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On the Trichoptera of Madagascar (Insecta, Neoptera)

by

J. OLÁH, K.A. JOHANSON, W. MEY & G. VINÇON

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On the Trichoptera of Madagascar (Insecta, Neoptera)

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Abstract. Based on the historical caddisfly collection of Renaud Paulian and supplemented by new collections, we describe here 141 new Trichoptera species from Madagascar as follows: *Ecnomus namorok* Oláh sp. nov., *E. mohel* Oláh sp. nov., *E. sinjoar* Oláh sp. nov., *E. andran* Oláh & Johanson sp. nov., *E. ankar* Oláh & Johanson sp. nov., *E. anosib* Oláh sp. nov., *E. hajang* Oláh & Johanson sp. nov., *E. joariv* Oláh sp. nov., *E. karafan* Oláh & Johanson sp. nov., *E. montambr* Oláh sp. nov., *E. moron* Oláh & Johanson sp. nov., *E. perin* Oláh sp. nov., *E. sahamal* Oláh & Johanson sp. nov., *E. tsarat* Oláh sp. nov., *E. voang* Oláh sp. nov., *Dipseudopsis bemaraha* Oláh & Johanson sp. nov., *D. moramanga* Oláh & Mey sp. nov., *D. sahanoda* Oláh & Johanson sp. nov., *D. andrina* Oláh sp. nov., *D. bergsteni* Oláh & Johanson sp. nov., *D. mantadia* Oláh & Johanson sp. nov., *D. rona* Oláh & Johanson sp. nov., *D. fernandi* Oláh sp. nov., *D. morama* Oláh & Mey sp. nov., *D. ramanga* Oláh & Mey sp. nov., *D. ringitra* Oláh sp. nov., *D. namorona* Oláh & Johanson sp. nov., *D. telomita* Oláh sp. nov., *Pseudoneureclipsis achvoang* Oláh sp. nov., *P. beharan* Oláh sp. nov., *P. bemarrah* Oláh & Johanson sp. nov., *P. ranom* Oláh sp. nov., *P. voang* Oláh sp. nov., *Paduniella manonga* Oláh & Johanson sp. nov., *Leptonema ambra* Oláh sp. nov., *L. andranoma* Oláh & Johanson sp. nov., *L. atana* Oláh sp. nov., *L. avaratna* Oláh & Johanson sp. nov., *L. comoriense* Oláh sp. nov., *L. mantadia* Oláh & Johanson sp. nov., *Macrostemum ambul* Oláh sp. nov., *M. ambinan* Oláh sp. nov., *M. ankar* Oláh sp. nov., *M. madagas* Oláh sp. nov., *M. mambra* Oláh sp. nov., *M. namor* Oláh & Johanson sp. nov., *M. perin* Oláh sp. nov., *M. pimatel* Oláh sp. nov., *M. vohipar* Oláh & Johanson sp. nov., *Cheumatopsyche morona* Oláh & Johanson sp. nov., *C. namora* Oláh & Johanson sp. nov., *C. nomafa* Oláh & Mey sp. nov., *C. perina* Oláh sp. nov., *C. sahanamba* Oláh & Mey sp. nov., *C. siaposa* Oláh & Mey sp. nov., *C. siatra* Oláh & Johanson sp. nov., *Pisulia ambina* Oláh sp. nov., *P. ambohita* Oláh sp. nov., *P. ampolomita* Oláh sp. nov., *P. dingitra* Oláh sp. nov., *P. karatoa* Oláh sp. nov., *P. maroa* Oláh sp. nov., *P. nosiba* Oláh sp. nov., *P. paulia* Oláh sp. nov., *P. tsaranora* Oláh & Mey sp. nov., *P. ranoma* Oláh sp. nov., *P. rina* Oláh sp. nov., *P. sandra* Oláh sp. nov., *P. tanana* Oláh sp. nov., *Silvatares ampolomit* Oláh sp. nov., *S. marojej* Oláh sp. nov., *Lepidostoma ambatov* Oláh sp. nov., *L. ankar* Oláh sp. nov., *L. badikal* Oláh sp. nov., *L. ding* Oláh sp. nov., *L. maroant* Oláh sp. nov., *L. vakoan* Oláh sp. nov., *L. voang* Oláh sp. nov., *Goera ambodiva* Oláh sp. nov., *G. fanadia* Oláh sp. nov., *G. gitra* Oláh sp. nov., *G. maroa* Oláh sp. nov., *Athripsodes gitra* Oláh sp. nov., *A. mandra* Oláh sp. nov., *A. meloka* Oláh sp. nov., *A. vakoana* Oláh sp. nov., *A. nanitela* Oláh sp. nov., *A. nilaza* Oláh sp. nov., *A. paulia* Oláh sp. nov., *A. ampa* Oláh sp. nov., *A. anda* Oláh sp. nov., *A. italavina* Oláh sp. nov., *A. lambola* Oláh sp. nov., *A. montambra* Oláh sp. nov., *A. rineta* Oláh sp. nov., *A. toamasina* Oláh & Johanson sp. nov., *A. tola* Oláh sp. nov., *A. amboasa* Oláh sp. nov., *A. ampita* Oláh sp. nov., *A. andoba* Oláh sp. nov., *A. batola* Oláh sp. nov., *A. ivoa* Oláh sp. nov., *A. maroana* Oláh sp. nov., *A. matava* Oláh sp. nov., *A. siranana* Oláh & Johanson sp. nov., *A. fora* Oláh sp. nov., *A. griveaudi* Oláh sp. nov., *A. pangala* Oláh sp. nov., *A. perineta* Oláh sp. nov., *A. madifana* Oláh sp. nov., *A. mapera* Oláh sp. nov., *A. namoroka* Oláh sp. nov., *A. tamata* Oláh sp. nov., *Ceraclea (Ranaivodes) ambadikala* Oláh sp. nov., *C. (R.) galaka* Oláh & Johanson sp. nov., *C. (R.) manongariva* Oláh & Johanson sp. nov., *Leptocerus andranoma* Oláh sp. nov., *Magadacerina ambila* Oláh sp. nov., *M. andria* Oláh sp. nov., *M. antsira* Oláh & Johanson sp. nov., *M. ranohira* Oláh sp. nov., *Oecetis daga* Oláh sp. nov., *O. erinea* Oláh sp. nov., *O. ibita* Oláh & Mey sp. nov., *O. sambara* Oláh & Johanson sp. nov., *Setodes mahajanga* Oláh & Johanson sp. nov., *S. nongariva* Oláh & Johanson sp. nov., *Adicella ambra* Oláh sp. nov., *A. antsira* Oláh & Johanson sp. nov., *A. ringitra* Oláh & Mey sp. nov., *Triaenodes erina* Oláh sp. nov., *T. fanovana* Oláh sp. nov., *T. joroa* Oláh sp. nov., *T. malaza* Oláh sp. nov., *T. mandeva* Oláh sp. nov., *T. tsaranora* Oláh & Mey sp. nov., *T. antsaba* Oláh & Johanson sp. nov., *T. bemaraha* Oláh & Johanson sp. nov., *T. galoka* Oláh & Johanson sp. nov., *T. ikopa* Oláh sp. nov., *T. sahanamba* Oláh & Mey sp. nov.

Keywords. Madagascar, Geolocalization, Renaud Paulian, Trichoptera, new species.

INTRODUCTION

Recent collections of caddisflies in different habitats of Madagascar, carried out by the second and third authors of this paper, have updated and inspired the first author's plan to work on material collected much earlier by French scientists. This paper is devoted to complete the elaboration of the rich historical material collected in Madagascar mostly by Renaud Paulian and presented to the first author. Significant parts of this material have already been published by Oláh, Barnard & Malicky 2006, (*Potamyia*), Johanson & Oláh, 2006 (Serico-stomatoidea), Johanson & Oláh, 2007 (*Tinodes*), Oláh, Johanson & Barnard 2008. (*Cheumatopsyche*), Oláh & Johanson, 2008 (Hydropsychinae), Johanson & Oláh, 2009 (three new species), Johanson & Oláh, 2010 (*Paduniella*), Oláh & Johanson, 2010b (Polycentropodidae), Oláh & Johanson 2010c (Calamoceratidae), Oláh & Johanson, 2011 (*Madagocerum* new genus), Weaver *et al.* 2020 (*Ollieopteryx*, new genus), Oláh, 2022 (*Oecetis tripunctata* new species group), Oláh *et al.* 2024 (*Parasetodes*). We dedicate this paper with the described 141 new species from Madagascar to Renaud Paulian (1913, Neuilly-sur-Seine - 2003, Bordeaux), the great French collector, scientific organiser and distinguished specialist in Coleoptera especially in Scarabaeoidea.

MATERIAL AND METHODS

The specimens from the old collections, organised and carried out by Renaud Paulian mainly between the years of 1952 and 1959, are accompanied by very limited data on habitat types and location details. Also, the locality names, particularly the names of villages change rather rapidly in Madagascar. In order to correctly update the geographical data, we used, where appropriate and available, the names given in Viette (1991). For the geolocalisation of the locality names, we mainly used Google Maps or OpenStreetMap, and, for more difficult cases, the GeoMondiale.fr site, which lists many places with old names and their coordinates.

The label data is presented in original writing, and additional data, particular coordinates, are added in brackets.

The abbreviations of the depository institutions are as follows:

INHS, Illinois Natural History Survey, USA.
ZMB, Museum for Natural History of the Humbolt University of Berlin, Germany.
MNHN, Muséum National d'Histoire Naturelle, Paris, France.
OPC, Oláh Private Collection, Debrecen, Hungary, under national protection by the Hungarian Natural History Museum, Budapest.
NHRS, Swedish Museum of Natural History, Stockholm, Sweden.

TAXONOMY

Psychomyioidea Ivanov, 2002

Ecnomidae Ulmer, 1903

Here we apply the genital terminology for Ecnomidae developed and discussed in detail previously (Oláh & Malicky 2010, Oláh 2014), based on the studies of Nielsen (1957) and our appendicular and functional principles of genital structures (Oláh & Johanson 2008c).

***Ecnomus dobignyi* Gibon, 2018**

Ecnomus dobignyi Gibon, 2018: 53.

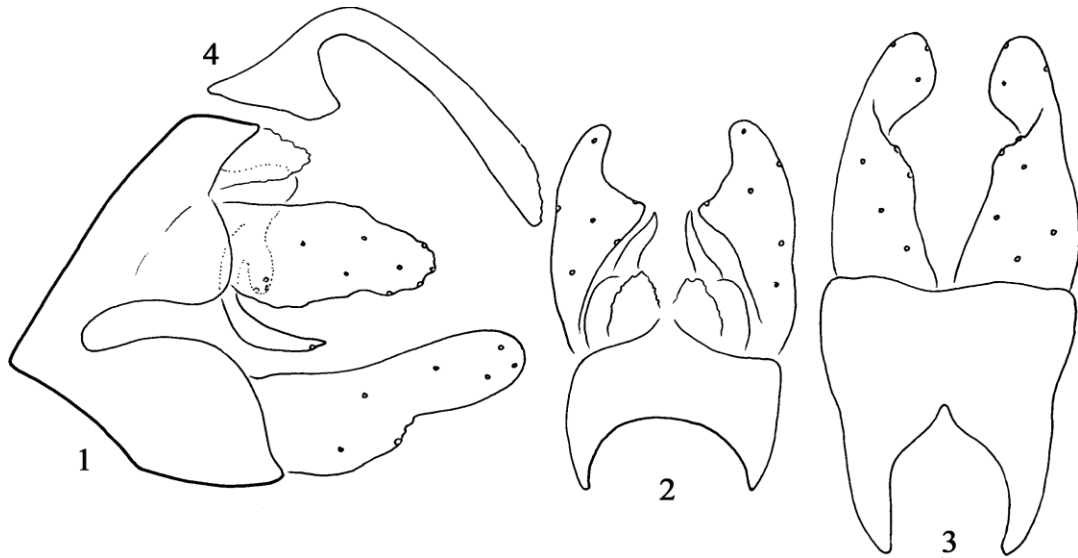
Material examined. **Madagascar**, Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson. (1 male, OPC).

***Ecnomus namorok*, Oláh sp. nov.**

(Figures 1–4)

Material examined. Holotype: **Madagascar**, Namoroka, Vilandro [16.399°S, 45.283°E], ix.1952, leg. R. Paulian (male, OPC). Paratypes: same as holotype (2 males, 7 females; OPC).

Diagnosis. *Ecnomus namorok* sp. nov. is morphologically similar to *Ecnomus salgiel* Malicky,



Figures 1–4. *Ecnomus namorok* Oláh, sp. nov. Holotype: 1=genitalia in left lateral view, 2=genitalia in dorsal view, 3=genitalia in ventral view, 4=phallic organ in left lateral view.

2015 and *Ecnomus felix* Gibon, 2018, from which it differs by having a long, not short broad basal region of gonopods and a differently shaped lateral profile of the phallic organ.

Description. Male (in alcohol). Medium-sized brown with lighter legs and venter. Foretibial spurs complete, spur formula 3:4:4. Maxillary palps unknown (broken both on holotype and paratypes).

Forewings. Membrane pale brown, length 5 mm, forks complete.

Male genitalia. Tergum IX short, slightly elongate, exhibiting semicircular apical plate; sternum IX more bulky, rounded dorsally; cut posteriorly in lateral view. Vestigial segment X discernible as pair of small membranous mesal lobes. Cerci foliiform without dense dentose mesal surface. External and internal paraproctal processes fused basally, forming shorter and longer pairs of spine-like vertical processes with small apical setae. Gonopods with broad basal half both in lateral and vertical view. Phallic apparatus basally triangular, dorsally straight.

Etymology. Coined from the name of the *locus typicus*, Namoroka, treated as a noun in apposition.

Ecnomus salgiel Malicky, 2015

Ecnomus salgiel Malicky, 2015: 42.

Material examined. **Madagascar**, Station Aquic. lac Alaoha [Alaotra Lake: 17.406S, 48.534E], no date, leg. B. Stuckenberg (1 male, OPC). Madagascar, Tsaramandroso, i.1956, leg. B. Stuckenberg, R. Paulian (2 males, 2 females; OPC). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (36 males, NHRS; 7 males, OPC). Madagascar: Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (1 male, NHRS).

Ecnomus natalensis species group

This species group was established by Kimmins (1957) and is characterised by the presence of only two tibial spurs on the foreleg, instead of the three spurs found in other species groups, and by the fact that the claspers (gonopods) of the males are abruptly constricted in lateral view,

forming longer upper and shorter lower processes. The process or arm of the upper angle being produced into a finger-like branch. This species group, previously known only from the mainland Africa, has now been recorded from Madagascar as well.

***Ecnomus mohel* Oláh, sp. nov.**

(Figures 5–8)

Material examined. Holotype: **Comores**, Moheli Island, Cascade de Kangani [12.349°S, 43.823°E], vi.1954, leg. J. Millot (Paulian) (male, OPC).

Diagnosis. Having only two foreleg spurs as well as each gonopod with elongate dorsodistal angle, this species belongs to the *Ecnomus natalensis* species group. Character combination of the particular lateral profile of gonopods, the gradually tapering cerci, and the pattern of the phallic organ, both phallosomes and sigmoid parameres, distinguish *Ecnomus mohel* sp. nov. from all other Afrotropical species.

Description. Male (in alcohol) medium-sized, brown with paler legs and venter. Forelegs with two tibial spurs, giving a spur formula 2:4:4. Maxillary palp formula I-II-III-IV-V, second segment only slightly longer than first and much shorter than third; third segment slightly shorter than fourth and positioned apically on second segment.

Forewings. Membrane pale brown; length 6 mm; forks complete.

Male genitalia. Tergum IX high and short; sternum IX more bulky almost rectangular. Vestigial segment X indiscernible. Cerci elongate foliform with dentose mesal surface. Complex external and internal paraproctal processes less pigmented, discernible as basomesal body and pair of ventral, spine-like, pointed processes. Gonopods each with long slender dorsum. Phallic apparatus with pair of strongly sigmoid spine-like parameres.

Etymology. Coined from the name of the *locus typicus*, Moheli Island, treated as a noun in apposition.

***Ecnomus sinjoar* Oláh, sp. nov.**

(Figures 9–12)

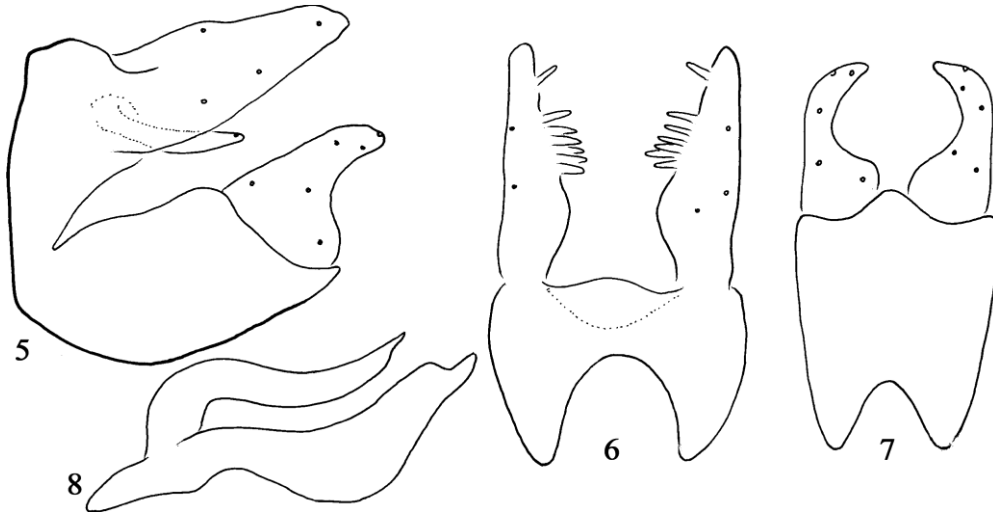
Material examined. Holotype **Madagascar**, Tsinjoarivo [19.637°S, 47.681°E], x.1953, leg. R. Paulian (male, OPC). Paratype: same as holotype (1 male, OPC).

Diagnosis. Having only two spurs on the foreleg as well as gonopods with elongated dorsodistal angle this species represents the *Ecnomus natalensis* species group in Madagascar so diverse in mainland Africa. Its highly modified parameres forming a fused mesal dental structure distinguish it from all other known species in the group. This modified parameres of the composed dental structure was described also in *Ecnomus evidens* Gibbon, 2018, a species with three spurs on the foreleg and with plesiomorphic compact gonopods.

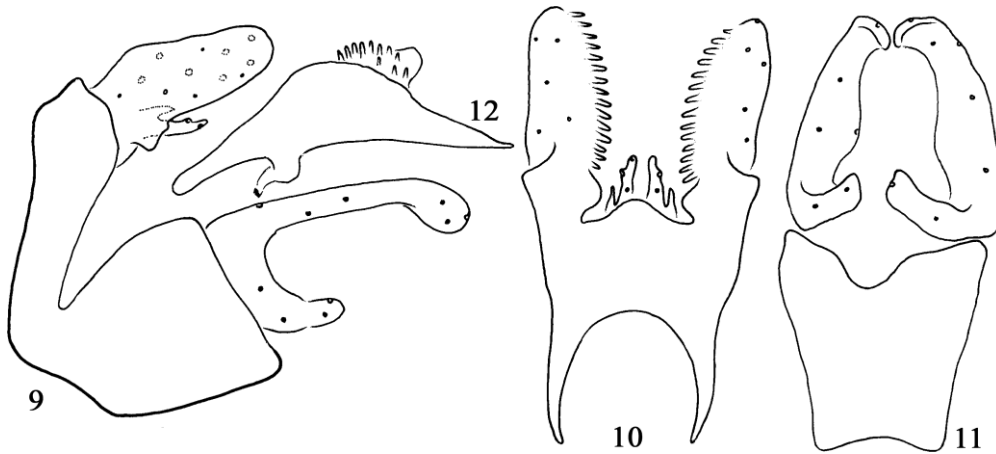
Description. Male (in alcohol) medium-sized, brown, with lighter legs and venter. Foretibia with two spurs; *i.e.* spur formula 2:4:4. Maxillary palp formula I-II-III-IV-V, second segment slightly longer than first and much shorter than third; third segment slightly shorter than fourth and positioned apically on second.

Forewings. Membrane pale brown; length 5 mm; forks complete.

Male genitalia. Tergum IX low, slightly elongate; sternum IX bulky high, almost rectangular, straightly cut posteriorly in lateral view. Vestigial segment X discernible as small membranous mesal lobe. Cerci foliform, with dense dentose mesal surface. External and internal paraproctal processes fused, forming short digitiform processes with small apical setae. Gonopods with long slender dorsal and shorter ventral arms. Phallic apparatus with high mesal body narrowing anteriorly and posteriorly; parameres modified into fused mesal dental structure.



Figures 5–8. *Ecnomus mohel* Oláh, sp. nov. Holotype: 5=genitalia in left lateral view, 6=genitalia in dorsal view, 7=genitalia in ventral view, 8=phallic organ in left lateral view.



Figures 9–12. *Ecnomus sinjoar* Oláh, sp. nov. Holotype: 9=genitalia in left lateral view, 10=genitalia in dorsal view, 11=genitalia in ventral view, 12=phallic organ in left lateral view.

Etymology. Coined from the name of the *locus typicus*, Tsinjoarivo, treated as a noun in apposition.

***Psychomyiellodes* group**

The genus *Psychomyiellodes* was described from the Afrotropical region and distinguished from other genera in the family by having a unique modified inner spur on the hind tibiae (Mosely 1934), an apomorphic character state

otherwise characterizing species of the genus *Dipseudopsis*. Based on the analysis of DNA data *Psychomyiellodes* was synonymized with *Ecnomus* (Johanson & Espeland 2010). The species previously classified in the genus *Psychomyiellodes* are herewith classified in the *Psychomyiellodes* species group characterized by two apomorphies: a modification of the apical spur of the metathoracic legs, and presence of a cup-shaped lateral process on the phallic apparatus described by Gibon (2018).

***Ecnomus andran* Oláh & Johanson, sp. nov.**

(Figures 13–17)

Material examined. Holotype **Madagascar**, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (male, NHRS). Paratypes: same as holotype (1 male, NHRS; 1 male, OPC).

Diagnosis. This species is separated from other species by the less modified spur on the hind tibiae, and the presence of a poorly discernible, less produced pair of lateral plates on the phallic organ. In addition, the triangular cerci and dorsally digitate gonopods differ from those in other known species of the group.

Description. Male (in alcohol) Small-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; slightly modified spur present on hind tibiae; terminal region changed into laterally directed, small, curved spine without enlargement of spur body. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 2 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX produced, enlarged; sternum IX bulky, almost rectangular.

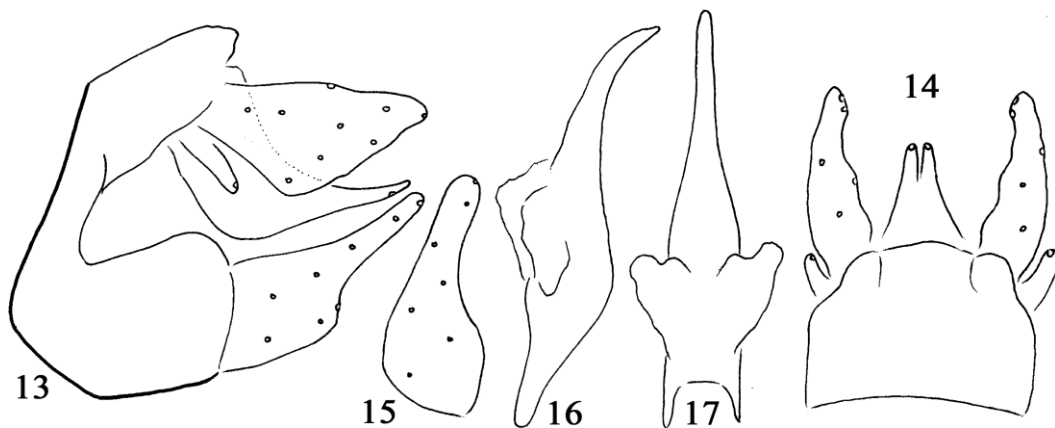
Vestigial segment X indiscernible. Cerci forming vertical plate, subtriangular in lateral view. Internal paraproctal processes very produced into pair of flat vertical structures, tapering and upward curving; external paraproctal processes forming short, digitiform, pair of structures located basoventrally of cerci. Gonopods with long dorsum exhibiting digitiform dorsal process and broad basal region. Phallic apparatus curving downward, tapering, pair of lateral plates indistinct, only some less pigmented structures visible.

Etymology. Coined from the name of the *locus typicus*, Andranomafana, treated as a noun in apposition.

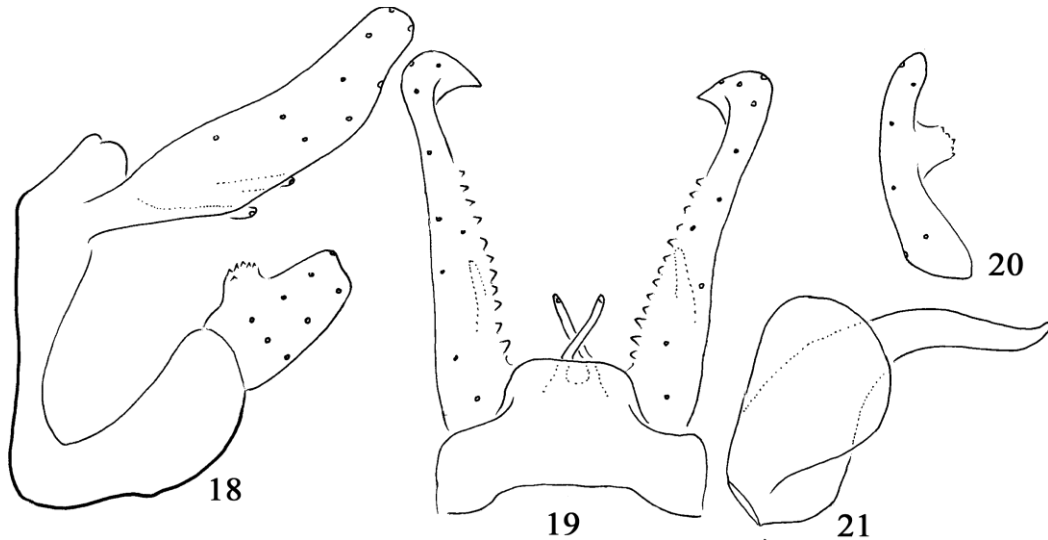
***Ecnomus ankar* Oláh & Johanson, sp. nov.**

(Figures 18–21)

Material examined. Holotype: **Madagascar**, Mahajanga Prov., Boeny Distr., Ankarafantsika N.P., 16.30268°S, 46.81041°E, 58 m, Malaise-trap, 9.xii.2009, leg. J. Bergsten, N. Jönsson, T. Ranarilalantiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (75 males, NHRS; 20 males, OPC). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (2 males, NHRS).



Figures 13–17. *Ecnomus andran* Oláh & Johanson, sp. nov. Holotype: 13=genitalia in left lateral view, 14=genitalia in dorsal view, 15=left gonopod in ventral view, 16=phallic organ in left lateral view, 17=phallic organ in dorsal view.



