 1.46 (n=4; Mean=1.40).

Natural History/Habitat: No information available.

Etymology: The species name, a Malagasy noun in apposition meaning "white", refers to the white scutum of the males.

Distribution: Only known from the type locality.

## Acknowledgements

Funding for this research has been provided by grants from the EU (Marie Curie Intra European Fellowships Life Sciences Panel Proposal no. 025850 and European Commission's programme "Transnational Access to Major Research Infrastructures") to Tamás Szűts and a grant from the Danish Natural Science Research Council to Nikolaj Scharff (grant no. 272-05-0431).

We would like to thank the following individuals and institutions for making specimens available for study (collection abbreviations are listed in full under "Material and Methods"): Christine Rollard (MNHN), Charles E. Griswold (CAS), Rudy Jocqué (MRAC), Peter Schwendinger (MHNG), Torbjörn Kronstedt (NHRS) and Lars Wallin (UZI).

Research in Tanzania was made possible through a Research Permit from the Tanzanian Commission for Science and Technology (COSTECH) and export of specimens was made possible by a CITES Exemption Certificate from the Wildlife Division of the United Republic of Tanzania, facilitated by Kim Howell of the University of Dar es Salaam. Permits to do research in and export specimens from Madagascar were granted by the Association Nationale pour la Gestion des Aires Protégées (ANGAP) and the Direction des Eaux et Forêts of the Ministre d'Etat à l'Agriculture et au Développement Rural, under Accords de Collaboration of the Xerces Society (facilitated by C. Kremen, C. Ramilison, and B. Davies) and Institute for Conservation of Tropical Environments (ICTE) (facilitated by R. van Berkum and B. Andriamihaja). We also thank an anonymous referee for pointing out several errors and mistakes in the manuscript.

## References

- Clark, D.J. (1974): Notes on Simon's types of African Salticidae. — *Bulletin of the British arachnological Society* 3: 11–27.
- Galiano, M.E. (1962): Redescripciones de especies del género *Lyssomanes* HENTZ, 1845, basadas en los ejemplares típicos. Descripción de una especie nueva (Araneae, Salticidae). — *Acta Zoologica Lilloana* 18: 45–97.
- Jackson R.R. & Pollard, S.D. (1996): Predatory behavior of jumping spiders. — *Annual Review of Entomology* 41: 287–308.
- Lessert, R. (1925): Araignées du Kilimandjaro et du Merou (suite). 5. Salticidae. — *Revue suisse de Zoologie* 31: 429–528.
- Maddison, W. (1995): Hispaninae. Version 01 January 1995 (under construction). Online at: <http://tolweb.org/Hispaninae/2841/1995.01.01>
- Maddison, W.P. & Hedin, M. (2003): Jumping spider phylogeny (Araneae: Salticidae). — *Invertebrate Systematics*. 17: 529–549.

- Maddison, W.P. & Needham, K.M. (2006): Lapsiines and hisponines as phylogenetically basal salticid spiders (Araneae: Salticidae). — *Zootaxa* 1255: 37–55.
- Maddison, W.P. & Zhang, J.X. (2006): New lyssomanine and hisponine jumping spiders from Africa (Araneae: Salticidae). — *Zootaxa* 1255: 29–35.
- Platnick, N.I. (2007): The world spider catalog, version 8.0. American Museum of Natural History, online at <http://research.amnh.org/entomology/spiders/catalog/index.html>
- Prószyński, J. & Żabka, M. (1983): Genus *Tomocyriba* (Aranei, Salticidae) – hypothetic survivor of the amber fauna. Systematic study with description of four new species. — *Acta zoologica cracoviensia* 26: 563–578.
- Roewer, C.F. (1965): Die Lyssomanidae und Salticidae-Pluridentati der Äthiopischen Region (Araneae). — *Annales du Musée royal de l'Afrique centrale (Sciences Zoologiques)* 139: 1–86.
- Simon, E. (1900): Descriptions d'arachnides nouveaux de la famille des Attidae. — *Annales de la Societe entomologique de Belgique* 44: 381–407.
- Simon, E. (1901): Histoire naturelle des araignées. — Paris, 2: 381–668.
- Sørensen, L.L., Coddington, J.A. & Scharff, N. (2002): Inventorying and Estimating Subcanopy Spider Diversity Using Semiquantitative Sampling Methods in an Afromontane Forest. — *Environmental Entomology* 31(2): 319–330.
- Wanless, F.R. (1978): A revision of the spider genera *Belippo* and *Myrmarachne* (Araneae: Salticidae) in the Ethiopian region. — *Bulletin of the British Museum of Natural History (Zoology)* 33: 1–139.
- Wanless, F.R. (1981): A revision of the spider genus *Hispo* (Araneae: Salticidae). — *Bulletin of the British Museum of Natural History (Zoology)* 41: 179–198.
- Wesołowska, W. (1993): A revision of the spider genus *Massagris* SIMON, 1900 (Araneae, Salticidae). — *Genus* 4: 133–141.
- Wunderlich, J. 2004. Fossil spiders in amber and copal. Conclusions, revisions, new taxa and family diagnoses of fossil and extant taxa. — *Beiträge zur Araneologie* 3AB: 1–1908.

## Addresses of the authors:

Tamás Szűts  
Zoological Museum, Department of Entomology  
Universitetsparken 15  
Copenhagen DK-2100, Denmark

Nikolaj Scharff  
Zoological Museum, Department of Entomology  
Universitetsparken 15  
Copenhagen DK-2100, Denmark