Figures 18–21. *Ecnomus ankar* Oláh & Johanson sp. nov. Holotype: 18=genitalia in left lateral view, 19=genitalia in dorsal view, 20= left gonopod in ventral view, 21=phallic organ in left lateral view.

Diagnosis. With elongated cerci and dorso-basal structure on the gonopods *Ecnomus ankar* sp. nov. resembles *Ecnomus montambri* sp. nov., from which it differs by the differently shaped cerci; particularly in dorsal view characterized by pointed mesally turning, not simple rounded head; gonopods with stout dorsobasal structure, not V-shaped and slender in lateral view.

Description. Male (in alcohol) Small-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4.3 mm; forks complete, fork on R1 absent.

Male genitalia. Tergum IX short, vertically elongate; sternum IX bulky, rounded elongated, slightly upward arching. Vestigial segment X discernible as almost invisible membranous mesal plate. Cerci elongate with dense dentose mesal surfaces, apices characteristically mesally turning, pointing. Internal paraproctal processes slender digitiform with small apical setae, external paraproctal processes similarly digitiform, less pronounced, fused with basal region of cerci. Gonopod short, stout with mesally directed, dentate, almost rectangular, dorsobasal lobe.

Phallic apparatus curving, tapering, supplied with pair of rounded lateral plates.

Etymology. Coined from the name of the *locus typicus*, Ankarafantsika National Park, treated as a noun in apposition.

***Ecnomus anosib* Oláh, sp. nov.**

(Figures 22–25)

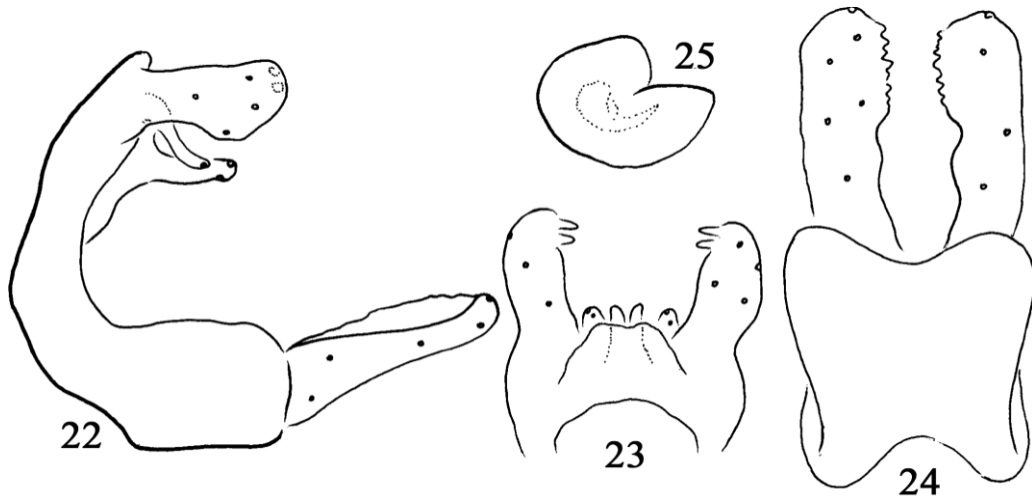
Material examined. Holotype: **Madagascar**, km 57 route Anosibe [19.212°S, 48.222°E], 1955, leg. R. Paulian (male, OPC).

Diagnosis. *Ecnomus anosib* sp. nov. differs from all other known Malagasy species of the *Psychomyiellodes* species group by its abbreviated cerci.

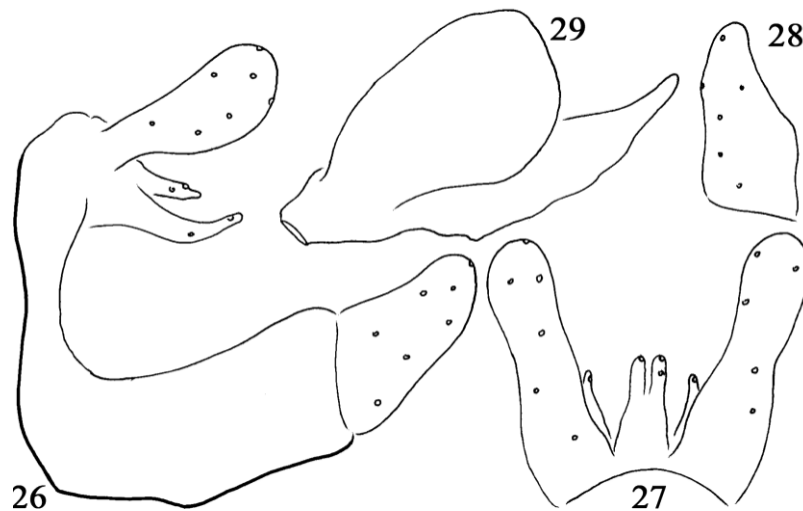
Description. Male (in alcohol) Small-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4 mm; forks complete, fork on R1 absent.

Male genitalia. Tergum IX short, elongate vertically; sternum IX bulky almost rectangular;



Figures 22–25. *Ecnomus anosib* Oláh, sp. nov. Holotype: 22=genitalia in left lateral view, 23=genitalia in dorsal view, 24=genitalia in ventral view, 25= rounded pair of lateral plate of phallic organ in left lateral view.



Figures 26–29. *Ecnomus hajang* Oláh & Johanson, sp. nov. Holotype: 26=genitalia in left lateral view, 27=genitalia in dorsal view, 28= left gonopod in ventral view, 29=phallic organ in left lateral view.

cut posteriorly in lateral view. Vestigial segment X discernible as small, badly visible membranous mesal lobe. Cerci short, clavate, with few enlarged apicomesal metasetae. External and internal paraproctal processes fused, forming pairs of processes with small apical setae. Gonopods longer than cerci, without dorsobasal arm. Phallic apparatus indiscernible on distorted genitalia; rounded pair of lateral plate well visible.

Etymology. Coined from the name of the *locus typicus*, Anosibe, considered as a noun in apposition.

***Ecnomus hajang* Oláh & Johanson, sp. nov.**

(Figures 26–29)

Material examined. Holotype **Madagascar**, Mahajanga Prov., Boeny Distr., Ankarafantsika

N.P., 16.30268°S, 46.81041°E, 58 m, Malaise trap, 9.xii.2009, leg. J. Bergsten, N. Jönsson, T. Ranarilalantiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (36 males, NHRS; 10 males, OPC). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest [16.3033S, 46.8105 E], 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (16 males, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., pool in forest, 16.3027°S, 46.8100°E, 75 m, light trap, small bog in lowland forest 29.xi.2009, leg. J. Bergsten & N. Jönsson (1 male, NHRS).

Diagnosis. According to cerci, paraproctal processes and gonopod *Ecnomus hajang* sp. nov. resembles *Ecnomus anosib* sp. nov. but differs by the longer, more rounded and basally constricted lateral profile of cerci and by the narrowing, not parallel-sided gonopod.

Description. Male (in alcohol) small-sized brown animal with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 3 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX short, elongated vertically; sternum IX more bulky, almost rectangular; posteriorly cut. Vestigial segment X indiscernible. Cerci short, clavate with constricted basal region. External and internal paraproctal processes fused, forming pairs of long spine-like vertical processes with small apical setae. Gonopod as long as cerci, without dorsobasal arm, slightly narrowing in lateral and ventral views. Phallic apparatus with narrowing and upward curving phallicta, rounded pair of lateral plates well visible.

Etymology. Coined from the name of the *locus typicus*, Mahajanga. A noun in apposition.

***Ecnomus joariv* Oláh, sp. nov.**

(Figures 30–33)

Material examined. Holotype: **Madagascar**, Tsinjoarivo [19.637°S, 47.681°E], x.1953, leg. R.

Paulian (male, OPC). (Madagascar Centre: 46 km au S.-E. d'Ambatolampy, Tsinjoarivo).

Diagnosis. Having dorsobasal arm on the gonopods *Ecnomus joariv* sp. nov. resembles *Ecnomus montambr* sp. nov., from which it differs by having cerci differently shaped both in dorsal and lateral view; gonopods are L-shaped and robust, not V-shaped and slender in lateral view, and the lateral plate of phallic organ is elongated ovoid, not subcircular.

Description. Male (in alcohol). Medium-sized, brown with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4.5 mm; forks complete, fork on R1 indiscernible.

Male genitalia. Tergum IX short, vertically elongate; sternum IX slightly stouter in lateral view. Vestigial segment X discernible as pair of small almost invisible membranous mesal lobes. Both cerci elongate, foliform, without dense dentose mesal surfaces. Internal paraproctal processes forming pair of long spine-like processes with small apical setae and fused basally; external processes similar, but fused with ventrobasal region of cerci. Gonopods stout, digitate, in lateral view, with upwardly basal digitate directed basodorsal arm. Phallic apparatus curving and tapering, supplied with rounded elongated pair of lateral plates.

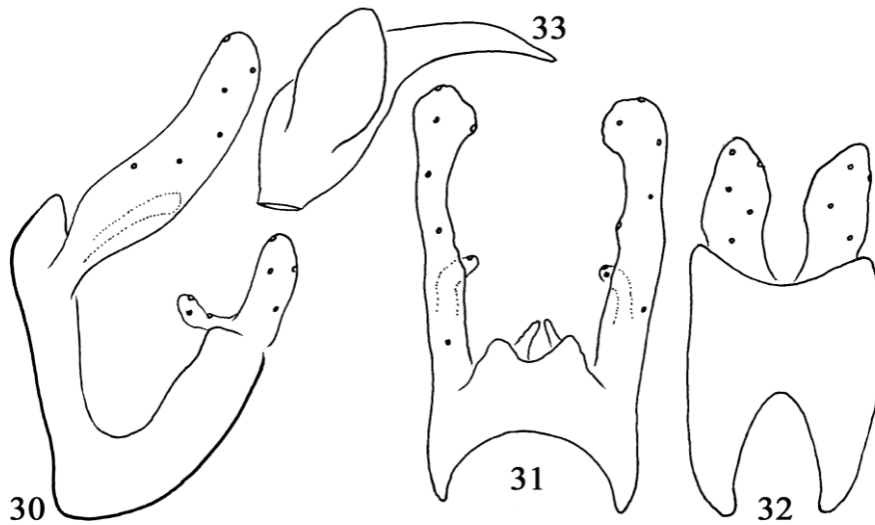
Etymology. Coined from the name of the *locus typicus*, Tsinjoarivo; a noun in apposition.

***Ecnomus karafan* Oláh & Johanson, sp. nov.**

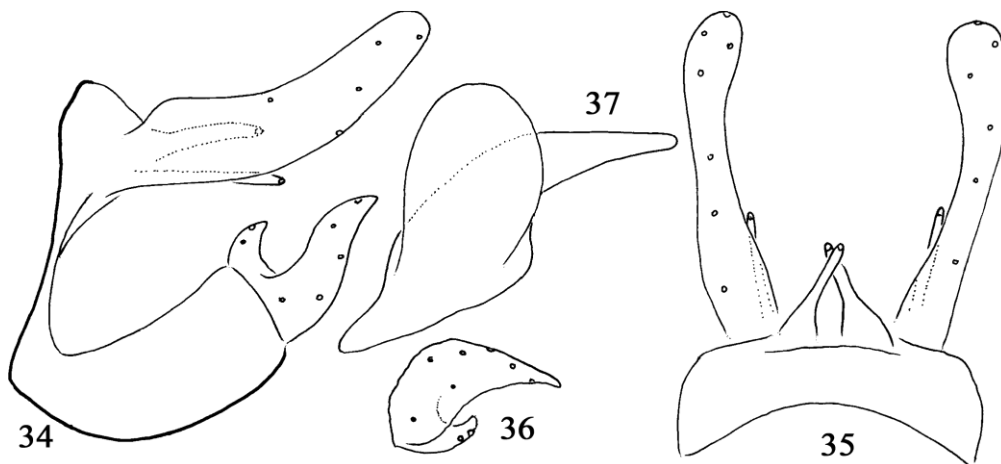
(Figures 34–37)

Material examined. Holotype: **Madagascar**, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18' 12.3''S, 46°48'38.6''E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (male, NHRS).

Diagnosis. Having *Ecnomus karafan* sp. nov. resembles *Ecnomus joariv* sp. nov. in having dorsobasal arm on the gonopod, from which it



Figures 30–33. *Ecnomus joariv* Oláh, sp. nov. Holotype: 30=genitalia in left lateral view, 31=genitalia in dorsal view, 32=genitalia in ventral view, 33=phallic organ in left lateral view.



Figures 34–37. *Ecnomus karafan* Oláh & Johanson, sp. nov. Holotype: 34=genitalia in left lateral view, 35=genitalia in dorsal view, 36= left gonopod in ventral view, 37=phallic organ in left lateral view.

differs by having cerci without capitate head in dorsal view; the ventral body of the gonopods is slightly sigmoid and tapering, not parallel-sided and with a rounded head.

Description. Male (in alcohol) Medium-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4 mm; forks complete, fork on R1 indiscernible.

Male genitalia. Tergum IX very short, vertically elongated; sternum IX bulky, high, rounded almost rectangular; cut posteriorly in lateral view. Vestigial segment X indiscernible. Cerci elongated foliform, arching upward in lateral view, slightly clavate in dorsal view; without dense dentose mesal surface. Internal paraproctal processes forming pair of long spine-like pro-

cesses with small apical setae and fused basally; external processes similar, but fused to ventrobasal region of cerci. Gonopods with dorsobasal arm and slightly sigmoid ventral body, pointed in lateral and dorsal view. Phallic apparatus curving, tapering, supplied with rounded, elongate pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Ankarafantsika National Park. Treated as a noun in apposition.

***Ecnomus montambr* Oláh, sp. nov.**

(Figures 38–41)

Material examined. Holotype: **Madagascar**, Mt. d'Ambre, Les Roussettes [12.542°S, 49.18°E], [without date], leg. B. Stuckenberg (male, OPC). Paratype: same as holotype (1 male, OPC).

Diagnosis. Having dorsobasal arm on the gonopod *Ecnomus montambr* sp. nov. resembles *Ecnomus joariv* sp. nov., from which it differs by having cerci differently shaped both in dorsal and lateral views; the gonopods are V-shaped and slender in lateral view, not L-shaped and robust, and the lateral plate of the phallic organ is sub-circular, not elongated ovoid.

Description. Male (in alcohol). Small sized brown animal with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4.5 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX very short, vertically elongated; sternum IX bulky, elongated, almost rectangular; cut posteriorly in lateral view. Vestigial segment X discernible as small, almost invisible membranous mesal lobe. Cerci elongated foliform, each with narrower apical half without dense dentose mesal surface. Internal paraproctal processes forming pair of long spine-like processes with small apical setae; external processes similar but fused to ventrobasal region of cerci. Gonopods slender, V-shaped, forming triangular ventroapical arm. Phallic apparatus curving, ta-

pering, supplied with rounded pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Mt. d'Ambre. It is treated as a noun in apposition.

***Ecnomus moron* Oláh & Johanson, sp. nov.**

(Figures 42–45)

Material examined. Holotype: **Madagascar**, Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona River 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriamihaja (male, NHRS).

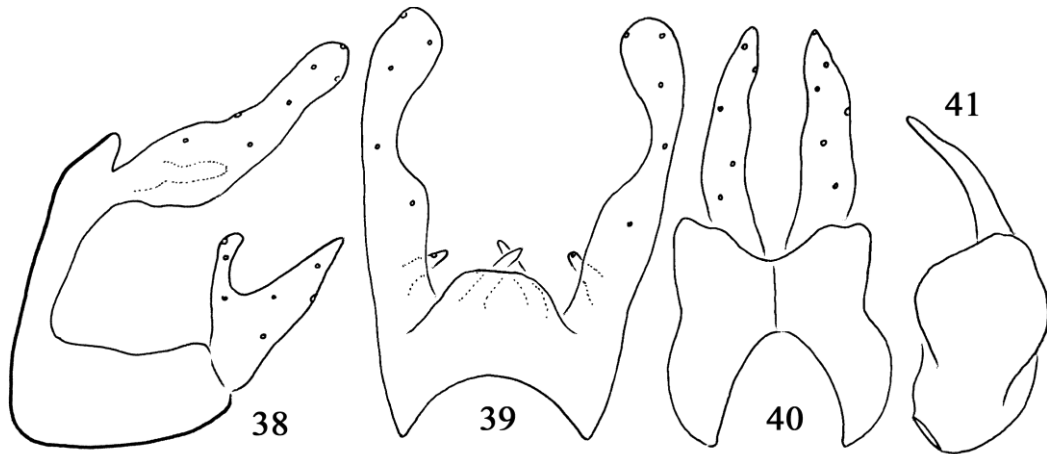
Diagnosis. *Ecnomus moron* sp. nov. resembles *Ecnomus andasibe* Malicky, 2020, from which it differs by broadening, not tapering head of the cerci, as well as by the bilobed head of the gonopods in lateral view.

Description. Male (in alcohol) Small-sized, brown, lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

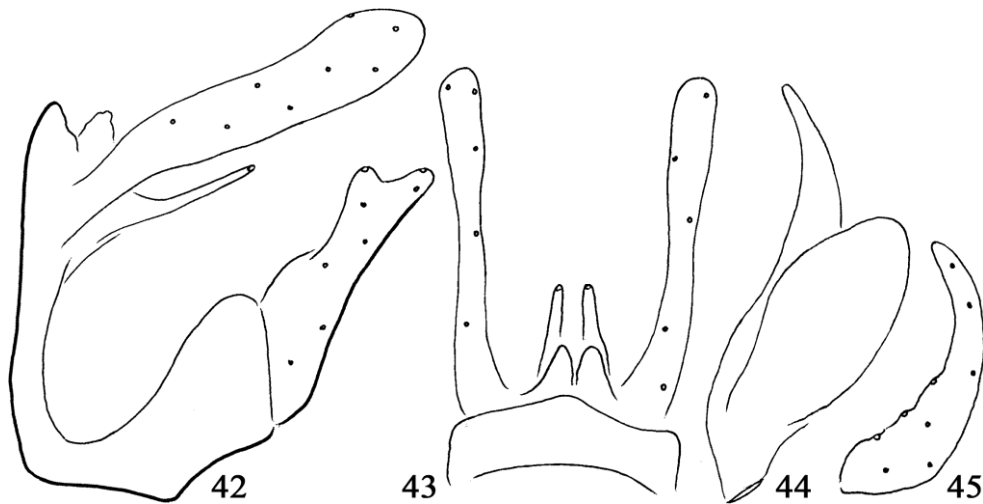
Forewings. Membrane redish brown; length 3 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX very short, almost thin, vertically slender; sternum IX robust, truncate in lateral view. Vestigial segment X discernible as pair of small, almost invisible membranous triangular mesal lobes. Cerci elongate, broad in lateral and narrow in dorsal views. Internal paraproctal processes strongly produced digitiform, with terminal seta; external paraproctal processes indiscernible. Gonopods with bilobed apex in lateral view, mesad curving and tapering in ventral view. Phallic apparatus with strongly pronounced elongated ovoid pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Namorona River. Treated as a noun in apposition.



Figures 38–41. *Ecnomus montambri* Oláh sp. nov. Holotype: 38=genitalia in left lateral view, 39=genitalia in dorsal view, 40=genitalia in ventral view, 41=phallic organ in left lateral view.



Figures 42–45. *Ecnomus moron* Oláh & Johanson, sp. nov. Holotype: 42=genitalia in left lateral view, 43=genitalia in dorsal view, 44=phallic organ in left lateral view, 45=left gonopod in ventral view

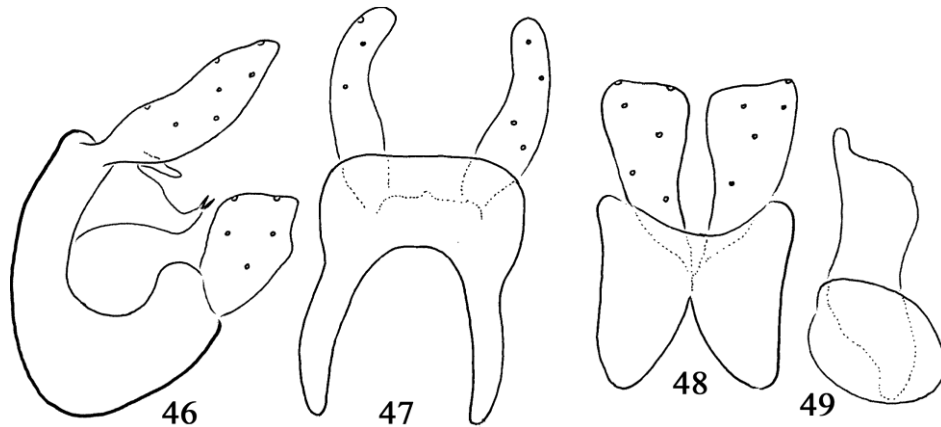
***Ecnomus perin* Oláh, sp. nov.**

(Figures 46–49)

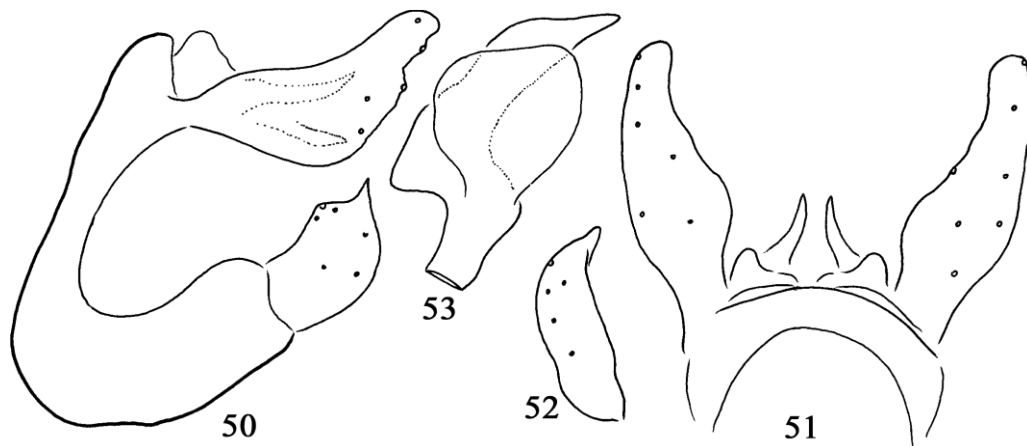
Material examined. Holotype: **Madagascar**, Perinet [18.939°S, 48.434°E], P. Viette, xi.1954, leg. R. Paulian (male, OPC). Paratypes: same as holotype (28 males, OPC). Madagascar, Nosivola [Anosivola: 17.715°S, 48.653°E], R.N.3, 1955, leg. R. Paulian (1 male, OPC). Madagascar, Ranomafana [21.238S, 47.394E], 19.iv.2007, leg. W. Mey (10 males, 20 females, ZMB; 8 males, 10 females, OPC). Madagascar: Fianarantsoa: Matsi-

atra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiarara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriamihaja (2 males, NHRS).

Diagnosis. With the short gonopods *Ecnomus perin* sp. nov. resembles *Ecnomus voang* sp. nov., from which it differs by the truncate, not tapering, ventral profile of the gonopods, as well as by the differently shaped paraproctal complex having the



Figures 46–49. *Ecnomus perin* Oláh, sp. nov. Holotype: 46=genitalia in left lateral view, 47=genitalia in dorsal view, 48=genitalia in ventral view, 49=phallic organ in left lateral view.



Figures 50–53. *Ecnomus sahamal* Oláh & Johanson, sp. nov. Holotype: 50=genitalia in left lateral view, 51=genitalia in dorsal view, 52= left gonopod in ventral view, 53=phallic organ in left lateral view.

internal paraproctal processes more produced into a triangular downward directed lobe, not a simple slender digitiform process.

Description. Male (in alcohol) Small-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane redish brown; length 4 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX almost as produced as sternum IX in lateral view. Vestigial segment X indiscernible. Cerci elongate, each with round-

ed ventral margin and tapering head in lateral view. External and internal paraproctal processes dissimilar; external processes short, digitiform, visible on basomesal region of cerci; internal pair of paraproctal processes almost fused or adhered together forming downwardly directed triangular lobe in lateral view. Gonopods short, without dorsobasal arm; truncate apically in ventral view. Phallic apparatus with strongly pronounced circular pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Perinet [Analamazaotra]. Treated as a noun in apposition.

***Ecnomus ridwan* Malicky, 2015**

Ecnomus ridwan Malicky, 2015: 42.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, 600 m N Beraty village, 21.xi.2012, 22W black light trap, 14.02289°S, 48.25303°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (9 males, NHRS; 6 males, OPC). Madagascar: Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriamihaja (6 males, NHRS). Madagascar: Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (3 males, NHRS).

***Ecnomus sahamal* Oláh & Johanson, sp. nov.**

(Figures 50–53)

Material examined. Holotype: **Madagascar**, Fianarantsoa, Matsiatra Ambony, Fianarantsoa Rural, Androy, Sahamalaotra 2 km from Vohiparara, 31.x.2011, 21.23809°S, 47.39474°E, 1120 m, GB net and sieves, small forest stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J.H. Randriamihaja (male, NHRS).

Diagnosis. With short gonopods *Ecnomus sahamal* sp. nov. resembles *Ecnomus voang* sp. nov., from which it differs by the presence of an apical pointed process, lacking in *E. voang* sp. nov. as well as by the differently shaped cerci both in lateral and dorsal views.

Description. Male (in alcohol) Small sized, brown. with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Mmembrane pale brown; length 4 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX short, vertically elongate; sternum IX low, long. Vestigial segment

X discernible as pair of small, almost invisible, membranous, mesal lobes. Cerci elongate, subtriangular with bellied ventrum in lateral view. Internal paraproctal processes forming pair of spine-like processes with small apical setae; external paraproctal processes similar, fused to basal region of cerci. Gonopods short, without dorsobasal arm, armed with apically pointed process in lateral view. Phallic apparatus with strongly pronounced, elongated, rounded, almost irregular circular pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Sahamalaotra as a noun in apposition.

***Ecnomus taros* Malicky, 2015**

Ecnomus taros Malicky, 2015: 42.

Material examined. **Madagascar**: Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N Jönsson (2 males, NHRS; 1 male, OPC). Madagascar, Antananarivo Prov., Bongolava Dist., Ambohijanahary N. P., Sakasarotra, light trap at stream in forest, 18°16'06.4"S, 45°27'48.7"E, 906 m, 19.xii.2009, leg. J. Bergsten & N Jönsson (3 males, NHRS).

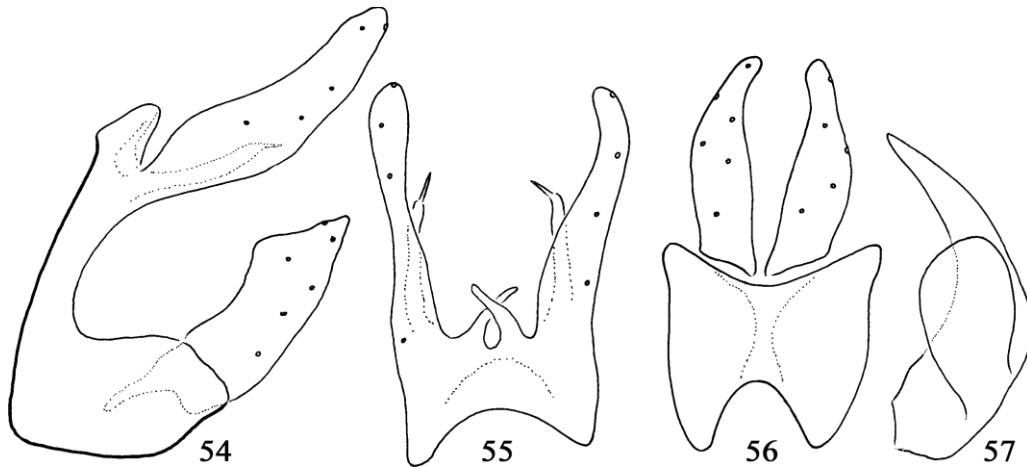
***Ecnomus tsarat* Oláh, sp. nov.**

(Figures 54–57)

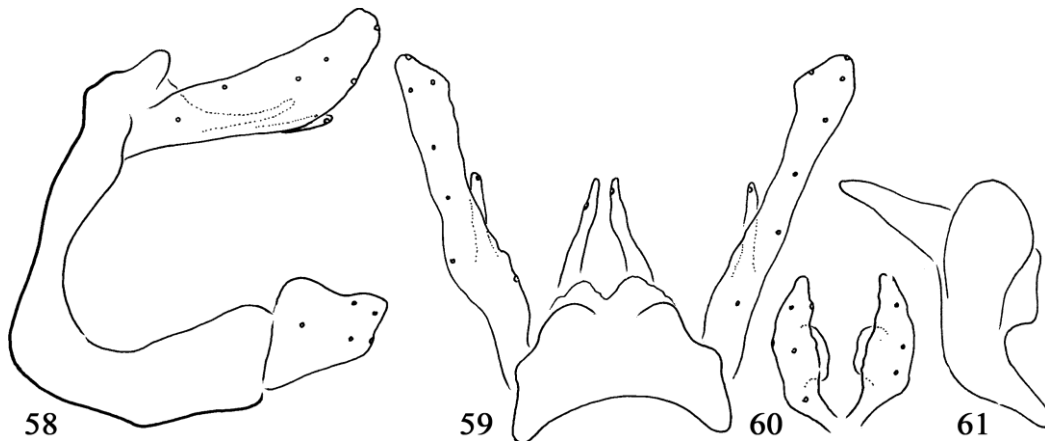
Material examined. Holotype: **Madagascar**, Mt. Tsaratanana [14.039S, 48.91E], 1500 m, without date, leg. R. Paulian (male, OPC).

Diagnosis. *Ecnomus tsarat* sp. nov. resembles *Ecnomus andasibe* Malicky, 2020, from which it differs by having short and high sternum IX, not long and low; the cerci are shorter and differently shaped; the gonopods are more produced and curve upward, not straight, and the lateral plate of phallic organ is ovoid, not semicircular.

Description. Male (in alcohol) Medium-sized, brown, with lighter legs and venter. Foretibial spurs complete; spur formula 3:4:4; modified spur



Figures 54–57. *Ecnomus tsarat* Oláh, sp. nov. Holotype: 54=genitalia in left lateral view, 55=genitalia in dorsal view, 56=genitalia in ventral view, 57=phallic organ in left lateral view.



Figures 58–61. *Ecnomus voang* Oláh, sp. nov. Holotype: 58=genitalia in left lateral view, 59=genitalia in dorsal view, 60=gonopod in ventral view, 61=phallic organ in left lateral view.

present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 7 mm; forks complete, fork on R1 indiscernible.

Male genitalia. Tergum IX short, vertically elongate; sternum IX bulky, high, rounded almost rectangular; cut posteriorly in lateral view. Vestigial segment X indiscernible. Both cerci elongate, foliiform, without dense dentose mesal surfaces. Internal paraproctal processes forming pair of spine-like processes with small apical setae; external paraproctal processes longer. Gonopods curving quadrangularly with obliquely cut apical end forming triangular ventroapical angle. Phallic

apparatus curving tapering, supplied with rounded elongated pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Mt. Tsaratanana as a noun in apposition.

***Ecnomus voang* Oláh, sp. nov.**

(Figures 58–61)

Material examined. Holotype: **Madagascar**, Aohvoangy [15.433°S, 49.75°E], x.1955, leg. R. Paulian (1 male, OPC). Paratypes: same as holotype (male, OPC). Madagascar, Maroantsetra,

Ambodivoangy, 1955, leg. (Jean Vadon) R. Paulian (1 male, OPC).

Diagnosis. *Ecnomus voang* sp. nov. with short gonopod has resemblance to *Ecnomus perin* sp. nov. but differs by the tapering, not truncated ventral profile of gonopod as well as by the differently shaped paraproctal complex.

Description. Male (in alcohol) Small sized brown animal with lighter legs and venter. Fore-tibial spurs complete; spur formula 3:4:4; modified spur present on hind tibiae. Maxillary palp formula I-II-III-IV-V.

Forewings. Membrane pale brown; length 4 mm; forks complete, fork on R1 lacking.

Male genitalia. Tergum IX short, vertically elongate; sternum IX low and long; cut posteriorly in lateral view. Vestigial segment X discernible as a pair of small badly visible membranous mesal lobes. Cerci elongate, with slightly upward turning apical half. Internal paraproctal processes forming pair of spine-like processes with small apical setae; external paraproctal similar but fused to basal region of cerci. Gonopod short without dorsobasal arm, tapering in ventral view. Phallic apparatus with very pronounced elongated rounded pair of lateral plates.

Etymology. Coined from the name of the *locus typicus*, Aohvoangy as a noon in apposition.

Dipseudopsidae Ulmer, 1904

***Dipseudopsis* Walker, 1852**

The genus *Dipseudopsis* is one of the few genera in the Annulipalpia having marked sexual dimorphism outside the genitalia. The females are yellow-brown, the males are darker, frequently with distinctive forewing markings. Moreover, the inner/mesal apical spur on the hind tibia of the males is markedly contorted, elongated, or otherwise modified. In the past, most of the described species have been diagnosed chiefly by the shape of this modified spur. Ross & Kingsolver (1959) have pronounced that the male genitalia have as good or even better separating characters among

the species as the modified tibial spur. Later, the diagnostic value of male genitalic structures was widely applied in species descriptions (Weaver & Malicky 1994, Oláh & Johanson 2010).

Ross & Kingsolver (1959) tried to outline the phylogeny among the species in the *Dipseudopsis* based on characters in the genitalia but faced difficulties and had little success. Some Madagascan species appeared closest to certain Asian species whereas others appeared closest to certain African species. Moreover, they found that grouping by genital characters was frequently diametrically opposed to those made by wing and spur characters.

Fighting with these incongruences between genital structures, wing venation and modified spur character states Ross & Kingsolver (1959) have distinguished three independent lineages, the *furcata*, *grammoptera*, and *seyrigi* lines among the Madagascan species. Recognising the reticulation nature of integrative organisation, *i.e.* the predominance of incongruent, discordant character trees in any species tree, we selected gonopod morphology for species grouping and distinguished four species groups in the present study. The character state variation of the gonopods in ventral profile exhibits reliable diagnostic value for grouping with some incongruent discordance in the modified spur: (1) *Dipseudopsis discalis* group with V-shaped mesal gonopod excision. (2) *Dipseudopsis furcata* group with rounded mesal gonopod constriction. (3) *Dipseudopsis olsoufieffi* group with mesally turning gonopod head. (4) *Dipseudopsis serrata* group with straight parallel-sided gonopods.

In making species identifications of *Dipseudopsis*, the precise orientation of the modified hind leg spur is a crucial factor, because a slight rotation of the tibiae produces different perspectives of the spur (Weaver & Malicky 1994). Here we chose the left leg and ventral view for examination and drawing, and we illustrated the spurs together with the adjacent lateroapical unmodified spur and a part of both tibia and tarsus (Oláh & Johanson 2010).

***Dipseudopsis discalis* species group**

The ventral profile of the gonopods is characterized with a pronounced deep, V-shaped, mesal excision dividing the basal and the apical half of the gonopods. The gonopods are relatively short. The modified mesoapical spur on hind tibia has somewhat and somehow bipartite apex. Three known species belong to this group: *Dipseudopsis discalis* Navás, 1934, *Dipseudopsis grammoptera* Navás, 1934, *Dipseudopsis unguicularis* Ulmer, 1905. According to Ross and Kingsolver (1959) we listed *Dipseudopsis morafenobena* Ulmer, 1931 in this species group, but its real phylogenetic position needs to be confirmed by the examination of the genitalia of the type.

***Dipseudopsis bemaraha* Oláh & Johanson, sp. nov.**

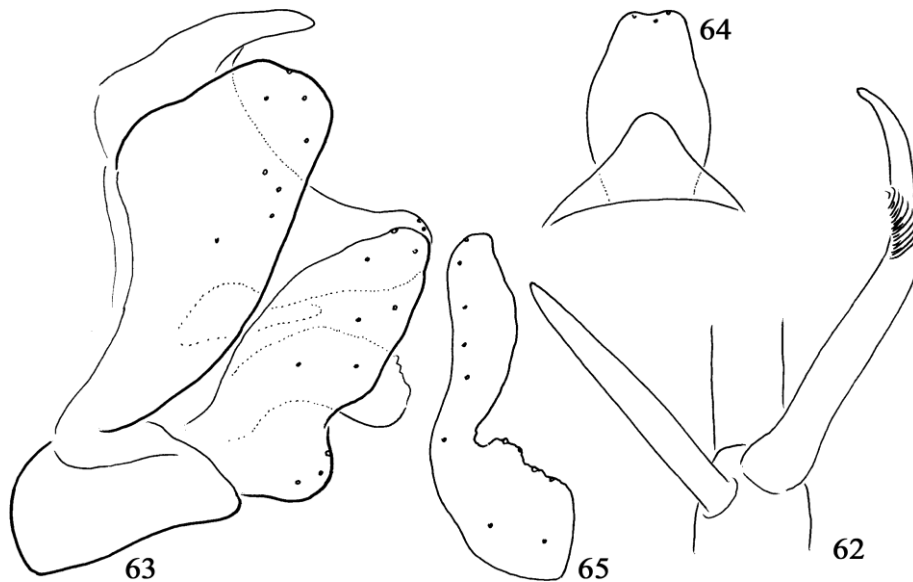
(Figures 62–65)

Material examined. Holotype: **Madagascar**, Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18°45.287'S, 44°42.464'E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (male, NHRS). Paratypes: Madagascar, Mahajanga Prov.

Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12"S, 46°48' 38.6" E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (2 males, NHRS; 2 males, OPC)

Diagnosis. This new species appears closely related to *Dipseudopsis discalis* Navás, 1934. Unfortunately, the type of *D. discalis* was not possible to examine. When distinguishing between *D. bemaraha* sp. nov and *D. discalis* we rely upon the information in the literature about the modified spur illustrated by Navás (1934a or b). The gonopods were illustrated by Ross & Kingsolver (1959). In ventral profile, the gonopods are less divergent, but the modified spur is differently formed; its apical region is gradually narrowing, not broadening. In addition, there is a setal tuft present subapically, not a right-angled spine-like structure as in *D. discalis*.

Description. Male (in alcohol). Small-sized, brown, forewings uniformly brown with hyaline area around crossvein m-cu. Hind leg with modified tibial spur located mesally, straight in its larger basal half, narrowing at apical half; weakly discernible curving setal tuft present at end of straight basal half.



Figures 62–65. *Dipseudopsis bemaraha* Oláh & Johanson, sp. nov. Holotype: 62=modified apicomeral spur on hind tibia of the male, 63=genitalia in left lateral view, 64=genitalia in dorsal view, 65=left gonopod in ventral view.

Forewing length 11 mm.

Male genitalia. Segment IX with low tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX triangular in dorsal view; sternite IX short, rounded almost rectangular, articulating to pleurite IX, cerci and paraproct. Segment X slightly longer than cerci, forming pigmented hood with several sensory pits on slightly narrowed apex. Cerci large, broad, with blunt apical, region apex dominating in genitalia. Paraproct with low middle and high lateral lobes in lateral view. Gonopods without harpago, short, constricted between apical and basal region in ventral view. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Bemaraha National Park, as a noun in apposition.

***Dipseudopsis discalis* Navás, 1934**

Dipseudopsis discalis Navás, 1934b: 67. Madagascar “Patria, Betroka [23.27°S, 46.097°E], Enero y Febrero de 1933.”

***Dipseudopsis grammoptera* Navás, 1934**

Dipseudopsis discalis Navás, 1934a: 370.

Material examined. Madagascar, Moramanga, Andasibe, 14-26.i.2009, leg. A. Salk (1 male, ZMB; 1 male, OPC) [18.935°S, 48.413°E].

***Dipseudopsis morafenobena* Ulmer, 1931**

Dipseudopsis morafenobena Ulmer, 1931:8. “Material: 2♂, Morafenobe [17.818°S, 44.983°E], Madagascar, von Staudinger & Bang-Haas erhalten, in meiner Sammlung. Die 2 Stücke sind leider aufgeklebt, ungespannt.”

Remarks. According to Ross & Kingsolver (1959) this species is closely related to *Dipseudopsis unguicularis* Ulmer, 1905. Only two type specimens of *D. morafenobena* are known,

and Ross & Kingsolver (1959) did not describe them. Their hypothesis of the relationship of this species was based on the published drawing of the shape of modified spur. Examination of the genitalia, particularly the gonopods of the types may provide the necessary information to determine the taxonomic position of this poorly known species.

***Dipseudopsis unguicularis* Ulmer, 1905**

Dipseudopsis unguicularis Ulmer, 1905a:36–37. “2 ♂♂ im Pariser Museum, bezeichnet: Maevatanana [16.952S, 46.832E], Madagascar, Dr. F. Decorse, 1899 (Oct. bis Nov).”

Dipseudopsis unguicularis Ulmer, 1905a:20. “Diese Form neigt mehr zu gewissen asiatischen Formen hin als zu den afrikanischen fasciata-Formen.”

***Dipseudopsis furcata* species group**

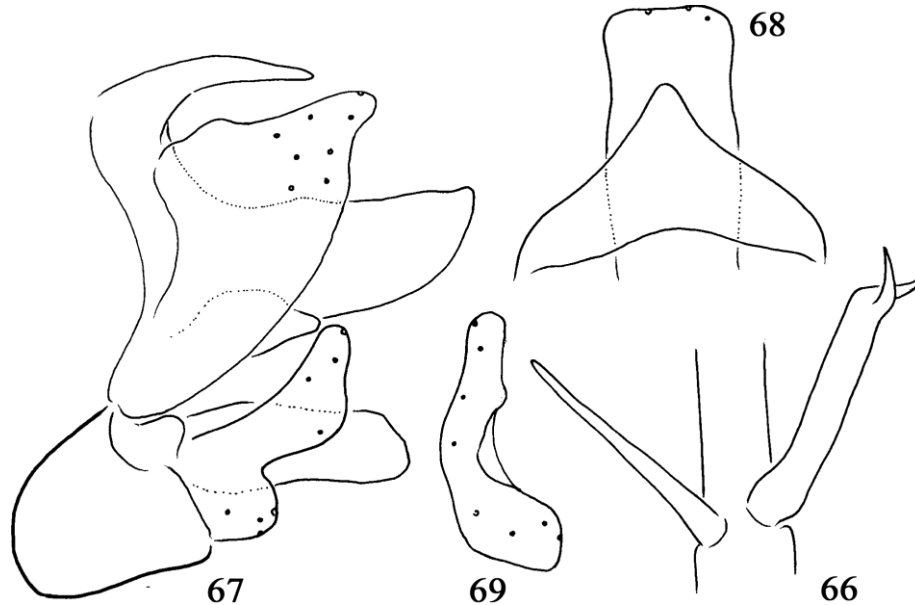
This species group is characteristic in having stable gonopod ventral profile and modified spur structure with subtle, but stable differences and without any incongruent discordance. In ventral profile the gonopods are characterized by having a rounded mesal constriction between the basal and apical half of the gonopods. The gonopods are relatively short. The modified mesoapical spur on hind tibia is represented by spur head composed of and constituted by two variously curving or twisting short and slender pointed spines. Six species belong to this group: *Dipseudopsis furcata* Ulmer, 1905, *Dipseudopsis moramanga* sp. nov., *Dipseudopsis nossina* Navás, 1933, *Dipseudopsis pauliani* Ross & Kingsolver, 1959, *Dipseudopsis sahanoda* sp. nov., *Dipseudopsis violacea* Ross & Kingsolver, 1959.

***Dipseudopsis furcata* Ulmer, 1905**

(Figures 66–69)

Dipseudopsis furcata Ulmer, 1905a:37. “2♂♂ gleicher Localität wie die vorige Art im Pariser Mueum”. “Maevatanana [16.952°S, 46.832°E], Madagascar, D. F. Decorse, 1899 (Oct. bis Nov.)”.

Dipseudopsis furcata Ulmer, 1905b:96:”Sporn kaum so lang als Außensporn, am Ende in zwei verschiedenen gelagerte gebogene Krallen geteilt.”



Figures 66–69. *Dipseudopsis furcata* Ulmer, 1905. Male: 66=modified apicomesal spur on hind tibia of the male, 67=genitalia in left lateral view, 68=genitalia in dorsal view, 69=left gonopod in ventral view.

Material examined. **Madagascar**, Mahajanga, Boeny, Ankarafantsika NP: 16°18'51.048"S 46°49'2.315"E, 30.xi.2009, hand picking, leg. J. Bergsten, N. Jönsson, T. Ranarilalotiana & J.H. Randriamihaja (1 male, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (3 males, NHRS; 2 males, OPC)

Remarks. In the original description only the modified spur was drawn and figured. Unfortunately, it was depicted in an inexplicable drawing aspect that could be the result of an erroneous presentation of the fine structure of the small and slender crossing spines with pointed tips (Ulmer 1905a). In a very detailed examination of the modified spurs on both the left and right legs we were unable to reproduce Ulmer's published original drawing even by examining it in every possible observation views or aspects. The genital structure of one of the type specimens was drawn in detail by Ross and Kingsolver (1959). We have examined the forewing pattern and illustrated the genitalia of the new specimens reported here, and they are identical to the genital drawings of the

type as well as to the original description of the forewing pattern.

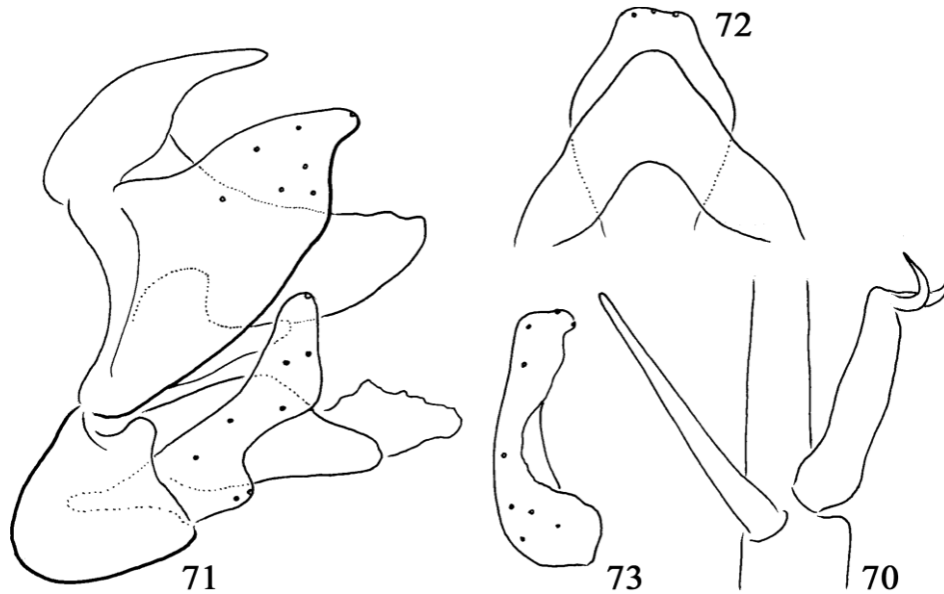
***Dipseudopsis moramanga* Oláh & Mey, sp. nov.**

(Figures 70–73)

Material examined. Holotype: **Madagascar**, Moramanga, Andasibe, 14-26.i.2009, leg. A. Salk (male, ZMB). [18.935°S, 48.413°E]. Paratypes: same as holotype (2 males, ZMB; 2 males, OPC)

Diagnosis. The modified spur of this new species resembles that of *Dipseudopsis sahanoda* sp. nov. but it is straight and robust, not curved and tapering apically, and the two pointed spines are more produced and differently curved. The tergite IX, segment X, and the periphallallic organs of cercus, paraproct and gonopod are differently shaped.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings without distinct pronounced pattern. Hind leg with modified spur located mesally, straight, with two terminal spines turning right in right angle and further upward and backward.



Figures 70–73. *Dipseudopsis moramanga* Oláh & Mey, sp. nov. Holotype: 70=modified apicomesal spur on hind tibia of the male, 71=genitalia in left lateral view, 72=genitalia in dorsal view, 73=left gonopod in ventral view.

Forewing length 14 mm.

Male genitalia. Segment IX with low tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX rounded triangular in dorsal view; sternite IX short rounded triangular articulating to pleurite IX, cerci and paraproct. Segment X slightly longer than cerci, forming pigmented hood with several sensory pits on slightly narrowed apex. Cerci large, broad, elongate, with narrow tipped apex dominating on genitalia. Paraproct with low middle and high lateral lobes in lateral view. Gonopods without harpago, short, constricted middle in lateral view. Phallic apparatus small, consisting of phallosome, endothenca and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Moramanga as a noun in apposition.

***Dipseudopsis nossina* Navás, 1933**

Dipseudopsis nossina Navás, 1933:41–42. “Patria. Africa: Nossi-Be [Nosy Be: 13.326°S, 48.26°E], C. Dumont, 1921. Mus. de Paris.” “*Similis furcatae* Ulm.”

***Dipseudopsis pauliani* Ross & Kingsolver, 1959**

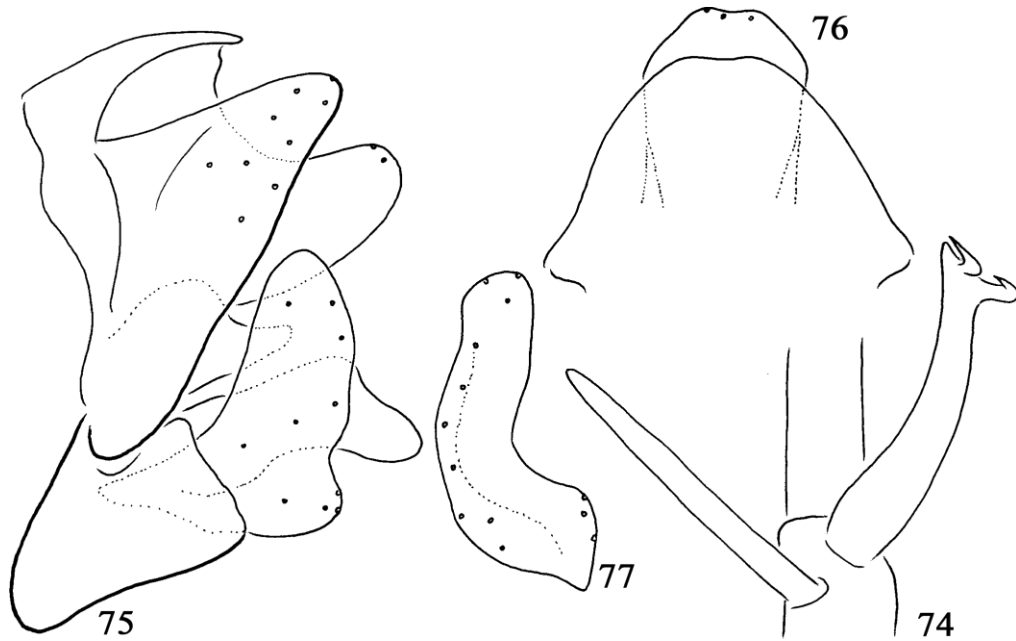
Dipseudopsis pauliani Ross & Kingsolver, 1959: 116.

Material examined. Holotype: **Madagascar**, Perinet, December 1954, leg. R. Paulian (1 male, MNHN). (Perinet. Madagascar Est: 30 km à l’E de Moramanga, Perinet. Station forestière et réserve spéciale d’Analamazaitra-Perinet.) [18.939°S, 48.434°E]. Paratype: Madagascar, Perinet, 1955, Paulian (1 male, MNHN) [18.927°S, 48.414°E]. Madagascar, Toamasina, Alaotra Mangoro, Mantadia NP, Mantadia, above waterfall, 6 km from park entrance, 18.8372°S, 48.44402°E, 1000 m, 12-17.xi.2011, Malaise trap, rainforest stream, leg: J. Bergsten, R. Bukontaite, T. Ranarilalantiana & H. J. Randriamihaja (1 male, NHRS)

***Dipseudopsis sahanoda* Oláh & Johanson, sp. nov.**

(Figures 74–77)

Material examined. Holotype: **Madagascar**, Toamasina, Alaotra Mangoro, Mantadia National Park, Mantadia, River Sahanody, 9 km from entrance of park, 18.8134°S, 48.4300°E, 960 m, light, forest stream in rainforest, 17.xi.2011, leg.



Figures 74–77. *Dipseudopsis sahanoda* Oláh & Johanson, sp. nov. Holotype: 74=modified apicomeresal spur on hind tibia of the male, 75=genitalia in left lateral view, 76=genitalia in dorsal view, 77=left gonopod in ventral view.

J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J.H. Randriamihaja (male, NHRS).

Diagnosis. According to the modified spur this new species resembles *Dipseudopsis moramanga* sp. nov. but the spur is curving and narrowing apically, not straight and robust, and the two-pointed spines are less produced and differently curved. The tergite IX, segment X, and the periphallalic organs of the cercus, the paraproct and the gonopods are differently shaped.

Description. Male (in alcohol). Large-sized, brown, with uniform brown forewing without pattern. Hind leg with modified tibial spur located mesally curving and narrowing apically with the two short terminal spines turning right in right angle and further upward and backward.

Forewing length 18 mm.

Male genitalia. Segment IX with low tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX rounded in dorsal view; sternite IX short rounded triangular articulating to pleurite IX, cerci and paraproct.

Segment X slightly longer than cerci, forming pigmented hood with several sensory pits on slightly narrowed apex. Cerci large, broad, elongate triangular, narrowing apically, dominating in the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, short, constricted middle in lateral view. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Sahanody River. The name is treated as a noun in apposition.

***Dipseudopsis violacea* Ross & Kingsolver, 1959**

Dipseudopsis violacea Ross & Kingsolver, 1959: 117.

Material examined. Holotype: **Madagascar**, Ambohimanakana, Manambato, april 1955, leg. R. Paulian (male, MNHN). (Ambohimanakana. Madagascar Est: S.-P. de Soanierana Ivongo, Manambato sur l'Anove, Ambohimanakana (A. Robinson). Au N. de Manompana.) [16.616°S, 49.787°E].

***Dipseudopsis olsoufieffi* species group**

The species in the *Dipseudopsis olsoufieffi* species group are characterised by having gonopods having mesally turning apex and usually with a spoon-like inner excavation. The gonopods are relatively long, easily discernible in lateral view. The modified mesoapical spur on the hind tibia with curving or twisting pointed or blunt single rod. The species group includes 13 species, including *Dipseudopsis andrina* new species complex with bilobed dorsal profile of tergite IX with four new species: *Dipseudopsis andrina* sp. nov., *Dipseudopsis bergsteni* sp. nov., *Dipseudopsis mantadia* sp. nov., *Dipseudopsis rona* sp. nov. Other species of the group have intact, not bilobed, dorsal profile of tergite IX: *Dipseudopsis curvata* Banks, 1920, *Dipseudopsis fernandi* sp. nov., *Dipseudopsis intremensis* Ross & Kingsolver, 1959, *Dipseudopsis mitrata* Ross & Kingsolver, 1959, *Dipseudopsis morama* sp. nov., *Dipseudopsis olsoufieffi* Navás, 1935, *Dipseudopsis ramanga* sp. nov., *Dipseudopsis ringitra* sp. nov., *Dipseudopsis seyrigi* Navás, 1934.

***Dipseudopsis andrina* species complex**

The species have gonopods with mesally turning and ventrally excavated apex and have a unique character state of the tergite IX being bilobed dorsal profile. Species outside the species complex in the species group have apical margin of tergite IX only slightly concave. Four known species belong to this species complex: *Dipseudopsis andrina* sp. nov., *Dipseudopsis bergsteni* sp. nov., *Dipseudopsis mantadia* sp. nov., *Dipseudopsis rona* sp. nov.

***Dipseudopsis andrina* Oláh, sp. nov.**

(Figures 78–81)

Material examined. Holotype: **Madagascar**, Andringitra, Plateau inférieur, 2000 m, i.1958, leg. Paulian (male, OPC). (Andringitra (massif de l'Andringitra). Madagascar Centre: au Sud d'Am-balavao. Réserve naturelle intégrale n° 5, 1500 à 2650 m [22.205°S, 46.87°E]).

Diagnosis. *Dipseudopsis andrina* sp. nov., the nominate species of this species complex differs from all members of the complex by the presence of a capitate head of segment X, the circular lateral profile of the head of the gonopods, as well as by the particularly curving pattern of the modified spur.

Description. Male (in alcohol). Large-sized, brown, with uniform brown forewing without pattern. Hind leg with modified tibial spur located mesally, exhibiting single sigmoid curving rod with narrowing apical region.

Forewing length 18 mm.

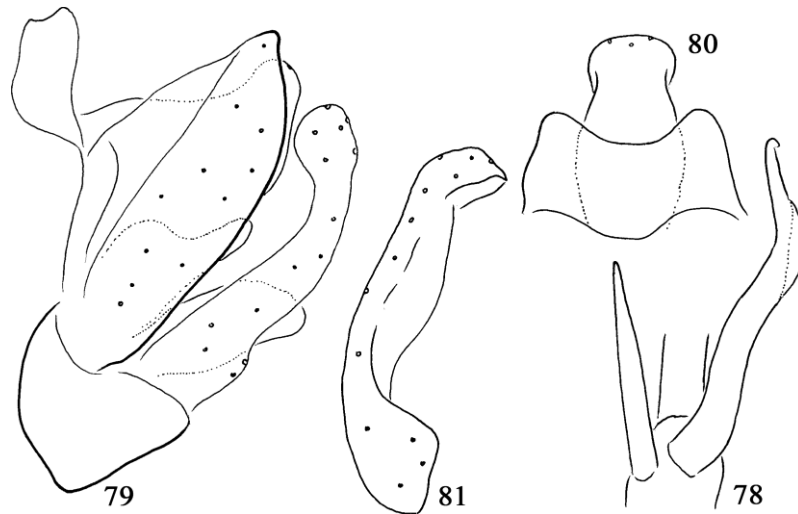
Male genitalia. Segment IX with bilobed tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX formed by deep, wide, rounded excision visible in dorsal view; sternite IX short and high triangular articulating to pleurite IX, cerci and paraproct. Segment X slightly shorter than cerci, forming pigmented hood with several sensory pits on slightly narrowed apex, capitate in dorsal view. Cerci large, broad, elongate triangular, narrowing apically, dominating in genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, capitate, constricted middle in lateral view; ventrally excavated head turning mesally. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Andringitra, considered as a noun in apposition.

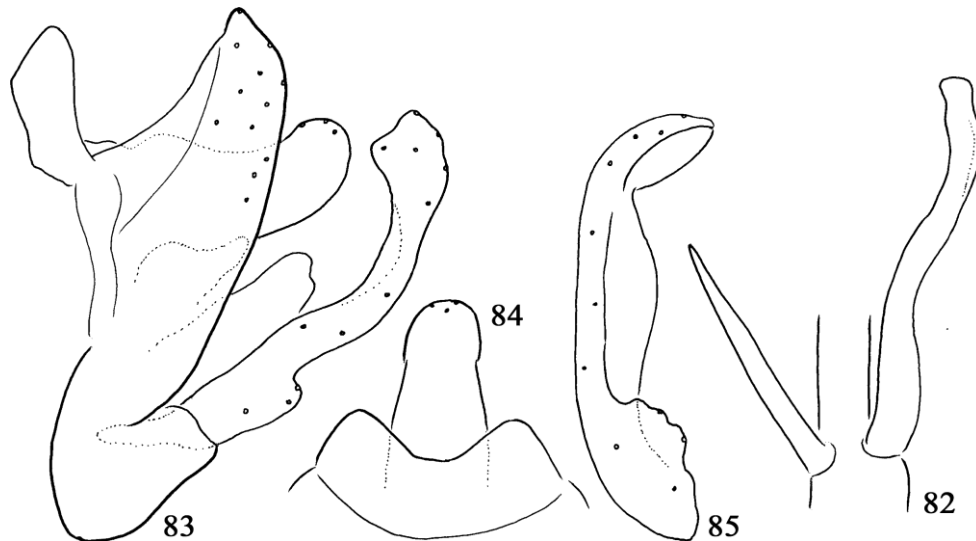
***Dipseudopsis bergsteni* Oláh & Johanson, sp. nov.**

(Figures 82–85)

Material examined. Holotype: **Madagascar**, Fianarantsoa, Matsiatra Ambony, Ranomafana area, Sahamalaotra 2.2 km from Vohiparara, 21.23778°S 47.39442°E, 1120 m, 31.x.2011, 22W



Figures 78–81. *Dipseudopsis andrina* Oláh, sp. nov. Holotype: 78=modified apicomesal spur on hind tibia of the male, 79=genitalia in left lateral view, 80=genitalia in dorsal view, 81=left gonopod in ventral view.



Figures 82–85. *Dipseudopsis bergsteni* Oláh & Johanson, sp. nov. Holotype: 82=modified apicomesal spur on hind tibia of the male, 83=genitalia in left lateral view, 84=genitalia in dorsal view, 85=left gonopod in ventral view.

black light trap, forest stream and stagnant pool, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (1 male, 1 associated female, NHRS, 1 male, 1 associated female, OPC).

Diagnosis. *Dipseudopsis bergsteni* sp. nov. differs from all members of the species complex

by its large size, by the capitate head of the gonopods, with excised apical margin, as well as by the particularly curving pattern and blunt apex of the modified spur.

Description. Male (in alcohol). Large-sized, brown, with uniform brown forewing with narrow hyaline area around crossvein m-cu and even

smaller at arculus. Hind leg with modified tibial spur located mesally, exhibiting single sigmoid curving rod with truncate or blunt apex.

Forewing length 20 mm.

Male genitalia. Segment IX with bilobed tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; bilobed tergite IX formed by rounded V-shaped excision as visible in dorsal view; sternite IX short and high triangular articulating to pleurite IX, cerci and paraproct. Segment X slightly shorter than cerci, forming pigmented hood with several sensory pits on rounded apex, apex capitate in dorsal view. Cerci large, broad, elongate triangular, narrowing apically, dominating in the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, capitate with slightly excised apical margin, constricted middle in lateral view; ventrally excavated head turning mesally. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. This species is dedicated to the collector, Dr. Johannes Bergsten.

***Dipseudopsis mantadia* Oláh & Johanson, sp. nov.**

(Figures 86–89)

Material examined. Holotype: **Madagascar**, Toamasina, Alaotra Mangoro, Mantadia National Park, Mantadia, River Sahanody, 9 km from entrance of park, 18.81345°S, 48.43007°E, 960 m, 22W UV lamp, forest stream in mid-altitude rainforest, 11.xi.2011, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J.H. Randriamihaja (male, NHRS).

Diagnosis. *Dipseudopsis mantadia* sp. nov. is similar to *Dipseudopsis rona* sp. nov. from which it differs by the shallow and wide excision on bilobed tergite IX, by the narrow segment X in dorsal view, by the broader cerci, and by the short basal broadening of the modified spur.

Description. Male (in alcohol). Large-sized, brown, with uniform brown forewing with narrow hyaline area around crossvein m-cu and smaller at arculus. Hind leg with modified tibial spur located mesally, exhibiting single sigmoid curving rod with blunt apex; curving rod with short, broad basal region narrowing distally.

Forewing length 19 mm.

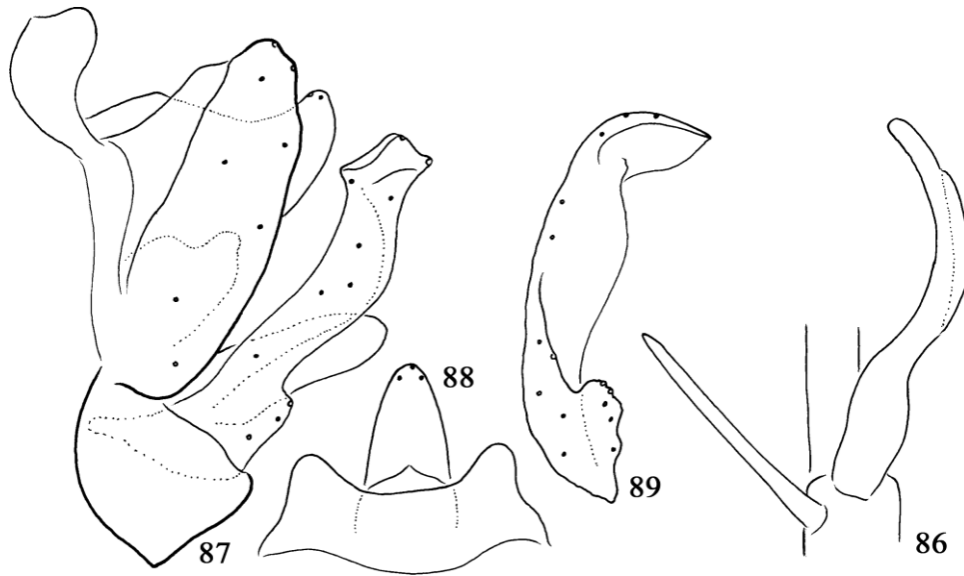
Male genitalia. Segment IX with bilobed tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; bilobed tergite IX formed by shallow, wide excision visible in dorsal view; sternite IX short and high triangular articulating to pleurite IX, cerci and paraproct. Segment X slightly shorter than cerci, forming pigmented hood with several sensory pits on rounded apex narrowing in dorsal view. Cerci large, broad, elongate triangular, slightly narrowing apically, dominating on genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with triangular apical margin in lateral view; ventrally excavated head turning mesally. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Mantadia National Park. Treated as a noun in apposition.

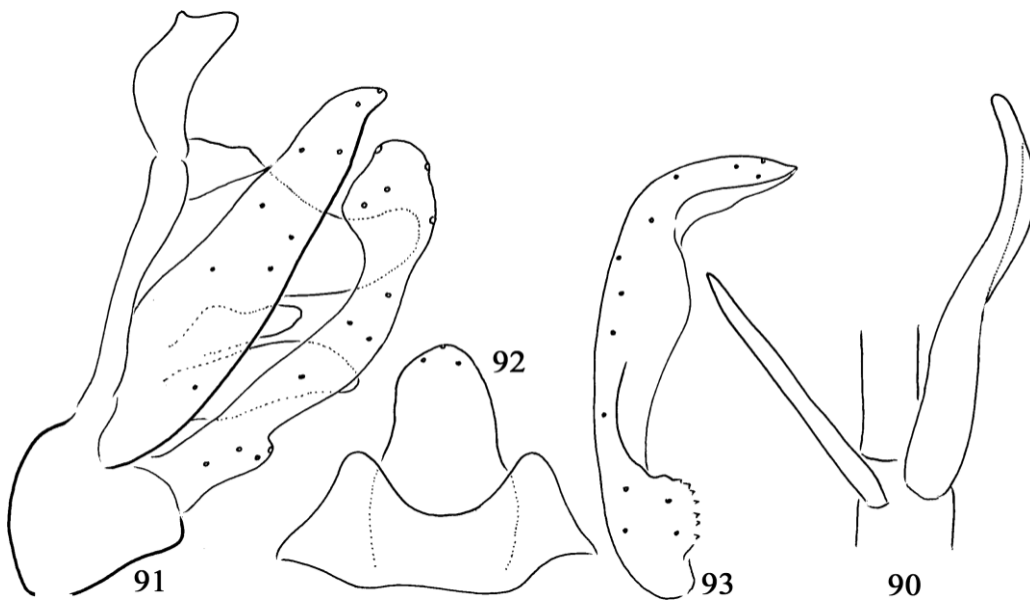
***Dipseudopsis rona* Oláh & Johanson, sp. nov.**

(Figures 90–93)

Material examined. Holotype: **Madagascar**, Fianarantsoa, Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, 30.xi.2011, stony river, 22W black light trap, leg. J. Bergsten, R. Bukontaite, R. Ranarilalantiana & J.H. Randriamihaja (male, NHRS). Paratypes: Madagascar, Fianarantsoa, Matsiatra Ambony, Ranomafana NP, Namorona river 1,8 km from Vohiparara, 21.24032°S 47.39186°E, 1130 m, 30.x.2011, 22W black light, stony river bank, leg. Bergsten, R. Bukontaite, R.



Figures 86–89. *Dipseudopsis mantadia* Oláh & Johanson, sp. nov. Holotype: 86=modified apicomesal spur on hind tibia of the male, 87=genitalia in left lateral view, 88=genitalia in dorsal view, 89=left gonopod in ventral view.



Figures 90–93. *Dipseudopsis rona* Oláh & Johanson sp. nov. Holotype: 90=modified apicomesal spur on hind tibia of the male, 91=genitalia in left lateral view, 92=genitalia in dorsal view, 93=left gonopod in ventral view.

Ranarilalaitiana & JH. Randriamihaja (1 male, NHRS; 1 male OPC).

Diagnosis. *Dipseudopsis rona* sp. nov. is similar to *Dipseudopsis mantadia* sp. nov. from which it differs by the deep and rounded excision on the

bilobed tergite IX, by the broad segment X in dorsal view, by the narrow cerci, and by the longer basal broadening of the modified spur.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings with nar-

row hyaline area around crossvein m-cu and smaller at arculus. Hind leg with modified tibial spur located mesally, exhibiting single sigmoid curving rod with blunt apex; curving rod with basal half slightly broader than apical half. Forewing length 15 mm. Male genitalia. Segment IX with bilobed tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; bilobed tergite IX formed by deep rounded excision visible in dorsal view; sternite IX short triangular, articulating to pleurite IX, cerci and paraproct. Segment X slightly shorter than cerci, forming broad, pigmented, hood with several sensory pits on rounded apex, slightly upward turning in lateral view. Cerci large, narrow, elongated triangular and dominating the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with clavate head in lateral view; ventrally excavated head long, turning mesally. Phallic apparatus small, consisting of phallosome, endotheca and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Namorona River, as a noun in apposition.

***Dipseudopsis curvata* Banks, 1920**

Dipseudopsis curvata Banks, 1920:361. "Type. – M. C.Z. 10,896. Madagascar: Tananarive [18.92S, 47.526E] (Chulliat)." "A large brown species without marks in the male."

***Dipseudopsis fernandi* Oláh, sp. nov.**

Dipseudopsis seyrigi Navás, 1934: Schmid 1949:335–336. Based on a single male specimen collected in Périnet [18.9275S, 48.4154E], at the type locality on xii.1935 Schmid has re-described the species. However, this was a misdetermination. This later collected specimen represents a new species.

Material examined. The single male specimen was collected in **Madagascar**, Périnet [18.9275° S, 48.4154°E], xii.1935. The holotype of *Dipseudopsis fernandi* sp. nov. was drawn and described in details as *Dipseudopsis seyrigi* Navás, 1934 by

Schmid (1949: figures 48–50) and deposited in Museo de Ciencias Naturales de Barcelone.

Diagnosis. In the original description, the holotype of *Dipseudopsis seyrigi* Navás, 1934 collected by Seyrig in Périnet on 12-III-1932 has the modified inner apical spur located mesally on the hind tibia and rather sinuous, curving triple and terminating in a fine, pointed tip. This very particular modified spur shape is properly illustrated by Navás (1934) in a fairly reliable drawing and described in detail in Latin. Schmid (1949) figures the lateral and ventral shape of genitalia and the modified spur of another specimen collected from the same locality in Périnet on XII-1935. However, the shape of the modified spur is completely different. It is slightly curving only once, rather stout with an almost truncated apex, not triple sinuous, not slender and not with pointed apex.

Description. Forewing length 16 mm. Modified spur forms a simple slightly curving rod. Dorsum of segment IX elongated with obtuse apical margin. Cerci long obliquely directed and narrowing into fine, pointed tip. Paraproct (upper penis cover) less produced. Phallic organ short, without pronounced sclerotized structure. Gonopods long, straight, with mesally directed apical region.

Etymology. The new species is dedicated to Fernand Schmid who has produced the excellent drawings and the detailed description of this misidentified specimen.

***Dipseudopsis itremensis* Ross & Kingsolver, 1959**

Dipseudopsis itremensis Ross & Kingsolver, 1959: 124.

Material examined. Holotype: **Madagascar**, Itremo, Prov. Fianarantsoa, 1955, leg. (Paulian on the label, but J. Millot in the description). (Itremo. Madagascar Centre (pentes occidentales): S.-P. d'Ambatofinandrahana, massif de l'Itremo, 1615 m.) (1 male, MNHN) [20.624S, 46.649E].

***Dipseudopsis mitrata* Ross & Kingsolver, 1959**

Dipseudopsis mitrata Ross & Kingsolver, 1959: 121.

Material examined. Holotype: **Madagascar**, Maroantsetra, Ambodivoangy, March 1952, leg. R. Paulian (1 male, MNHN). (Ambodivongy ou Ambodivohangy. Madagascar Est: E. de Maroantsetra, Ambodivoangy, 5 à 50 m. Station détruite.). Paratypes: Madagascar, Maroantsetra, Ambodivoangy, March 1952, leg. R. Paulian (4 males, MNHN) [15.433°S, 49.75°E]. Madagascar, Maroantsetra, 1955, Paulian (J. Vadon) (1 male, MNHN) [15.433°S, 49.75°E]. Madagascar, Mandena, Fort Dauphin, March 1956 (9 males, MNHN). (Madagascar Est: 10 km au N. de Fort-Dauphin, station forestière de Mandena. Station en grand danger.) [24.953°S, 47.003°E]. Madagascar, Maroantsetra, Mahalevona, iii.1958 (4 males, OPC). (Mahalevona. Madagascar Est: ca. 20 km à l'E. de Maroantsetra, Mahalevona. Sur la piste du col Radama.) [15.402°S, 49.86°E]. Madagascar, Maroantsetra, Ambodivoangy [no date], leg. J. Vadon (1 male, OPC) [15.433°S, 49.75°E].

***Dipseudopsis morama* Oláh & Mey, sp. nov.**

(Figures 94–97)

Material examined. Holotype: **Madagascar**, Moramanga, Andasibe, 14-26.i.2009, leg. A. Salk (male, ZMB) [18.935°S, 48.413°E]. Paratypes: same as holotype (5 males, OPC; 9 males, ZMB).

Diagnosis. *Dipseudopsis morama* sp. nov. has gonopods mesally turning ventrally, with excavated apex, and concave, not bilobed apical margin of tergite IX. It resembles *D. ramanga* sp. nov. from which it differs in dorsal view of segment X which is roundly broad, not narrowing apically, and the dorsal ridge of gonopods are simple, not triangularly produced in ventral view, and the modified spur on hind tibiae is less curved and with straight broad basal half.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings with narrow hyaline area around crossvein m-cu and smaller at arculus. Hind leg with modified tibial

spur located mesally, exhibiting simple curving rod with strongly pointed apex; curving rod with basal half straight, broader than apical half.

Forewing length 16 mm.

Male genitalia. Segment IX with concave tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX with apical margin slightly concave; sternite IX short triangular articulating to pleurite IX, cerci and paraproct. Segment X as long as cerci, forming broad, pigmented, hood with several sensory pits on rounded apex, slightly upward turning in lateral view. Cerci large, narrow, elongated triangular and dominating the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with rounded upward curving head in lateral view; ventrally excavated head long, turning mesally. Phallic apparatus small, consisting of phallosome, endotheca and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Moramanga, as a noun in apposition.

***Dipseudopsis olsoufieffi* Navás, 1935**

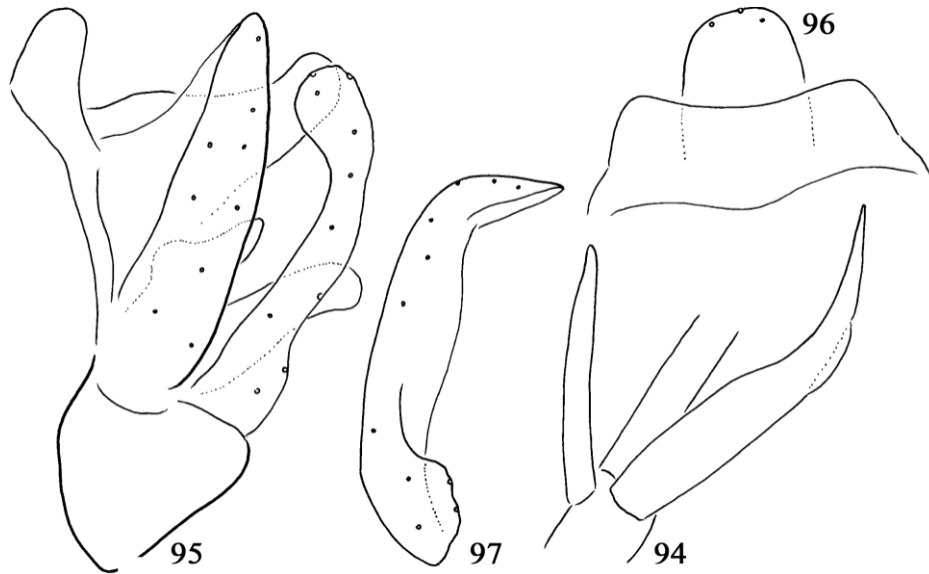
Dipseudopsis olsoufieffi Navás, 1935:70–71: Madagascar, “Patria, Périnet [18.9275°S, 48.4154°E], xii. 1933. Olsoufieff leg.” “*Similis Seyrigi* Nav.” *Dipseudopsis olsufievi* [sic]; Navás 1936b: 108.

***Dipseudopsis ramanga* Oláh & Mey, sp. nov.**

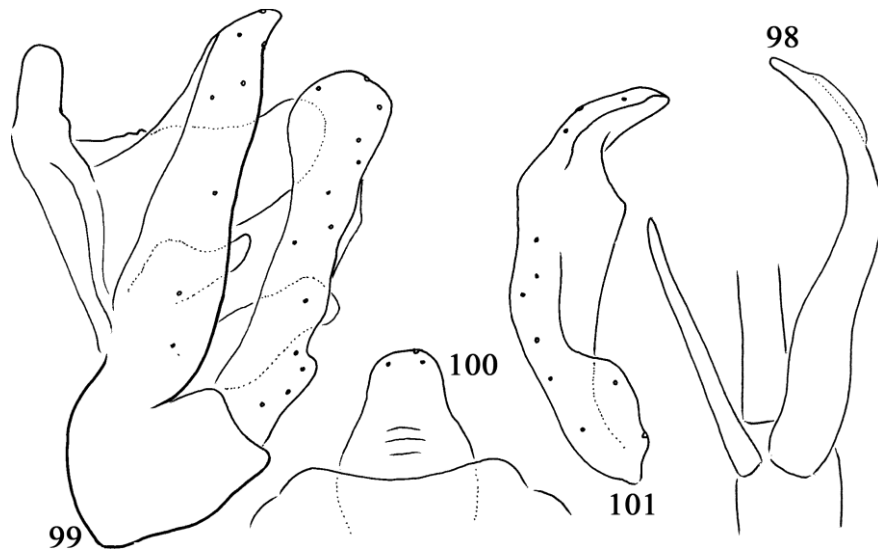
(Figures 98–101)

Material examined. Holotype: **Madagascar**, Moramanga, Andasibe, 14-26.i.2009, leg. A. Salk (male, ZMB) [18.935°S, 48.413°E]. Paratypes: same as holotype (4 males, OPC; 6 males, ZMB)

Diagnosis. With gonopod of mesally turning ventrally excavated apex and concave, not bilobed apical margin of tergite IX, *Dipseudopsis ramanga* sp. nov. resembles *D. morama* sp. nov., from which it differs by the dorsal profile of segment X narrowing apically, not uniformly



Figures 94–97. *Dipseudopsis morama* Oláh & Mey, sp. nov. Holotype: 94=modified apicomesal spur on hind tibia of the male, 95=genitalia in left lateral view, 96=genitalia in dorsal view, 97=left gonopod in ventral view.



Figures 98–101. *Dipseudopsis ramanga* Oláh & Mey sp. nov. Holotype: 98=modified apicomesal spur on hind tibia of the male, 99=genitalia in left lateral view, 100=genitalia in dorsal view, 101=left gonopod in ventral view.

broad; the dorsal ridge of the gonopods is triangularly produced in ventral view, not simple; and the modified spur is double curving and with shorter broad basal region.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings with just

discernible narrow hyaline area around crossvein m-cu and smaller at arculus. Hind leg with modified tibial spur located mesally, exhibiting double curving rod with narrowing apex; curving rod has short broader basal region, apical two-thirds of spur narrowing gradually.

Forewing length 17 mm.

Male genitalia. Segment IX with concave tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraprot hinge together; tergite IX with apical margin slightly concave; sternite IX short triangular articulating to pleurite IX, cerci and paraprot. Segment X shorter than cerci, forming broad, pigmented, hood with several sensory pits on rounded apex, slightly upward turning in lateral view. Cerci large, narrow, elongated triangular and dominating the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with clavate head in lateral view; ventrally excavated head long mesally turning; dorsal ridge triangularly produced middle visible in ventral view. Phallic apparatus small, consisting of phallosome, endothesa and aedeagus; weakly sclerotized and difficult to discern.

Etymology. Coined from the name of the *locus typicus*, Moramanga, as a noun in apposition.

***Dipseudopsis ringitra* Oláh, sp. nov.**

(Figures 102–105)

Material examined. Holotype: **Madagascar**, Andringitra, Plateau inférieur, 2000 m, i.1958, leg. Paulian (male, OPC). (Andringitra (massif de l'Andringitra). Madagascar Centre: au Sud d'Am-balavao. Réserve naturelle intégrale no. 5, 1500 à 2650 m.) [22.205°S, 46.87°E].

Diagnosis. *Dipseudopsis ringitra* sp. nov. resembles *D. morama* sp. nov. by the gonopods that are mesally turning ventrally and with excavated apex; and with a concave, not bilobed apical margin of tergite IX. *Dipseudopsis ringitra* sp. nov. differs from *D. morama* sp. nov. in the dorsal profile of segment X that is capitate apicad, not simply rounded; the dorsal ridge of gonopods is simple, not triangularly produced in ventral view; and the modified spur has almost equal width except the narrowing and pointed head.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings without

any discernible pattern. Hind leg with modified tibial spur located mesally, exhibiting slightly curving rod with equal width, except narrowing and pointed apex.

Forewing length 18 mm.

Male genitalia. Segment IX with concave tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraprot hinge together; tergite IX with apical margin slightly concave; sternite IX almost rectangular articulating to pleurite IX, cerci and paraprot. Segment X shorter than cerci, forming broad, pigmented, hood with several sensory pits on rounded apex, slightly upward turning in lateral view, almost regular circular, capitate in dorsal view. Cerci large, narrow, elongated triangular and dominating the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with upward directed truncated head in lateral view; ventrally excavated head long mesally turning; dorsal ridge simply and slightly convex, not triangularly produced middle visible in ventral view. Phallic apparatus small, consisting of phallosome, endothesa and aedeagus; weakly sclerotized and difficult to discern.

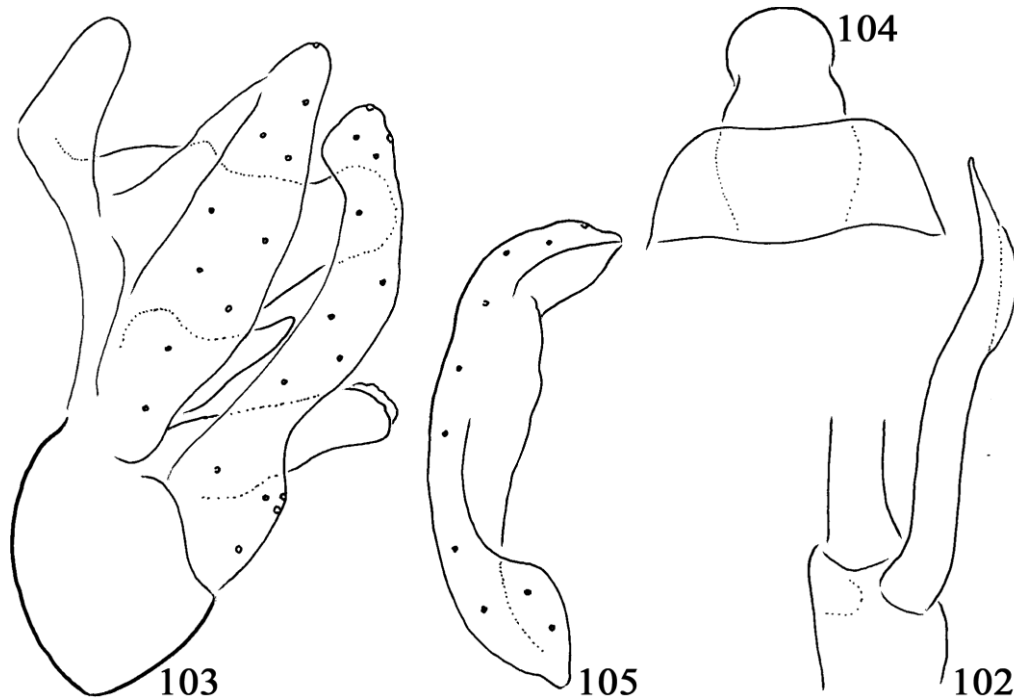
Etymology. Coined from the name of the *locus typicus*, Andringitra and treated as a noun in apposition.

***Dipseudopsis seyrigi* Navás, 1934**

Dipseudopsis seyrigi Navás, 1934a:371. "Patria. Madagascar: Périnet [18.9275°S, 48.4154°E], 12.iii.1932 Seyrig." "Calcaribus internis tibiae posterioris ♂ longis, sinuosis, in medio subfuscis subito in dentem acutum extrorsum et deorsum flexis."

***Dipseudopsis serrata* species group**

In ventral view, the gonopods are characteristically straight and parallel-sided. The gonopods are relatively long with upward and slightly backward turning apex discernible only in lateral view. The modified mesoapical spur on hind tibia forms mostly a simple straight, variously formed slender rod-like process. Only *Dipseudopsis cubitalis*



Figures 102–105. *Dipseudopsis ringitra* Oláh, sp. nov. Holotype: 102=modified apicomeral spur on hind tibia of the male, 103=genitalia in left lateral view, 104=genitalia in dorsal view, 105=left gonopod in ventral view.

Navás, 1935 having a straight parallel-sided gonopod exhibits a curving modified spur. Six species belong to this group: *Dipseudopsis angusta* Ulmer, 1911, *Dipseudopsis cubitalis* Navás, 1935, *Dipseudopsis namorona* sp. nov., *Dipseudopsis serrata* Ross & Kingsolver, 1959, *Dipseudopsis spinulosa* Navás, 1935, *Dipseudopsis telomita* sp. nov.

***Dipseudopsis angusta* Ulmer, 1911**

Dipseudopsis angusta Ulmer, 1911: 254.

Material examined. Madagascar, Antsirana-na, Montagne d'Ambre NP, above Cascade Sacrée of Montagne d'Ambre, 8.xii.2012, 22W black light trap, 12.52833°S, 49.17012°E, 1108 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (2 males, 1 associated female, NHRS; 2 males, 1 associated female, OPC). Madagascar, Antsirana-na: Montagne d'Ambre NP, 100 m from camping site of Montagne d'Ambre on the bridge, 5.xii.2012, 22W black light trap, 12.52456°S, 49.17255°E, 1032 m, leg.

J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & JH Randriamihaja, (2 males, NHRS)

***Dipseudopsis cubitalis* Navás, 1934**

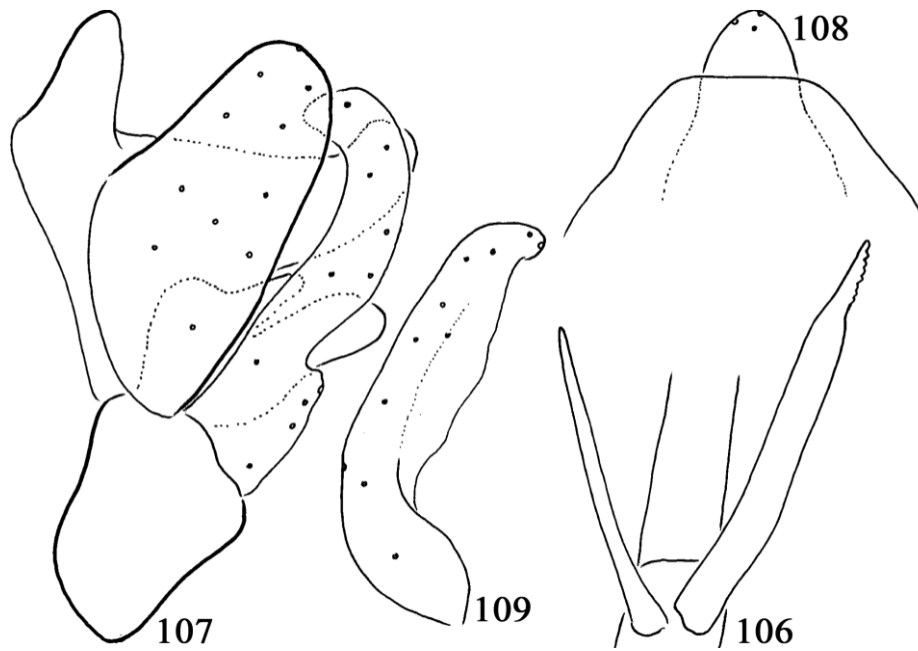
Dipseudopsis cubitalis Navás, 1934:369–370. “Patria Madagascar: Périnet [18.9275°S, 48.4154°E], 12. iii.1932. Seyrig.” Type specimen: female description with forewing drawing.

Dipseudopsis cubitalis Navás, 1935:67–68: “Patria Madagascar: “S. E. Prov. de Farafagana, [22.817°S, 47.819°E], Midongy du B. 800 à 1000 m., R. Decary 1926, Août, Mus. de Paris.” Male description with modified spur drawing.

***Dipseudopsis namorona* Oláh & Johanson, sp. nov.**

(Figures 106–109)

Material examined. Holotype: Madagascar, Fianarantsoa, Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, 30.xi.2011, stony river, 22W



Figures 106–109. *Dipseudopsis namorona* Oláh & Johanson, sp. nov. Holotype: 106=modified apicomeral spur on hind tibia of the male, 107=genitalia in left lateral view, 108=genitalia in dorsal view, 109=left gonopod in ventral view.

black light trap, leg. J. Bergsten, R. Bukontaite, R. Ranarilalantiana & JH. Randriamihaja (male, NHRS). Paratypes: same as holotype (2 male, NHRS; 1 male, OPC).

Diagnosis. With straight, almost parallel-sided gonopods in ventral view and straight modified spur, *Dipseudopsis namorona* sp. nov. resembles *D. telomita* sp. nov., from which it differs by the more slender cerci, the gonopods are less upwardly turning, the dorsal subapical lobe of paraproct is wide rounded blunt, not narrow, and the modified spur of the hind tibia has almost equal width along its length except the narrowing serrated and pointed apex.

Description. Male (in alcohol). Small-sized, brown, forewing brown without discernible patterns. Hind leg with modified tibial spur located mesally, exhibiting straight rod with equal width, except narrowing and serrate, pointed apex. Forewing length 13 mm. Male genitalia. Segment IX with slightly narrowing tergite; very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct

hinge together; tergite IX with truncate apical margin; sternite IX almost rectangular articulating to pleurite IX, cerci and paraproct. Segment X as long as cerci, forming broad, pigmented, hood with several sensory pits on rounded apex, slightly upwardly turning in lateral view, rounded in dorsal view. Cerci large, elongated with rounded apex, dominating the genitalia. Paraproct with low middle and higher lateral lobes in lateral view. Gonopods without harpago, long, with upwardly-directed head in lateral view; straight in ventral view. Phallic apparatus small, consisting of phallosome, endothesa and aedeagus; weakly sclerotized and difficult to discern.

Etymology. *namorona* coined from the name of the *locus typicus*, Namorona River. Name treated as a noun in apposition.

***Dipseudopsis serrata* Ross & Kingsolver, 1959**

Dipseudopsis serrata Ross & Kingsolver, 1959: 125.

Material examined. Holotype: **Madagascar**, Perinet, March 1955, leg. R. Paulian (1 male, MNHN). (Perinet. Madagascar Est: 30 km à l'E

de Moramanga, Perinet. Station forestière spéciale d'Analamazaitra-Perinet.) [18.939°S, 48.434°E].

***Dipseudopsis spinulosa* Navás, 1935**

Dipseudopsis spinulosa Navás, 1935:69–70. “Patria. Madagascar: Bekily [24.233°S, 45.315°E], i.1934, Seyrig leg.” “*Similis Seyrigi* Nav.”

***Dipseudopsis telomita* Oláh, sp. nov.**

(Figures 110–113)

Material examined. Holotype: **Madagascar**, Antelomita, [19.011°S, 47.704°E?], 10.v.1991, leg. Elouard (male, OPC).

Diagnosis. *Dipseudopsis telomita* sp. nov. is similar to *D. serrata* Ross & Kingsolver, 1959, but differs in dorsal view by the concave, not convex rounded apical margin of tergite IX, by the longer cerci that are rounded apically not subtriangular; as well as by the abruptly narrowing apical region of the modified spur. The paraproct, considered as the mesal continuation of sternite IX (Weaver & Malicky 1994), is difficult to discern as it is hidden by the strongly sclerotized and setosed cerci, but hinged or even fused to the fulcrum where tergite and sternite IX, cerci and paraproct hinged together. This structure is not illustrated in the original description of *D. serrata*, but it was present in the holotype. Like in *D. telomita* sp. nov. it has a subapical lobe on its dorsum giving a partial phallocrypt function to the phallic organ. This dorsal subapical lobe is narrow triangular in *D. telomita* and wide, rounded in *D. serrata*.

Description. Male (in alcohol). Medium-sized, brown, with uniform brown forewings without any pattern. Hind leg modified spur located mesally, straight with abruptly tapering apex.

Forewing length 15 mm.

Male genitalia. Segment IX with small tergite, very short (narrow) pleural sclerite connecting tergite to sternite at fulcrum where this pleurite (or continuation of tergite), sternite, cerci and paraproct hinge together; tergite IX slightly concave in dorsal view; sternite IX articulating to pleurite

IX, cerci and paraproct. Segment X as long as cerci, forming pigmented hood with several sensory pits on rounded apex. Cerci large, broad, elongated ovoid dominating on genitalia. Gonopods each without harpago, upward curving, band-shaped in lateral view. Phallic apparatus small, consisting of phallosome, endosoma and aedeagus; weakly sclerotized and difficult to discern.

Etymology. *telomita* coined from the name of the *locus typicus*, Antelomita. To be treated as a noun in apposition.

***Dipseudopsis longispina* Mosely, 1936**

Dipseudopsis longispina Mosely, 1936: 439.

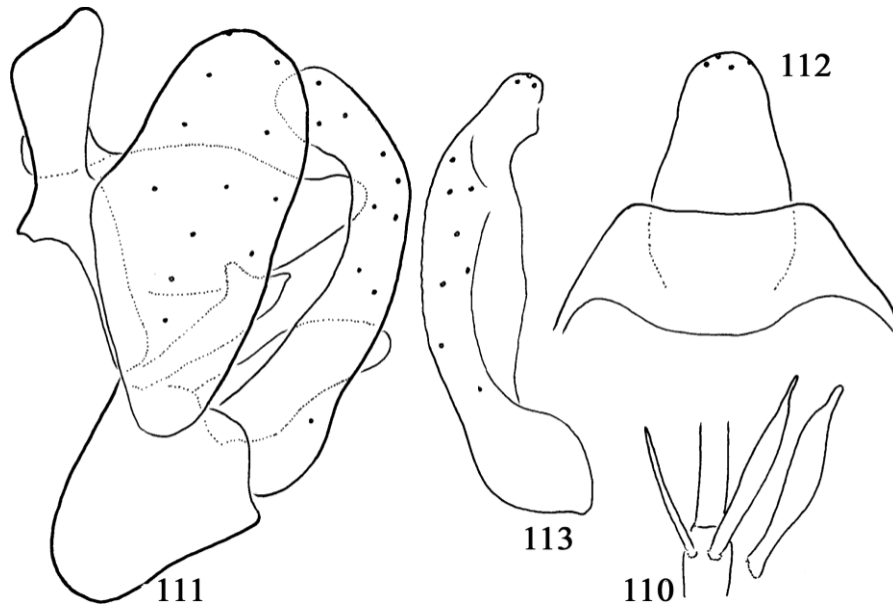
Material examined. **Madagascar**, Maroantsetra, Ivontaka, iii.1958, leg. Paulian (Ivontaka. Madagascar Est: ca. 18/20 km au S. de Mananara Nord, Ivontaka [16.3°S, 49.816°E], 8 m. Localité côtière.) (1 male, OPC). Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ifanadiana, Ranomafana, Parc National de Ranomafana, PN Ranomafana, Ambodiamontana, Namorona river by the bridge below park entrance, 1.xi.2011, 21.25809° S, 47.42165°E, 920 m, GB net and sieves, rock-pools, leg. J. Bergsten, R. Bukontaite, T. Ranarilalana & J. H. Randriamihaja (2 males, NHRS; 1 male, OPC).

***Dipseudopsis spinigera* Ulmer, 1909**

Dipseudopsis spinigera Ulmer, 1909: 130.

Material examined. **Madagascar**, Maroantsetra, Ivontaka, iii.1958, leg. Paulian (1 male, OPC). (Ivontaka. Madagascar Est: ca. 18/20 km au S. de Mananara Nord, Ivontaka, 8 m. Localité côtière.) [16.3°S, 49.816°E]. Madagascar, Maroantsetra, Ambodivoangy, no date, leg. Vadon (1 male, OPC). (Ambodivongy ou Ambodivohangy. Madagascar Est: E. de Maroantsetra, Ambodivoangy, 5 à 50 m. Station détruite.) [15.433°S, 49.75°E].

Remarks. Having two long, filiform projections from the apex of the cercus, truncated apex of gonopod with lateral thumb-like protuberance



Figures 110–113. *Dipseudopsis telomita* Oláh, sp. nov. Holotype: 110=modified apicomesal spur on hind tibia of the male, 111=genitalia in left lateral view, 112=genitalia in dorsal view, 113=left gonopod in ventral view.

as well as unique modified spur this is a highly specialized offshoot of the Madagascan *Dipseudopsis*.

Pseudoneureclipsidae Ulmer, 1951

***Pseudoneureclipsis* Ulmer, 1913**

***Pseudoneureclipsis achvoang* Oláh, sp. nov.**

(Figures 114–117)

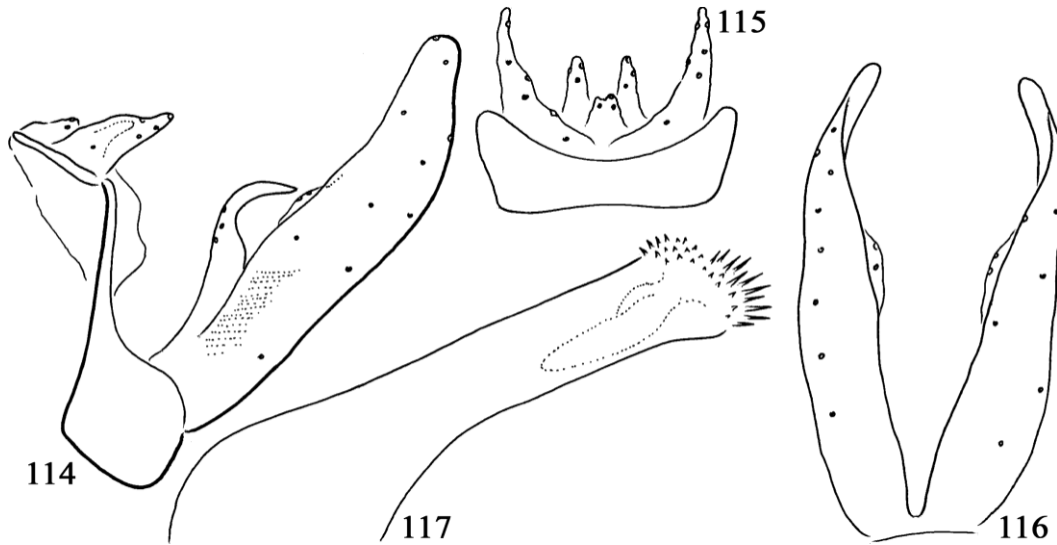
Material examined. Holotype: **Madagascar**, Achvoang [unknown locality], 1955, leg. R. Paulian (male, OPC). Paratype: same as holotype (MNHN).

Diagnosis. *Pseudoneureclipsis achvoang* Oláh sp. nov. is related to *Pseudoneureclipsis mada-gascariensis* Johanson & Oláh, 2009, from which it differs by an upwardly, not downwardly curving apical region of the coxopodites, by the differently shaped hook-like form of the harpago, the form of the of phallobase and phallosheca in lateral profile, and details in the phallic end.

Description. Medium-sized. Maxillary palp formula I-II-IV-III-V. Spur formula 344.

Forewings with forks I,II,III,IV; fork V lacking; length 5 mm.

Male genitalia. Tergite IX with large, triangular, less pigmented, semimembranous acrotergite and more sclerotized sternite with narrow lateral long rod articulating with tergite in hinge-joints near cerci and broadening rounded almost rectangular ventrum. Setose, small segment X located mesally, very short and indistinctly bifid in dorsal view. Cerci elongate, subtriangular in lateral and dorsal view, each with digitiform setose processes. Paraproct without sclerotized processes, reduced to almost indiscernible plate under base of phallic organ. Coxopodite of gonopods large, elongate, with upwardly curving apex; second segment of gonopods, the harpago, moved dorsobasally composed of broad basal region articulating to coxopodite and of slender, apically hook-like curving apically ventromesally; inter-segmental membrane, articulation line of harpago, well-visible. Phallic apparatus with low phallobase continuing into straight horizontal tube-like phallosheca; end of the phallosheca and protruding entotheca weak but discernible; phallic terminalia indistinct, seems monolobed both in dorsal and lateral views, armed with protrudable smaller and longer spines of endotheca; strong



Figures 114–117. *Pseudoneureclipsis achvoang* Oláh, sp. nov. Holotype: 114=genitalia in left lateral view, 115=genitalia in dorsal view, 116=gonopods in ventral view, 117=phallic organ in left lateral view.

and elongated sclerites, possibly phallotremal sclerites, embedded middle.

Etymology. Coined from the name of the *locus typicus*, Achvoang, and treated as a noun in apposition.

***Pseudoneureclipsis beharan* Oláh, sp. nov.**

(Figures 118–121)

Material examined. Holotype: **Madagascar**, Behara [24.952°S, 46.385°E], i.1954 leg. Paulian (male, OPC).

Diagnosis. This new species is similar to *Pseudoneureclipsis voang* sp. nov., from which it differs by the clearly clavate, not narrowing head of coxopodites, by the harpagones with simple, not bilobed basal region, and by the high and broad-based, not low, phallic organ.

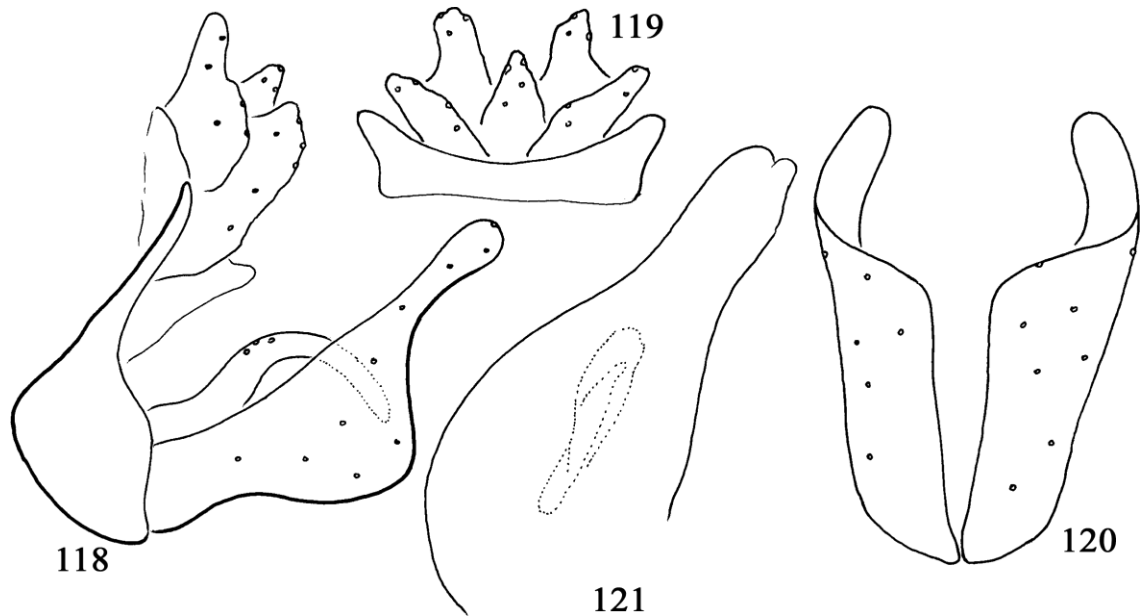
Description. Medium-sized. Maxillary palp formula I-II-IV-III-V. Spur formula 344.

Forewings with forks I,II,III,IV; fork V lacking; length 5 mm.

Male genitalia. Tergite IX with large, triangular, less pigmented, semimembranous acroter

gite and more strongly sclerotized sternite with narrowing lateral long rod articulating with tergite in hinge-joints near preanal appendages and rounded subtriangular ventrum. Setose, almost vestigial, segment X located mesally, very short with tapering apex in dorsal view. Cerci complex with lateral lobe; their ventromesal setose processes slightly longer. Paraproct without sclerotized processes, reduced to a less sclerotized plate under base of phallic organ. Coxopodite of gonopods large, broadening middle ventrad and with clavate apical head in lateral view; diverging slightly laterad in its apical third in ventral view; second segment of gonopods, the harpago, moved dorsobasally composed of broad basal part articulating to coxopodite and of long and slender hook with apex curving ventromesally; intersegmental membrane, articulation line of harpago, well-visible. Phallic apparatus with very broad basal two-thirds continuing into straight horizontal tube-like phallotheca; phallic terminalia bilobed in lateral view; pair of strong, elongated sclerites possibly the phallotremal sclerites seem embedded in middle of phallotheca.

Etymology. Coined from the name of the *locus typicus*, Behara; treated as a noun in apposition.



Figures 118–121. *Pseudoneureclipsis beharan* Oláh, sp. nov. Holotype: 118=genitalia in left lateral view, 119=genitalia in dorsal view, 120=gonopods in ventral view, 121=phallic organ in left lateral view.

***Pseudoneureclipsis bemarrah* Oláh & Johanson,
sp. nov.**

(Figures 122–125)

Material examined. Holotype: **Madagascar**, Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii. 2009, leg. J. Bergsten & N Jönsson (male, NHRS). Paratypes: same as holotype (1 male, NHRS; 1 male, OPC).

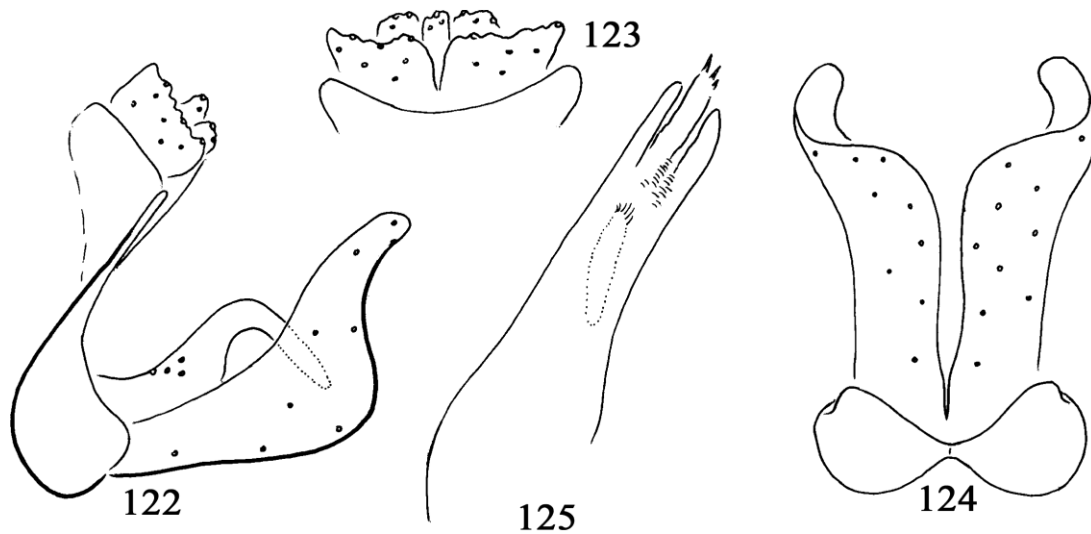
Diagnosis. This new species resembles *Pseudoneureclipsis wieseri* Malicky, 2015, from which it differs by the extremely short, narrow, almost filiform, dorsal half of sternite IX; by the sigmoid, not L-shaped lateral profile, and laterally, not mesally, curving ventral profile of the apical third of the coxopodite; the phallic terminal is trilobed, not bilobed in lateral view.

Description. Medium-sized. Maxillary palp formula I-II-IV-III-V. Spur formula 344.

Forewings with forks I, II, III, IV; fork V lacking; length 4.5 mm.

Male genitalia. Tergite IX with large, triangular, less pigmented, semimembranous acroter-

gite and more strongly sclerotized sternite with narrowing lateral long rod articulating with tergite in hinge-joints near cerci and broadening, rounded ventrum. Setose, almost vestigial, segment X located mesally, very short with very small medial excision in dorsal view. Cerci short, with small ventroapical lobe; their mesal setose processes slightly longer. Paraproct without sclerotized processes, reduced to almost indiscernible plate under base of phallic organ. Coxopodite of gonopods large, broadening middle and upcurving apically in lateral view; diverging strongly laterad in its apical third in ventral view; second segment of gonopods, the harpago, moved dorsobasally, composed of robust basal part articulating to coxopodite. and of long, slender hook with apex curving ventromesally; intersegmental membrane, articulation line of harpago, well-visible. Phallic apparatus with broad phallobase continuing into straight horizontal tube-like phallotheca; end of phallotheca and protruding entothecca discernible; phallic terminalia trilobed in lateral view; dorsal lobe is flat part of entothecca, middle and lower lobes probably of entothecca; middle lobe with small spines apically; base of middle and lower lobes with cluster of microtrichia; pair of strong, elongate sclerites possibly phallostremal sclerites



Figures 122–125. *Pseudoneureclipsis bemarkah* Oláh & Johanson, sp. nov. Holotype: 122=genitalia in left lateral view, 123=genitalia in dorsal view, 124=gonopods in ventral view, 125=phallic organ in left lateral view.

embedded middle; apical end with cluster of fine microtrichia.

Etymology. *bemarkah* coined from the name of the *locus typicus*, Bemarkaha National Park. To be treated as a noun in apposition.

***Pseudoneureclipsis ranom* Oláh, sp. nov.**

(Figures 126–129)

Material examined. Holotype: **Madagascar**, Ranomafana [21.26°S, 47.452°E], Tananarive, 1954, leg. R. Paulian (1 male, OPC).

Diagnosis. This new species is similar to *Pseudoneureclipsis bemarkah* sp. nov., from which it differs by the less complex segment X and cerci; by the almost straight, not concave, dorsum of the coxopodites; by the different pattern of the hook-shaped harpagones; the phallic terminal seems monolobed, not trilobed, in lateral view.

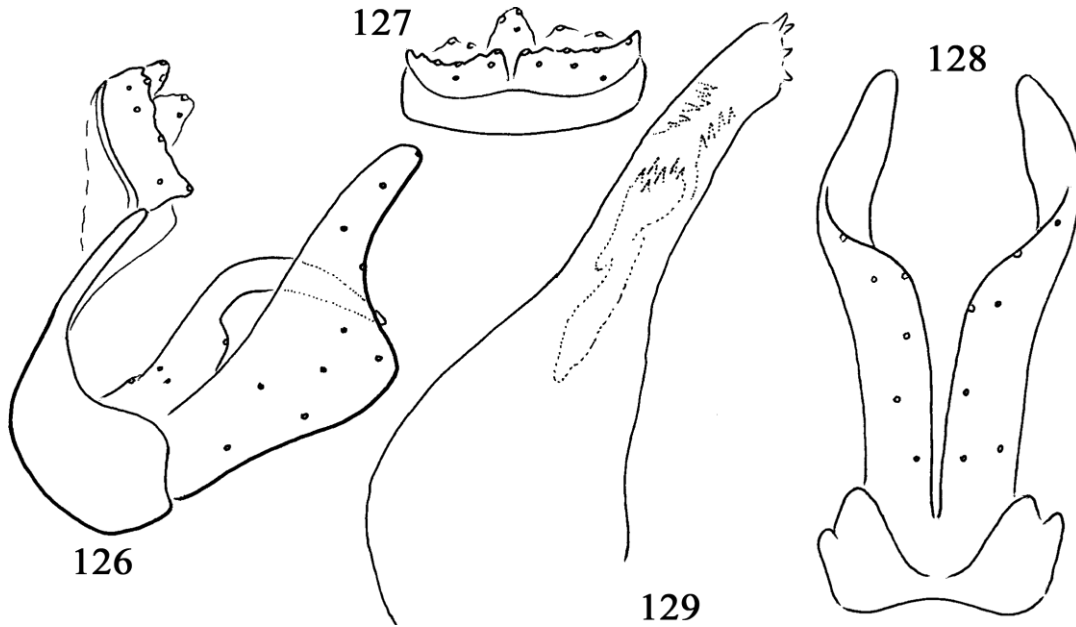
Description. Medium-sized. Maxillary palp formula II-I-IV-III-V. Spur formula 344.

Forewings with forks I, II, III, IV; fork V lacking; length 4 mm.

Male genitalia. Tergite IX with large, triangular, less pigmented, semimembranous acrotergite and more strongly sclerotized sternite with nar-

rowing lateral long rod articulating with tergite in hinge-joints near cerci and broadening, rounded ventrum. Setose, almost vestigial, segment X located mesally, very short and tapering in dorsal view. Cerci short almost rectangular; their mesal setose processes indistinct on holotype, the only specimen known. Paraproct without sclerotized processes, reduced to almost indiscernible plate under base of phallic organ. Coxopodite of gonopods large, broadening middle ventrad and almost straight laterad; second segment of gonopods, harpago, moved dorsobasally composed of broad basal region articulating to coxopodites and of long, slender hook with apex curving ventromesally; intersegmental membrane, articulation line of harpago, well-visible. Phallic apparatus with very broad phallobase continuing into straight horizontal slender tube-like phallosheca; end of phallosheca and protruding entotheca discernible; phallic terminalia not distinct, seems monolobed in dorsal and lateral views; strong and elongated sclerites, possibly the phalloshecal sclerites, embedded in middle; apical end with cluster of fine microtrichia; similar microtrichia present dorsally and ventrally, not far from apical ending of phalloshecal sclerites.

Etymology. Coined from the name of the *locus typicus*, Ranomafana, and treated as a noun in apposition.



Figures 126–129. *Pseudoneureclipsis ranom* Oláh, sp. nov. Holotype: 126=genitalia in left lateral view, 127=genitalia in dorsal view, 128=gonopods in ventral view, 129=phallic organ in left lateral view.

***Pseudoneureclipsis voang* Oláh, sp. nov.**

(Figure 130–133)

Material examined. Holotype: **Madagascar**, Aochvoangy [unknown locality], x.1955 leg. Paulian (male, OPC).

Diagnosis. This new species resembles *Pseudoneureclipsis beharan* sp. nov., from which it differs by the clearly narrowing, not clavate head of coxopodite, by the harpago with bilobed, not simple basal region and by the low, not high and broad-based phallic organ.

Description. Medium-sized. Maxillary palp formula I-II-IV-III-V. Spur formula 344.

Forewings with forks I,II,III,IV; fork V lacking; length 5.5 mm.

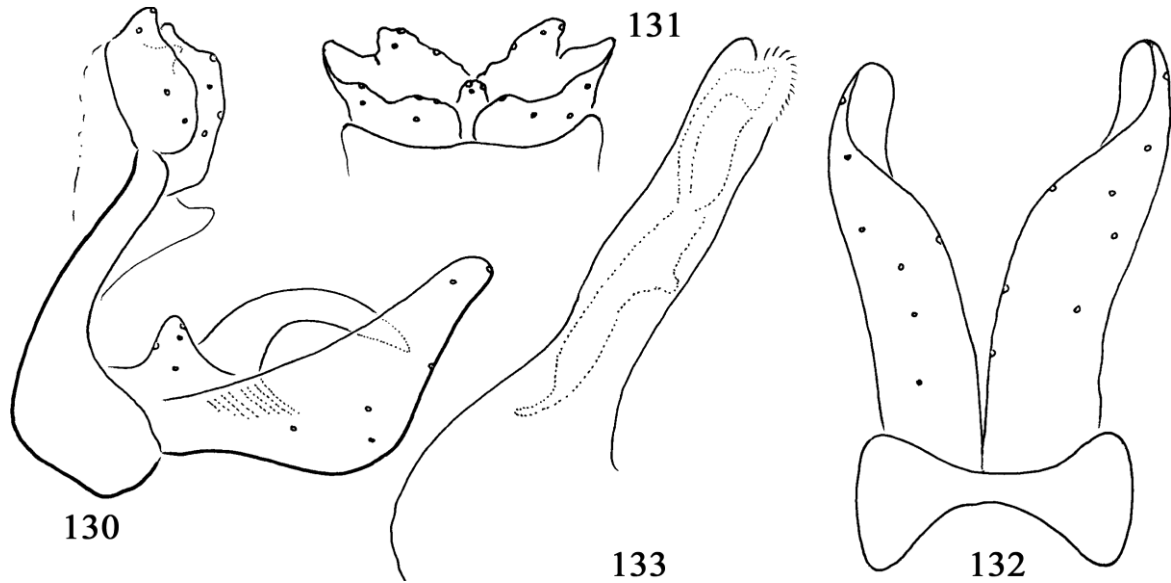
Male genitalia. Tergite IX with large, triangular, less pigmented, semimembranous acrotergite and more strongly sclerotized sternite with lateral long band-like dorsum articulating with tergite in hinge-joints near the cerci and its rounded almost rectangular ventrum. Setose, almost vestigial, segment X located mesally; it is very short with indistinct apex in dorsal view. Cerci complex with

lateral lobe; their ventromesal setose processes slightly longer. Paraproct without sclerotized processes, reduced to a less sclerotized plate under base of phallic organ. Coxopodite of gonopods large, broadening middle ventrad and with tapering apical head in lateral view; diverging slightly laterad in its apical third in ventral view; second segment of gonopods, the harpago, moved dorsobasally and composed of broader bilobed basal part articulating to coxopodite and of long and slender hook with apex curving ventromesally; intersegmental membrane, articulation line of harpago, well-visible. Phallic apparatus with broad phallobase continuing into straight horizontal tube-like phallosheca; phallic terminalia bilobed in lateral view; ventral lobe with microtrichia; pair of strong, elongated tripartite sclerites possibly the phalloshecal sclerites seem embedded middle in the phallosheca.

Etymology. Coined from the name of the *locus typicus*, and treated as a noun in apposition.

Psychomyiidae Walker, 1852

***Paduniella* Ulmer, 1913**



Figures 130–133. *Pseudoneureclipsis voang* Oláh, sp. nov. Holotype: 130=genitalia in left lateral view, 131=genitalia in dorsal view, 132=gonopods in ventral view, 133=phallic organ in left lateral view.

***Paduniella nandra* Johanson & Oláh, 2010**

Paduniella nandra Johanson & Oláh, 2010: 56.

Material examined. **Madagascar:** Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N Jönsson (2 males, NHRS; 2 males, OPC).

***Paduniella manonga* Oláh & Johanson, sp. nov.**

(Figures 134–135)

Material examined. Holotype: **Madagascar,** Mahajanga, Manongarivo NP, 600 m N Beraty village, 21.xi.2012, 22W black light trap, 14.02289°S, 48.25303°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).

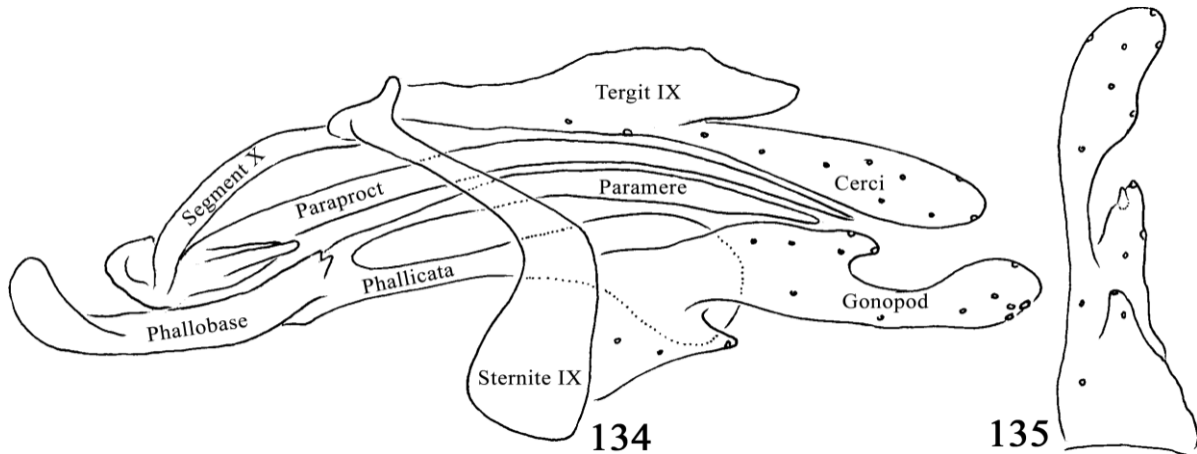
Diagnosis. This small new species has resemblance to *Paduniella flinti* Johanson & Oláh, 2010, from which it differs by the shape of the ventral and the dorsal arm of sternum IX; the regular, strip-like, slightly arching, not irregularly broadening segment X; joining structure of fused

paraproct longer, not shorter than parameres; the clavate, not parallel-sided ventral profile of the main branch of the gonopods; the more produced, clavate capitate lateral profile of phallicata head.

Description. Minute. Maxillary palps 6-segmented, labial palps 4-segmented.

Forewing length 2 mm. Forewings with forks II, III, IV, V and hindwing with Forks II, V and both acute at apex. Color in alcohol uniformly pale yellow-brown.

Male genitalia. Tergite IX forming elongate, weakly pigmented plate. Stenite IX short, narrowly club-shaped in lateral view; dorsal arm slender, ending anteriorly in minute slightly bifid swelling. Cerci elongate, highly setose, basal half fused to tergite IX; fused complex of cerci and tergite IX joining strip-like segment X (simply narrow strips at Li & Morse 1997 and sternal strip at Johanson & Oláh 2010). Pair of paraprocts (median process both at Li & Morse 1997 and Johanson & Oláh 2010) represented by single, long, fused, spine-like process reaching slightly above tip of parameres, joining anteroventral tip of strip-like segment X, accompanied at junction by pair of basal processes. Posterodorsal fulcrum composed of jointed elements of tergite IX, cerci, sternite IX, and segment X. Anteroventral fulcrum is com



Figures 134–135. *Paduniella manonga* Oláh & Johanson, sp. nov. Holotype: 134=genitalia in left lateral view, 135=left gonopod in ventral view.

posed of jointed elements of paraproct, phallic organ and segment X. Gonopods constitute clavate terminal main branch and well differentiated and distinguished mesal and ventral branches or lobes. Phallic organ attached to anteroventral fulcrum of segment X; phallobase rather stout, elongate, with upward turning apex, phallicata broadly clavate or even capitate; pair of spine-like parameres joining phallicata at posterior end of phallobase accompanied by small protuberances.

Remarks. Segment X has not been clearly identified in previous descriptions of the male genitalia of *Paduniella*. However, in the majority of known species, segment X is present and is represented by this striped structure, which houses the fulcrum at both its posterodorsal and anteroventral ends.

Etymology. Coined from the name of the *locus typicus*, Manongarivo National Park; a noun in apposition.

Hydropsychoidea

Hydropsychidae Curtis, 1835

Macronematinae Ulmer, 1905

Macronematini Ulmer, 1905

Leptonema Guerin-Meneville, 1843

The genus *Leptonema* is one of the larger genera in the order Trichoptera. The frequently large-sized species are often dominant caddisflies in Madagascan running waters. They are represented by two species groups (Flint *et al.* 1987): the Madagascar endemic *Leptonema affine* group and the Afrotropical endemic *Leptonema occidentale* group. In the description of the new species here we follow the terminology of the genitalia based upon Schmid's principle of amalgamation of segment X and XI (Oláh & Johanson 2012).

Leptonema affine species group

This group characterized by spur formula 2,4,4 and by the second abdominal segment, the basal abdominal sternum, which lacks a median suture. The species group is limited to Madagascar. The species are medium-sized, with brownish, frequently irrorate, forewings being 10–20 mm long. The phallic organ has a simple bulbous apex without complex endothecal processes.

Leptonema aconicum Chvojka & Sykora, 1998

Leptonema aconicum Chvojka & Sykora, 1999: 30.

Material examined. **Madagascar**, Ambinanitelo, 480 m, Marojejy, iii.1959, leg. P. Soga (1 male, 1 female; OPC). (Ambinanitelo. Mada-

gascar Est: massif du Marojejy, 500 m.) [14.436°S, 49.774°E].

***Leptonema affine* Ulmer, 1905**

Leptonema affine Ulmer, 1905a: 27.

Material examined. **Madagascar**, Nosy-Komba, Flanc Nord, May 1956 (A. R.) (Paulian) (3 males, OPC). (Nosy Komba ou Nosy Ambarivato. Madagascar Sambirano: Nosy Kambo. Ile située entre Madagascar et Nosy Be.) [13.456°S, 48.345°E]. Madagascar, Ambatovositra, Manakambahiny Est, 3.v.1956, leg. R. N. Soga (3 males, 3 females; OPC). (Ambatovositra. Madagascar Est: réserve naturelle intégrale n°3, Andranomalaza, Ambatovositra. Au N.-E. d'Ambatondrazaka). [17.767°S, 48.659°E]. Madagascar, Maroantsetra, Ambodivoangy [no date], leg. J. Vadon (1 male, OPC) [15.433°S, 49.75°E]. (Maroantsetra. Madagascar Est: S.-P. de Maroantsetra (chasses de J. Vadon). Port-Choiseul sur des cartes anciennes.) [15.433°S, 49.75°E]. Madagascar, Italavina, 730 m, 6 km, N. Fanovana, vi. 1956, leg. P. G. (Paulian) (1 male, OPC). (Fanovana. Madagascar Est: S.-P. de Moramanga, ca. 15 km à l'E de Perinet, Fanovana, 650 m.) [18.923°S, 48.508°E]. Madagascar, Nosy Be, Lokobe, xii [no year], leg. B. Stuckenberg (1 male, OPC). (Lokobe, Loucoubé ou Lokomby. Madagascar Sanbirano, Nosy Be, réserve naturelle intégrale n°6, forêt de Lokobe, 150 m) [13.395°S, 48.322°E].

***Leptonema ambra* Oláh, sp. nov.**

(Figures 136–139)

Material examined. Holotype: **Madagascar**, Nord Montagne d'Ambre, les Roussettes, 1100 m, [12.542°S, 49.18°E], xi-xii.1958, leg. A. Robinson (male, OPC). (Madagascar Nord: S.-P. de Diego-Suarez, Montagne d'Ambre Parc National. Extrémité la plus septentrionale de Madagascar) [12.542°S, 49.18°E].

Diagnosis. This species resembles *Leptonema aconicum* Chvojka & Sykora, 1998, *L. affine*

Ulmer, 1905 and *L. conicum* Flint, Mcalpine & Ross, 1987, especially by the lateral profile of the phallic head. It differs from the three species by the dorsally elongate and anteriorly turning phallic head, as well as by the almost rectangular ventral shape of the phallic head.

Description. Male. Large. Body brown, appendages including antennae yellowish brown; forewing length 17 mm. Maxillary palp formula I-III-IV-II-V, second segment much shorter than I, III and IV. Spur formula 2,4,4. Second (basal) abdominal segment without median suture. Cuticular structure of sternum V glands small, circular.

Male genitalia. Segment IX short, dorsum and ventrum about equally long. Segment X stepwise narrowing apically, with slightly upwardly-directed tip in lateral view; bilobed in dorsal view; cerci apparently bilobed, located middle of segment X as well-developed process. Paraproct located ventroapically, upwardly-directed and tapering. Coxopodite straight and broad with downward produced basal region; harpago short. Broadening phallobase in right angle to stem; phallic apex upward and anterad directed.

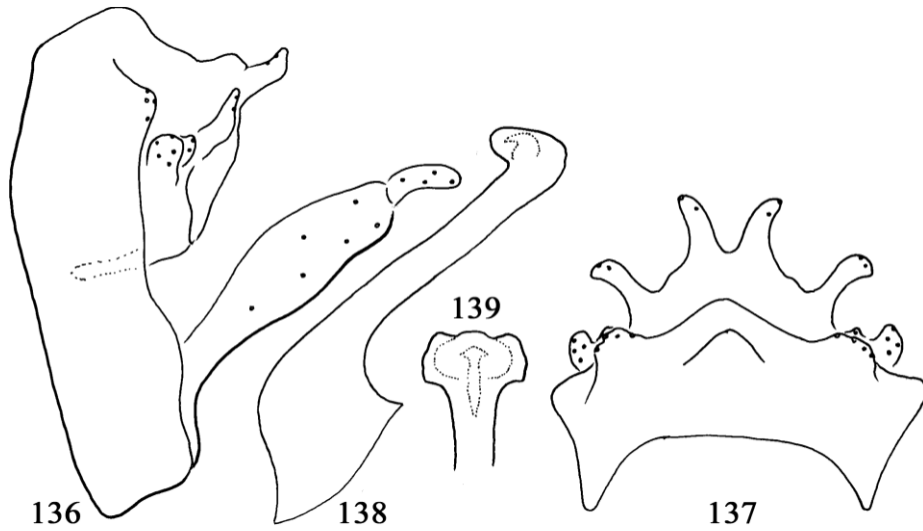
Etymology. Coined from the name of the *locus typicus*, and treated as a noun in apposition.

***Leptonema andranoma* Oláh & Johanson,
sp. nov.**

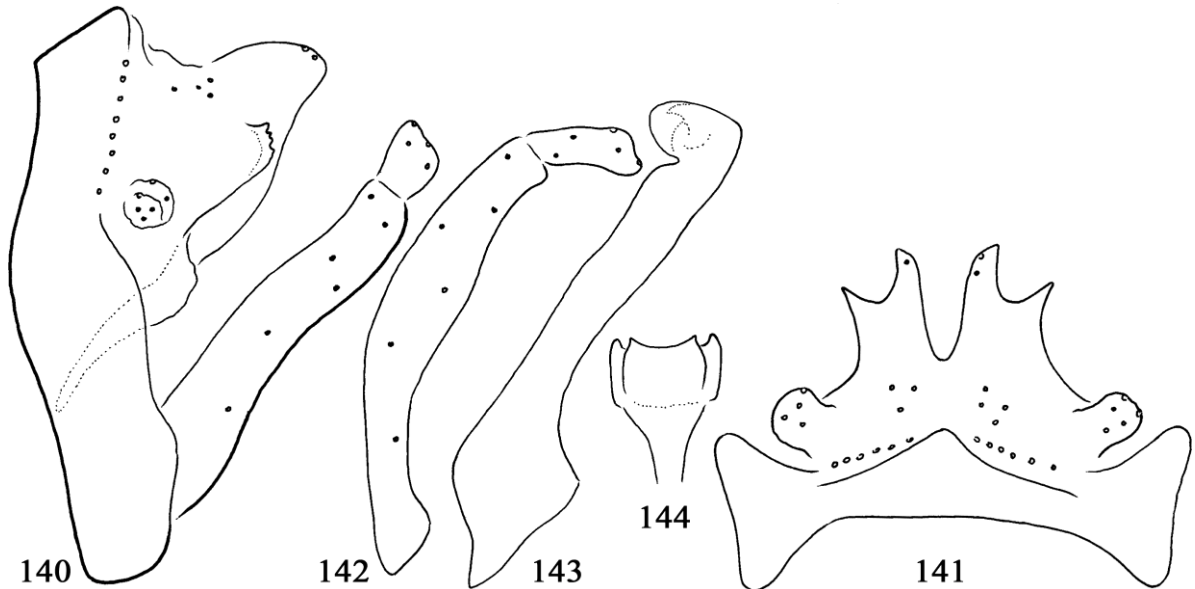
(Figures 140–144)

Material examined. Holotype: **Madagascar**, Mahajanga Prov., Marovoay Dist., Ankarafantsika NP, Antsora, Andranomafana, pool in forest, 16°18'123"S, 46°48'386"E [16.3032°S, 46.8105°E], 74 m, light trap, 29.xi.2009, leg. J. Bergsten & N. Jönsson (male, NHRS). Paratype: same as holotype (1 associated female, NHRS).

Diagnosis. This new species differs from all the other members of the *Leptonema affine* species group by the particularly shaped lateral lobe of segment X having spine-like pointed dorsal and serrated lateral profiles as well as by the almost rectangular ventral shape of phallic head.



Figures 136–139. *Leptonema ambra* Oláh, sp. nov. Holotype: 136=genitalia in left lateral view, 137=genitalia in dorsal view, 138=phallic organ in left lateral view, 139= phallic head in ventral view.



Figures 140–144. *Leptonema andranoma* Oláh & Johanson, sp. nov. Holotype: 140=genitalia in left lateral view, 141=genitalia in dorsal view, 142=left gonopod in ventral view. 143= phallic organ in left lateral view, 144=phallic head in ventral view.

Description. Male (in alcohol). Body brown, appendages yellowish brown; forewing length 14 mm without any distinct pattern. Maxillary palps formula III-IV-I-II-V. Spur formula 2,4,4. Second (basal) abdominal segment without median suture. Cuticular structure of sternum V glands small, circular. Male genitalia. Segment IX short, dorsum little longer than ventrum. Segment X short

constituted by mesal and lateral lobes; mesal lobes longer; lateral lobes spine-like pointed in dorsal view, serrated in lateral view. Cerci located basally on ventrum of segment X as a well-developed setose wart. Paraproct represented by heavily sclerotized ventrolateral strap along segment X. Coxopodite slightly sigmoid in lateral view, harpago short. Broadening phallobase

obtusely angled to stem; phallic apex upward extended, rounded in lateral view, almost rectangular in ventral view.

Etymology. Coined from the name of the *locus typicus*, Andranomafana, and treated as a noun in apposition.

***Leptonema atana* Oláh, sp. nov.**

(Figures 145–148)

Material examined. Holotype: **Madagascar**, Mt. Tsaratanana, 1500 m [no date], leg. R. E. Paulian (male, OPC). (Madagascar Centre: S.-P. de Tsaratanana.) [14.039°S, 48.91°E].

Diagnosis. This new species has resemblance to *Leptonema aconicum* Chvojka & Sykora, 1998, *L. affine* Ulmer, 1905, *L. conicum* Flint, McAlpine & Ross, 1987 species in the *Leptonema affine* species group, especially by the lateral profile of the phallic head, but definitely differs from them by its much elongated, upward and mesally turning paraproct.

Description. Male (long in alcohol). Body dark brown, appendages yellowish brown; forewing length 13 mm. Maxillary palp formula I-III-IV-II-V, second segment much shorter than 1-3-4. Spur formula 2,4,4. Second (basal) abdominal segment without median suture. Cuticular structure of sternum V glands small, circular.

Male genitalia. Segment IX short, dorsum and ventrum about equally long. Segment X elongated lobe with rounded apical region in lateral view; apparently bilobed in dorsal view due to the membranous mesal surface; Cerci located basally on ventrum of segment X as a well-developed lobe. Paraproct located ventroapically, forming long, digitate, upward and mesally turning lobe. Coxopodites straight, harpago short. Broadening phallobase right angled to stem; phallic apex capitate, upward extended, rounded triangular.

Etymology. Coined from the name of the *locus typicus*, Tsaratanana Mountains, and treated as a noun in apposition.

***Leptonema avaratna* Oláh & Johanson, sp. nov.**

(Figures 149–153)

Material examined. Holotype: **Madagascar**, Fianarantsoa, Vatovavy Fitovinany, Ranomafana N.P., tributary stream Mariavaratra, below park entrance, 21.2609°S, 47.4193°E, 890 m. 16.xii. 2011-1.i.2012, Malaisetrapp, next to stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. This species differs from other known members of the *Leptonema affine* species group by the pair of lateral lobes on tergum X that curves laterally, not straight or mesally curving; the presence of a basilateral wart, lacking in the other species; phallic head curving upward and backward, not only upward.

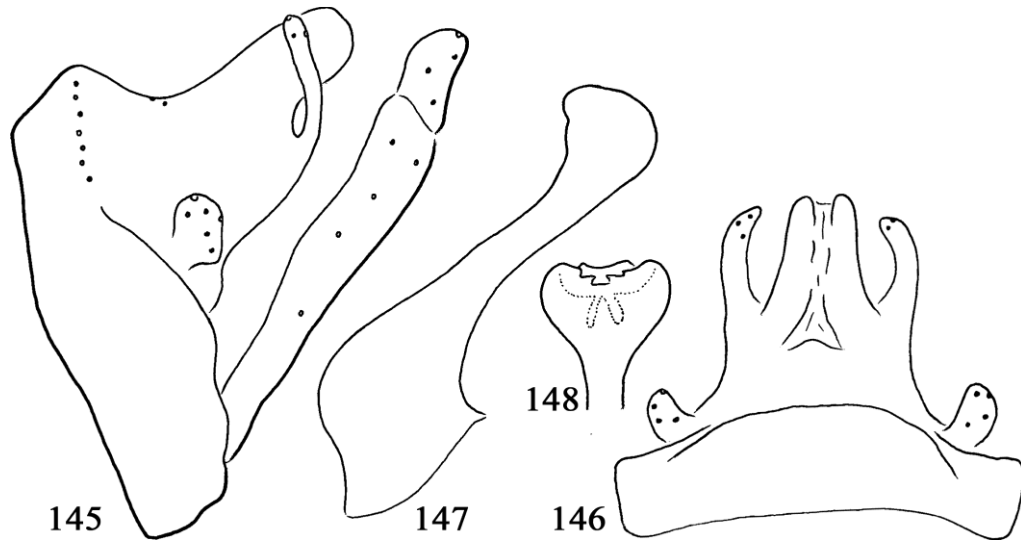
Description. Male (in alcohol). Body dark brown, appendages yellowish brown; forewing length 12 mm, brown patch along pterostigma extending to but paler on anastomosis. Maxillary palps broken. Spur formula 2,4,4. Second (basal) abdominal segment without median suture. Cuticular structure of sternum V glands small, circular.

Male genitalia. Segment IX short, dorsum little longer than ventrum. Segment X short, mesal and lateral lobes almost equally long; end of lateral lobes directed laterally. Cerci located basally on ventrum of segment X; setose lobe well-developed. Paraproct represented by heavily sclerotized ventrolateral strap along segment X and small basolateral wart. Coxopodite straight in lateral view, harpago short. Broadening phallobase almost right-angled to stem; phallic apex backward extended, rounded in lateral view.

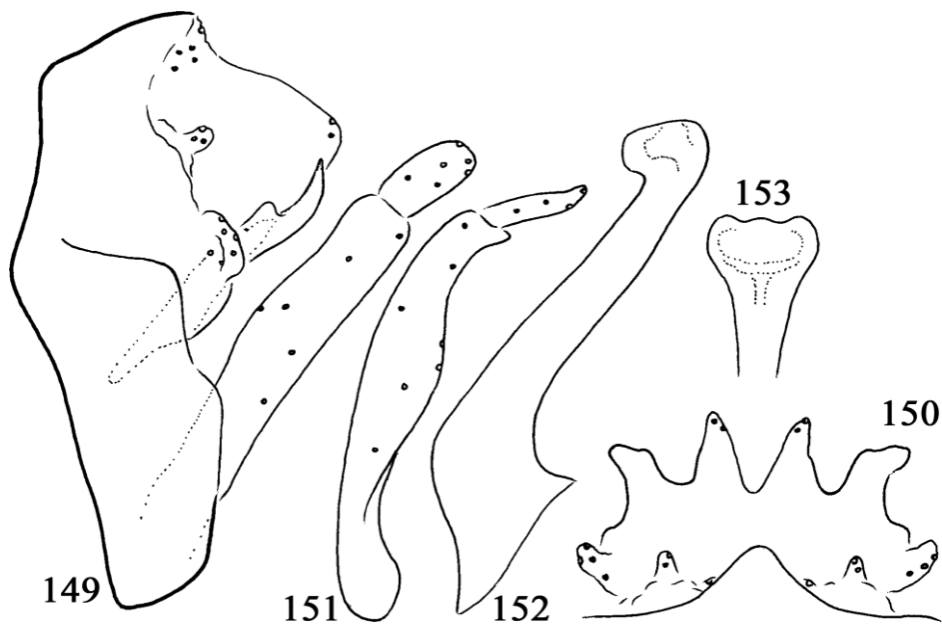
Etymology. Coined from the name of the *locus typicus*, Mariavaratra Stream, and treated as a noun in apposition.

***Leptonema conicum* Flint, McAlpine & Ross, 1987**

Leptonema conicum Flint, McAlpine & Ross 1987: 22.



Figures 145–148. *Leptonema atana* Oláh, sp. nov. Holotype: 145=genitalia in left lateral view, 146=genitalia in dorsal view, 147=phallic organ in left lateral view, 148=phallic head in ventral view.



Figures 149–153. *Leptonema avaratna* Oláh & Johanson, sp. nov. Holotype: 149=genitalia in left lateral view, 150=genitalia in dorsal view, 151=left gonopod in ventral view. 152= phallic organ in left lateral view, 153=phallic head in ventral view.

Material examined. **Madagascar**, Ranohira Isolo [Ranohira is rather confusing since this locality is very far from Ambinanitelo. Another locality possibly has the same name “Ranohira” close to Ambinanitelo] ii.1958, leg. R. E. Paulian (1 male, 2 females; OPC). (Ambinanitelo. Mada-

gascar Est: massif du Marojejy, 500 m.) [14.436° S, 49.774°E]. Madagascar, Manambato, Anove, iv.1955, leg. R. E. Paulian (4 males, 2 females; OPC). (Manambato. Madagascar Est: S.-P. de Mananara Nord, 12/15 km au S. d’Antanambe, Manambato, 10 m, Egalement forêt du Manam-

bato) [16.53°S, 49.827°E]. Madagascar, Maroantsetra, Sahasoa, iii.1958, leg. R. E. Paulian (1 male, 2 females; OPC). (Sahasoa. Madagascar Est: ca. 15 km au N.-O. de Maroantsetra, proche de Fampanambo, Sahasoa. Ancienne usine Gallois (A. Peyrieras, pers. com.) [15.367°S, 49.622°E]. Madagascar, Est Fampanambo, 25 m det Maroantsetra, 27.iii.1958, leg. P. Griveaud (6 males, 2 females; OPC). (Fampanambo. Madagascar Est: ca. 15 km au N.-O. de Maroantsetra.) [15.367°S, 49.622°E].

***Leptonema displicens* (Navás, 1935)**

Macronema displicens Navás, 1935: 73.

Leptonema displicens (Navás); Sykora 1964: 281.

Material examined. **Madagascar**, Fianarantsoa, Matsiatra Ambony, Ranomafana area, Sahamalaotra 2.2 km from Vohiparara, 21.23778°S, 47.39442°E, 1120 m, 31.x.2011, 22W black light trap, forest stream and stagnant pool, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, OPC). Madagascar, Toamasina, Alaotra-Mangoro, Moramanga, Andasibe, Parc National de Mantadia, Mantadia, River Sahanody, 9 km from the entrance of park, 17.xi.2011, 18.81345°S, 48.43007°E, 960 m, 22W black light trap, forest stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (3 males, 2 associated females, NHRS). Madagascar, Fianarantsoa, Matsiatra Ambony, Fianarantsoa Rural, Androy, Paysage Harmonieux Protégé du Corridor Forestier Ambositra-Vondrozo, PHP CF Ambositra-Vondrozo, Namorona river 1,8 km from Vohiparara, 30.x.2011, 21.24032°S, 47.39186°E, 1130 m, 22W black light trap, stony river, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (8 males, 6 associated females, NHRS). Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ranomafana NP, tributary stream Mariavaratra below park entrance: 21.26095°S, 47.41933°E, 890m, 16-30.xi.2012, Malaise trap, next to stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Toamasina, Alaotra-Mangoro, Moramanga, Andasibe, Parc National de

Mantadia, PN Mantadia, River Sahanody, 9 km from the entrance of the park, 12.xi.2011, 18.81345°S, 48.43007°E, 960 m, 22W black light trap, forest stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (3 males, 3 females; OPC).

Remarks. The three males form Toamasina have different forewing pattern but their genitalia are identical. One male has forewing without any pattern; the other has brown reticulation of distinct spots and patches on the entire forewing; the third has indistinct reticulation only on the apical half of forewing. The two associated females have forewing with complete and distinct reticulation.

***Leptonema nupharum* Flint, McAlpine & Ross, 1987**

Leptonema nupharum Flint, McAlpine & Ross 1987: 24.

Material examined. **Madagascar**, Manambato, Anove, Apr. 1952, leg. A. R. Paulian (2 males, OPC). (Manambato., Madagascar Est: S.-P. de Mananara Nord, 12/15 km au S d'Antanambe, Manambato, 10 m. Egalement forêt du Manambato.) [16.533°S, 49.826°E].

***Leptonema zahradniki* Sykora, 1964**

Leptonema zahradniki Sykora, 1964: 277.

Material examined. **Madagascar**, Ambatovositra, Manakambahiny Est, 3. May, 1956, leg. R. N. Soga (2 males, OPC). (Ambatovositra. Madagascar Est: réserve naturelle intégrale n°3, Andranomalaza, Ambatovositra. Au N.-E. d'Ambatondrazaka) [17.767°S, 48.659°E]. Madagascar, Italavina, 730 m, 6 km, N. Fanovana, June 1956, leg. P. G. (Paulian) (2 males, OPC). (Fanovana. Madagascar Est: S.-P. de Moramanga, ca. 15 km à l'E de Perinet, Fanovana, 650 m.) [18.923°S, 48.508°E].

***Leptonema occidentale* species group**

This group is characterized by having spur formula 1,4,4; and by second abdominal segment,

the basal abdominal sternum, without a median suture. The species group is geographically limited to the Afrotropical Region. The species in the group are small in size and have a rather dark ground colour. The forewing length is between 9 and 13 mm and lacks marked pattern. The phallic organ has simple bulbous apex without complex endothelial processes. The species group includes five species: *Leptonema comoriense* Oláh, sp. nov., *Leptonema hovorkai* Chvojka, 2003, *Leptonema kabelaki* Chvojka, 2003, *Leptonema mantadia* Oláh & Johanson, sp. nov., and *Leptonema ranomafana* Flint, 2000.

***Leptonema comoriense* Oláh, sp. nov.**

(Figures 154–158)

Material examined. Holotype: **Mayotte**, Mayotte Is., Cononbani, [Combani] [12.79°S, 45.133°E], Comores Archip., ii.1956, leg. R. E. Paulian (male, OPC).

Diagnosis. This species is similar to *Leptonema kabelaki* Chvojka, 2003, from which it differs by having short, not elongate, paraproct and by the truncate, not tapering, cerci.

Description. Male (long in alcohol). Body including appendages and wings are brown; forewing length 10 mm. Maxillary palp formula I-III-IV-II-V, second segment much shorter than I, III and IV. Spur formula 1,4,4. Second (basal) abdominal segment without median suture. Structure of sternum V glands small, circular.

Male genitalia. Segment IX short, dorsum 2 times longer than ventrum. Segment X short lobe with tapering tip in lateral view; widely bilobed in dorsal view; cerci forming well-developed, truncate lobe located basally on the ventrum of segment X. Paraproct located dorsobasally above cerci. Coxopodite straight, harpago short. Phallobase not broadening much, widely angled to the stem; phallic apex upward turning, pointed dorsally.

Etymology. Named after the *locus typicus*, the Comores Archipelago.

***Leptonema hovorkai* Chvojka, 2003**

Leptonema hovorkai Chvojka, 2003: 47.

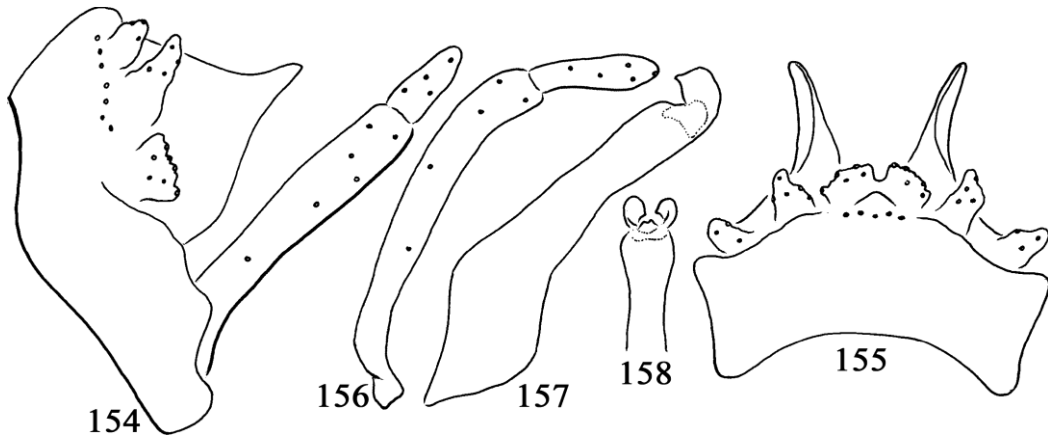
Material examined. **Madagascar**, Morafenobe, forêt Mahajeby, 1952, leg. R. E. Paulian (1 male, OPC). (Mahajeby, Madagascar Ouest: S.-P. de Morafenobe, une ou deux heures de marche à l'E de Morafenobe, forêt de Mahajeby, ca. 600 m, à mi-hauteur de la falaise occidentale (R. Paulian, comm. pers.) [17.818°S, 44.983°E]. Madagascar, Toamasina, Alaotra-Mangoro, Moramanga, Andasibe, Parc National de Mantadia, PN Mantadia, River Sahanody, 9 km from the entrance of the park, 12.xi.2011, 18.81345°S, 48.43007°E, 960 m, 22W black light trap, forest stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (1 male, NHRS).

***Leptonema mantadia* Oláh & Johanson, sp. nov.**

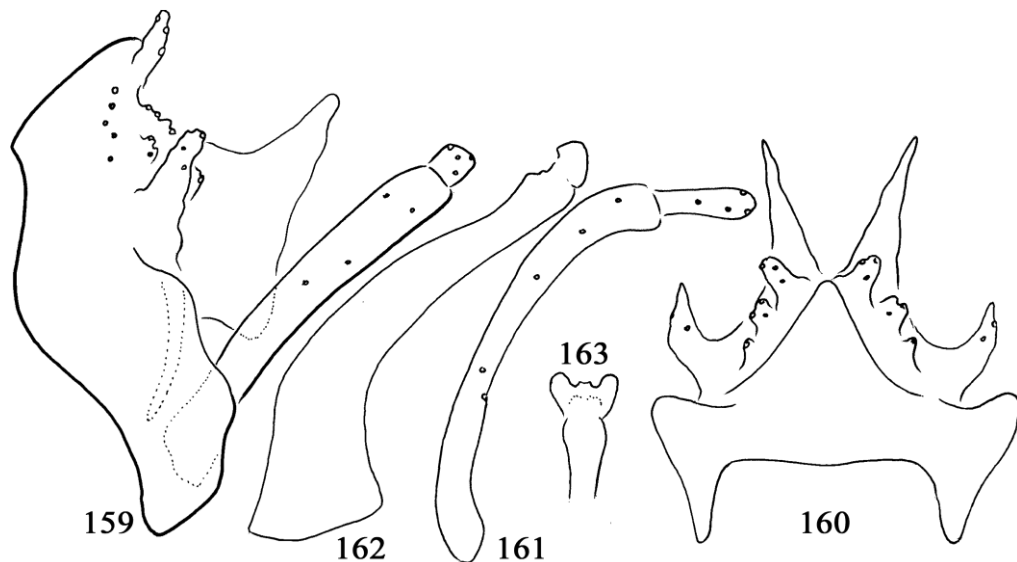
(Figures 159–163)

Material examined. Holotype: **Madagascar**, Toamasina, Alaotra-Mangoro, Mantadia NP, waterfall Andranomanamponga, 6 km from park entrance, 18.8372°S, 48.4440°E, 1000 m, 11.xi.2011, Malaise trap, stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (1 male, NHRS; 1 male, OPC). Madagascar, Toamasina, Alaotra-Mangoro, Moramanga, Andasibe, Parc National de Mantadia, PN Mantadia, Mantadia, River Sahanody, 9 km from the entrance of park, 17.xi.2011, 18.81345°S, 48.43007°E, 960 m, 22W black light trap, forest stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (2 males, NHRS).

Diagnosis. This new species is a member of the *occidentale* species group and resembles *Leptonema kabelaki* Chvojka, 2003 but differs by the slender and concave, not broad and convex lateral profile of the mesal lobe of segment X as well as by the curving pointed and spine-like, not rounded dorsal profile of the lateral lobe of seg-



Figures 154–158. *Leptonema comoriense* Oláh, sp. nov. Holotype: 154=genitalia in left lateral view, 155=genitalia in dorsal view, 156=left gonopod in ventral view. 157= phallic organ in left lateral view, 158=phallic head in ventral view.



Figures 159–163. *Leptonema mantadia* Oláh & Johanson, sp. nov. Holotype: 159=genitalia in left lateral view, 160=genitalia in dorsal view, 161=left gonopod in ventral view. 162= phallic organ in left lateral view, 163=phallic head in ventral view.

ment X. Elongated dorsobasal wart of paraproct bilobed in dorsal view, not fused. Diffused cerci somehow fused to this wart complex. Lateral profile of phallic organ differently shaped and the head less curving anterad.

Description. Male (in alcohol). Body including appendages and wings are dark brown; forewing length 8.5 mm. Maxillary palp formula I-III-IV-II-V, second segment much shorter than 1-3-4. Spur formula 1,4,4. Second abdominal segment,

the basal sternite without median suture. Cuticular structure of sternum V glands small, circular. Male genitalia. Segment IX short, dorsum 2 times longer than ventrum. Segment X slender with concave dorsum in lateral view; widely distributed bilobed and very slender thin in dorsal view; cerci diffused complex of warts located basad on segment X. Paraproct located dorsobasally above cerci elongated and bilobed in dorsal view. Coxopodite straight, harpago mesally turning short in lateral view elongated, slightly clavate.

Phallobase not broadening much and not right angled to the stem; phallic apex upward turning, little pointed anterad.

Etymology. Coined from the name of the *locus typicus*, Mantadia NP, and treated as a noun in apposition.

***Leptonema ranomafana* Flint, 2000**

Leptonema ranomafana Flint, 2000: 177.

Material examined. **Madagascar**, Fianarantsoa, Matsiatra Ambony, Ranomafana area, Sahamalaotra 2.2 km from Vohiparara, 21.23778°S, 47.39442°E, 1120 m, 31.x.2011, 22W black light trap, forest stream and stagnant pool, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS).

***Macrostemum Kolenati*, 1859**

***Macrostemum ambul* Oláh sp. nov.**

(Figures 164–168)

Material examined. Holotype: **Madagascar**, Ambila-Lemaitso, i.1957, leg. R.E. Paulian (male, OPC). (Ambila-Lemaitso. Madagascar Est: ca 10 km à l'E de Brickaville, Ambila-Lemaitso, 0-10 m, Localité côtière.) [18.853°S, 49.145°E]. Paratypes: same as holotype (1 male, MNHN; 1 male, ZMB).

Diagnosis. This new species belongs to the group of species without a subdivided phallic head, and differs from the other species by the unique pattern lateral profile of the phallic head. The shape of the phallic head resembles that of *Macrostemum marabe* Andriambelo & Gibon, 2001, from which it is distinguished in lateral and ventral view by being more elongate. The forewing pattern is highly reduced.

Description. Male (in alcohol). The body and appendages yellowish to light brown. Maxillary palp formula I-II-IV-III-V.

Forewing length 11 mm; forewing Sc fused with R1 apically; nygma located distally in

thyridial cell; forewing membrane pale with few small darker patches.

Male genitalia. Segment IX short with truncate short dorsum and ventrum in lateral view. Segment X subtriangular in lateral view; in dorsal view with diverging with narrowing branches; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraprocot emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than respective harpago. Broadening phallobase in right angle to stem; phallic apex elongate in lateral and ventral view.

Etymology. Coined from the name of the *locus typicus*, Ambila-Lemaitso, and treated as a noun in apposition.

***Macrostemum ambinan* Oláh sp. nov.**

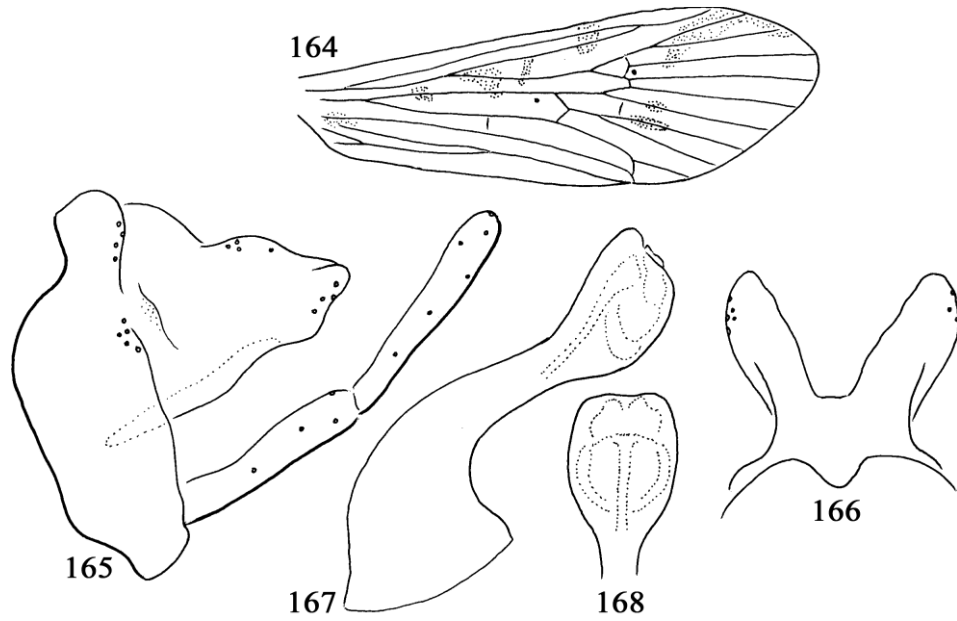
(Figures 169–173)

Material examined. Holotype: **Madagascar**, Ambinanytelo, Marojejy, 480 m, iii.1959, leg. P. Soga (male, OPC). (Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m) [14.436°S, 49.774°E].

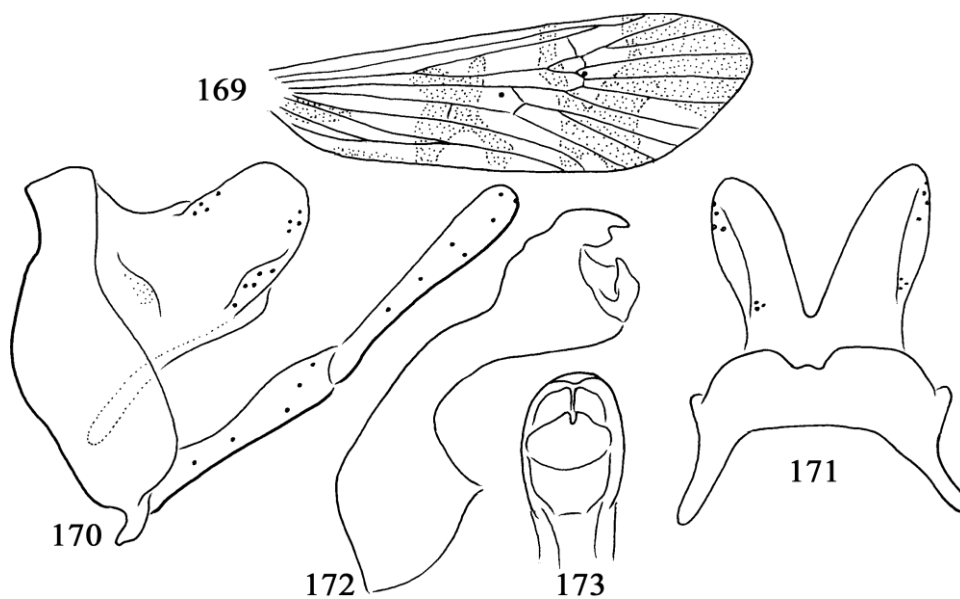
Diagnosis. This new species belongs to the group of species having X-shaped dark pattern in the middle of the basal half of the forewings, and differs from all similar species by the particularly fat and regular X mark without any attachments. Most of the species with X-shaped forewing mark have bilobed lateral profile of phallic head, but there are species of X-shaped pattern without divided phallic head. The bilobed pattern of the phallic head of *Macrostemum ambinan* sp. nov. is uniquely structured, both the dorsal and ventral lobe is subdivided.

Description. Male (long in alcohol). The body yellowish brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 10 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark with light pattern composed of 3 distinct patches on the



Figures 164–168. *Macrostemum ambil* Oláh, sp. nov. Holotype: 164=Forewing pattern, 165=genitalia in left lateral view, 166=genitalia in dorsal view, 167=phallic organ in left lateral view, 168=phallic head in ventral view.



Figures 169–173. *Macrostemum ambinan* Oláh, sp. nov. Holotype: 169=Forewing pattern, 170=genitalia in left lateral view, 171=genitalia in dorsal view, 172=phallic organ in left lateral view, 173=phallic head in ventral view.

apical half area: 1 large subtriangular around pterostigma and anastomosal region, 1 large almost rectangular on the apical region of M and 1 small semicircular on apical region of Cu; basal half has a fat X-shaped pattern on middle.

Male genitalia. Segment IX short with abruptly short ventrum. Segment X slightly directed upward apically in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial

setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than respective harpago. Broadening phallobase in right angle to stem; phallic apex elongated in ventral and bilobed in lateral view; both lobes irregularly sublobed.

Etymology. Coined from the name of the *locus typicus*, Ambinananytelo, and treated as a noun in apposition.

Macrostemum ankaz Oláh, sp. nov.

(Figures 174–180)

Material examined. Holotype: **Madagascar**, Ambohitantely dist. Ankazobe, xii.1956, leg. R. E. Paulian (male, OPC). (Madagascar Centre: 25/30 km an N.-E. d'Ankazobe, lambeaux forestiers du tampoketsy d'Ambohitantely, 1550 à 1600 m.) [18.167°S, 47.281°E]. Paratype: same as holotype (1 female, MNHN).

Diagnosis. Being a member of the group of species having dark X-shaped mark in the middle of the basal half of the forewing, this new species differs from the other species in the group by the X mark continuing to the anterior and posterior costal margin. The bilobed pattern of the phallic head of *Macrostemum ankaz* sp. nov. is reduced to more shallowly divided and very rounded lobes.

Description. Male (long in alcohol). Brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 12 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark with light pattern composed of 3 distinct patches on apical half area: one large subtriangular around pterostigma and in anastomosal region, one middle-sized circular on apical region of M and one small vertically elongate semicircular on apical region of Cu; basal half has X-shaped mark with marginal continuation.

Male genitalia. Segment IX short with abruptly short ventrum. Segment X slightly directed upward apically in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than respective harpago. Broadening phallobase in right angle to stem; bilobed phallic apex with abbreviated, broadly rounded lobes in lateral profile.

Etymology. Coined from the name of the *locus typicus*, Ankazobe, and treated as a noun in apposition.

Macrostemum gihannae Andriambelo & Gibon, 2001

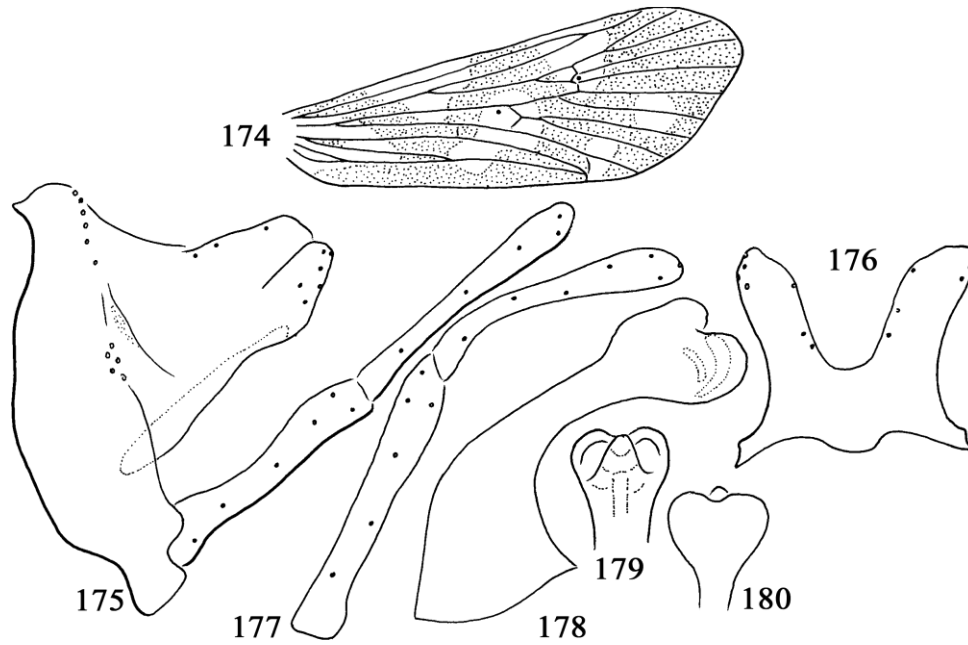
Macrostemum gihannae Andriambelo & Gibon, 2001: 236.

Material examined. **Madagascar**, Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, MAD11-05, Leg. J. Bergsten, R. Bukontaite, R. Ranarilalantiana, JH. Randriamihaja (12 males, NHRS; 6 males, OPC).

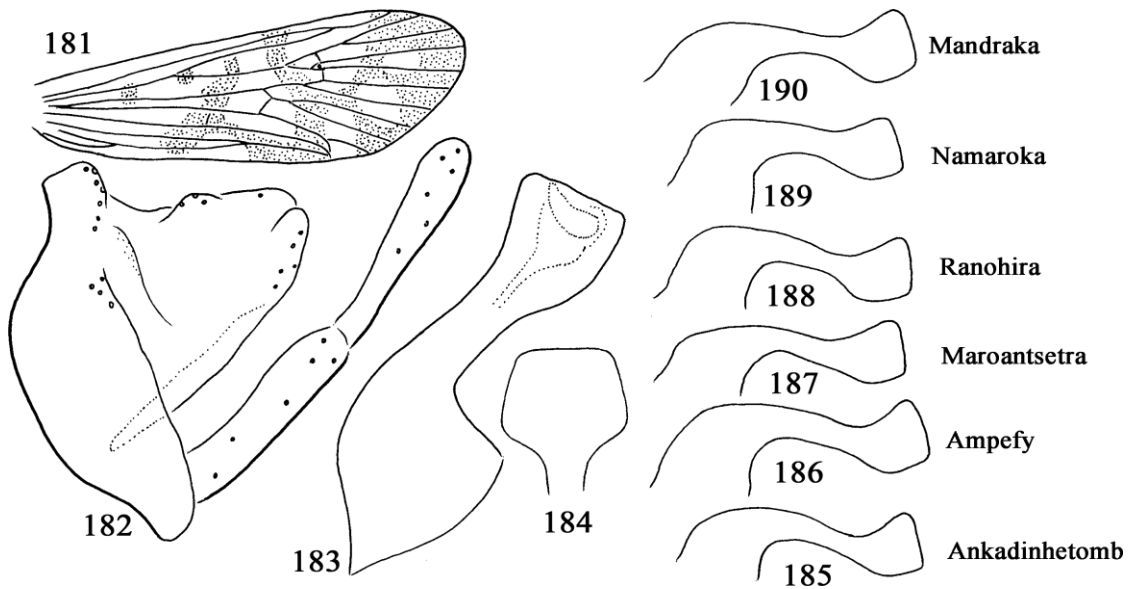
Macrostemum madagas Oláh, sp. nov.

(Figures 181–195)

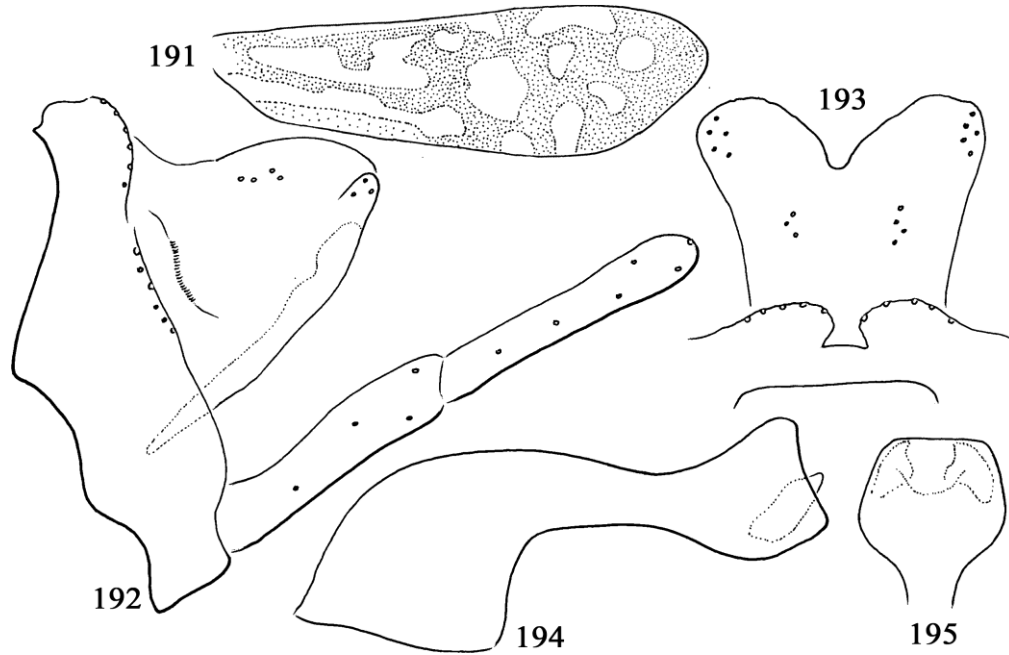
Material examined. Holotype: **Madagascar**, Maroantsetra, Ambodivoangy, iii.1958, leg. R. E. Paulian (male, OPC). (Madagascar Est: E. de Maroantsetra, Ambodivoangy, 5 à 50 m. Station détruite.) [15.415°S, 49.808°E]. Paratypes: Madagascar, Sa Mandraka, Prov. Tamatave, x.1956, leg. R.E. Paulian (1 male, OPC). (Mandraka. Madagascar Centre: voir La Mandraka.) [18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Tananarive]. Madagascar, Namoroka, Vilanandro, ix.1952, leg. R. E. Paulian (3 males, 1 female, OPC). (Namoroka. Mada-



Figures 174–180. *Macrostemum anka* Oláh, sp. nov. Holotype: 174=Forewing pattern, 175=genitalia in left lateral view, 176=genitalia in dorsal view, 177=left gonopod in ventral view, 178=phallic organ in left lateral view, 179=phallic head in dorsal view, 180=phallic head in ventral view.



Figures 181–190. *Macrostemum madagas* Oláh, sp. nov. Holotype: 181=Forewing pattern, 182=genitalia in left lateral view, 183=phallic organ in left lateral view, 184=phallic head in ventral view, 185=phallic organ in left lateral view from Ankadinhetomb, 186= phallic organ in left lateral view from Ampefy, 187= phallic organ in left lateral view from Maroantsetra, 188= phallic organ in left lateral view from Ranohira, 189=phallic organ in left lateral view from Namaroka, 190=phallic organ in left lateral view from Mandraka.



Figures 191–195. *Macrostemum madagas* Oláh, sp. nov. Paratype (Ranomafana NP): 191=Forewing pattern, 192=genitalia in left lateral view, 193=genitalia in dorsal view, 194=phallic organ in left lateral view, 195=phallic head in ventral view.

gascar Ouest: S.-P. de Soalala, réserve naturelle intégrale n°8, de Namoroka.) [16.399°S, 45.283° E]. Madagascar, Ranohira Isolo, ii.1958, leg. Stuckenberg (1 male, OPC). (Ranohira. Madagascar Ouest: 91 km à l'O. d'Ihosa, Ranohira. Sur la route nationale, du Sud.) [22.552°S, 45.419°E]. Madagascar, Maroantsetra, Ivontaka, iii.1958, leg. R.E. Paulian (3 females, OPC). (Maroantsetra. Madagascar Est: S.-P. de Maroantsetra (chasses de J.Vadon). Port-Choiseul sur des cartes anciennes.) [15.438°S, 49.758°E]. Madagascar, Maroantsetra, Navana, iii.1958, leg. R. E. Paulian (1 male, OPC). (Maroantsetra. Madagascar Est: S.-P. de Maroantsetra (chasses de J.Vadon). Port-Choiseul sur des cartes anciennes.) [15.438°S, 49.758° E]. Madagascar, Ankadinhetomb, 3.v.1991, leg. Elouard (2 males, 1 female; OPC). [Ankadindratombo, 18.937°S, 47.565°E?]. Madagascar, Ampify, Soavinandriana, Tananarive Prov., iii.1957, leg. R. E. Paulian (5 males, 1 female, MNHN; 5 males, 1 female; ZMB; 31 males, 7 females; OPC). (Ampify. Madagascar Centre: 22 km au N. de Soavinandriana, Ampify, Vers le lac Itasy.) [19.042°S, 46.734°E]. Madagascar, Andringitra, Tsaranoro Massif, 15-19. iv.2007, leg. W. Mey (2

males, ZMB; 1 male, OPC) [22.086°S, 46.771°E]. Madagascar, Andringitra, Tsaranoro Massif, Vatomay River, LF, 1000 m, 15-19.iv.2007, leg. W. Mey (5 males, 1 female; ZMB) [22.086°S, 46.771°E]. Madagascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF, cascade 800 m, 17.iv.2007, leg. W. Mey (4 males, ZMB) [22.042° S, 46.756°E]. Madagascar, NE Andasibe, 950 m, Vakona Lodge, LF, 11-12.iv.2007, leg. W. Mey (14 males, 10 females; OPC) [18.931°S, 48.42°E]. Madagascar, Andasibe, 920 m, Reserve, Mitsinjo, 12.iv.2007, leg. W. Mey (5 males, 9 females; OPC) [18.938°S, 48.414°E]. Madagascar, Ibity Mts, Analamazoatra, stream, TF, 14.iv.2007, leg. W. Mey (1 male, ZMB) [18.939°S, 48.434°E]. Madagascar, Ranomafana NP, LF, Namorona River, chutes, 19.iv.2007, leg. W. Mey (5 males, 1 female; ZMB) [21.264°S, 47.419°E]. Madagascar, Moramanga, Andasibe, 14-26.i.2007, leg. A. Salk (1 male, ZMB). Madagascar: Fianarantsoa: Matisiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriami-

haja (20 males, NHRS; 5 males, OPC). Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ifanadiana, Ranomafana, Parc National de Ranomafana, PN Ranomafana, Ambodiamontana, Namorona river by the bridge below park entrance, 1.xi.2011, 21.25809°S, 47.42165°E, 920 m. GB net and sieves, rockpools, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J.H. Randriamihaja (2 males, NHRS).

Diagnosis The compact, undivided lateral profile of the phallic head without lobes, and the characteristic forewing pattern relates this species to *Macrostemum marabe* Andriambelo & Gibon, 2001, but the head of phallic organ straight cut, truncated both in dorsal and lateral views, not wavy in lateral view and not rounded in ventral view.

Description. Male (long in alcohol). Body is light brown, appendages lighter brown. Maxillary palp formula I-II-IV-III-V.

Forewing length 10 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark with light pattern composed of 5 distinct light patches in apical region, X-shaped dark pattern in basal region.

Male genitalia. Segment IX short with abruptly short ventrum. Segment X rounded triangular in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than respective harpago. Broadening phallobase in right angle to stem; phallic apex with right truncated apical margin in lateral profile.

Etymology. Coined after the country of the *locus typicus*, Madagascar, and treated as a noun in apposition.

Remarks. According to the specimens collected during Renaud Paulian's random, non-selective and non-specialised sampling projects,

Macrostemum madagas sp. nov. seems to be the most widespread species of the genus in Madagascar. The forewing pattern and pigmentation of the specimens collected in various habitats has a range of variation, however the lateral profile of the phallic head in various populations is rather stable. In old and recently sampled habitats with sufficient specimens the varying forewing pattern and stable lateral and ventral phallic profile is observed.

***Macrostemum mambra* Oláh, sp. nov.**

(Figures 196–201)

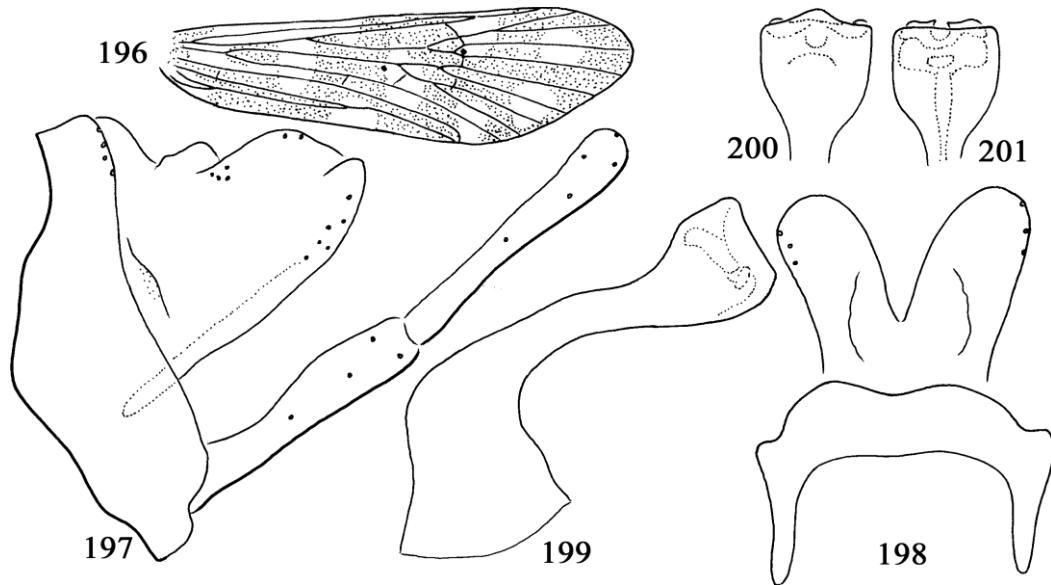
Material examined. Holotype: **Madagascar**, Mt. d'Ambre, Les Roussettes [no date], leg. B. Stuckenberg (male, OPC). (Ambre, Montagne. Madagascar Nord: S.-P. de Diego-Suarez, Montagne d'Ambre Park National.) [12.542°S, 49.18°E].

Diagnosis. This new species is a member of the group of species having some kind of X-shaped form of dark pattern in the middle of the basal half of forewing, but differs from all by the presence of 8, almost similar sized rounded patches. It belongs to the group of species without subdivided phallic head, but differs from all by the particularly patterned lateral profile of the phallic head.

Description. Male (long in alcohol). The body is brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 13 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark with light pattern composed of 8 distinct patches having almost the same rounded shape and similar size.

Male genitalia. Segment IX short with abruptly short ventrum. Segment X slightly directed upward apically in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than



Figures 196–201. *Macrostemum mambra* Oláh, sp. nov. Holotype: 196=Forewing pattern, 197=genitalia in left lateral view, 198=genitalia in dorsal view, 199=phallic organ in left lateral view, 200=phallic head in dorsal view, 201=phallic head in ventral view.

respective harpago. Broadening phallobase in right angle to stem; phallic apex almost rectangular in lateral profile.

Etymology. Coined from the name of the *locus typicus*, Montagne d’Ambre, and treated as a noun in apposition.

***Macrostemum namor* Oláh & Johanson,
sp. nov.**

(Figures 202–206)

Material examined. Holotype: **Madagascar**, Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919° E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriamihaja (male, NHRS).

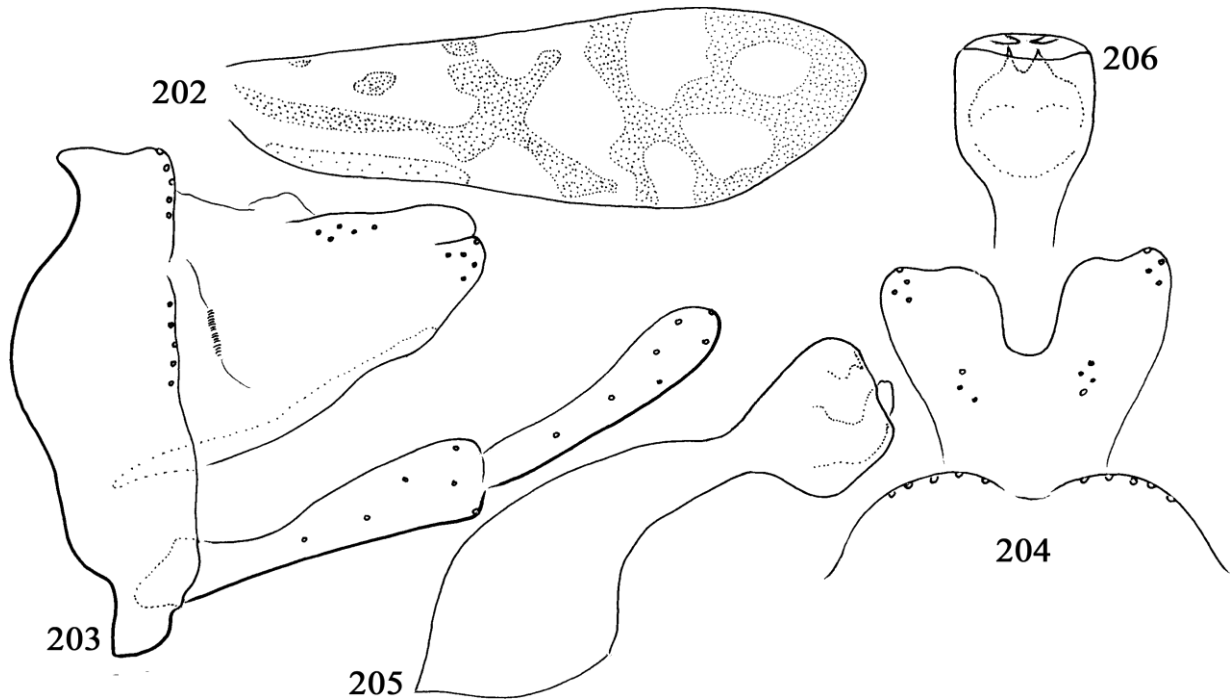
Diagnosis. *Macrostemum namor* sp. nov. is similar to *Macrostemum vohipar* sp. nov., from which it differs by the presence of light patch pattern on the forewing, as well as by the lateral and ventral profile of the phallic organ.

Description. Male (long in alcohol). Body brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 14 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane darkly dotted, with light patch pattern.

Male genitalia. Segment IX short with very short ventrum. Segment X slightly directed upward apically in lateral view; slightly diverging with rounded apices in dorsal view (although depending on erection state of the genitalia); cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Coxopodites as long as harpagones; coxopodites dilating, harpagones broadening apicad. Broadening phallobase obtusely angled to stem; phallic apex truncated both in ventral and lateral views.

Etymology. Coined from the name of the *locus typicus*, Namorona river, and treated as a noun in apposition.



Figures 202–206. *Macrostemum namor* Oláh & Johanson, sp. nov. Holotype: 202=Forewing pattern, 203=genitalia in left lateral view, 204=genitalia in dorsal view, 205=phallic organ in left lateral view, 206=phallic head in ventral view.

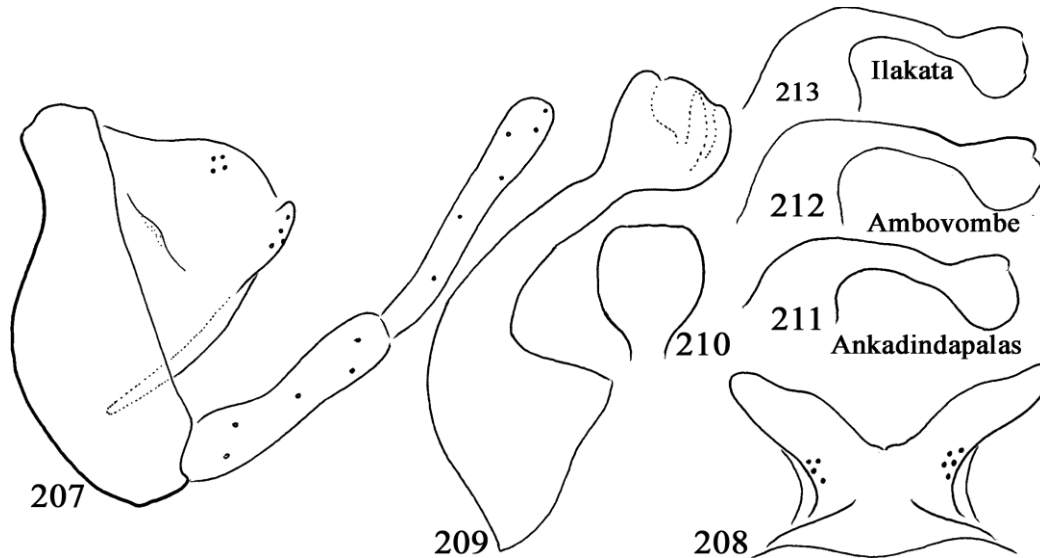
***Macrostemum perin* Oláh, sp. nov.**

(Figures 207–213)

Material examined. Holotype: **Madagascar**, Perinet, Eau Douce, iii.1958, leg. (E.R.) = Edourd Razafimandimby (male, OPC). (Madagascar Est: 30 km à l'E de Moramanga, Perinet. Station forestière et réserve spéciale d'Analamazaotra-Perinet.) [18.936°S, 48.433°E]. Paratypes: same as holotype (1 female, MNHN). Madagascar, Ilakaka, km 729 Route Sakaraha, iii.1956, leg. R. E. Paulian (1 male, OPC). [Ilakaka or Ilaka. Madagascar Ouest: S.-P. d'Ilhoso, 26 km au S.-O. de Ranohira, Ilakaka. Point d'eau sur la route nationale 7, entre Ranohira et le col des Tapias meridional, 22.695°S, 45.217°E]. Madagascar, Ankadin-dapalas, 3.v.1991, leg. Elouard (1 male, MNHN). Madagascar, Ambovombe, Prov. Tulear, vii.1952, leg. R. E. Paulian (1 male, ZMB). (Ambovombe. Madagascar Sud: S.-P. d'Ambovombe) [25.165°S, 46.09°E]. Madagascar, Andringitra, Tsaranoro Massif, 15-19.iv.2007, leg. W. Mey (2 males, ZMB; 1 male, OPC) [22.086°S, 46.771°E]. Mada-

gascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF, cascade, 800 m, 17.iv.2007, leg. W. Mey (7 males, 3 females; ZMB) [22.042°S, 46.756°E]. Madagascar, Ranomafana NP, LF, Namorona River, chutes, 19.iv.2007, leg. W. Mey (1 male, 3 females; ZMB) [21.264°S, 47.419°E]. Madagascar: Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana, J. H. Randriamihaja (24 males, NHRS; 3 males, OPC). Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ifanadiana, Ranomafana, Parc National de Ranomafana, PN Ranomafana, Ambodiamontana, Namorona river by the bridge below park entrance, 1.xi.2011, 21.25809°S, 47.42165°E, 920 m, GB net and sieves, rock-pools, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J.H. Randriamihaja (1 male, NHRS).

Diagnosis. This new species belongs to the group of species without subdivided phallic head,



Figures 207–213. *Macrostemum perin* Oláh, sp. nov. Holotype: 207=genitalia in left lateral view, 208=genitalia in dorsal view, 209=phallic organ in left lateral view, 210=phallic head in ventral view, 211=phallic organ in left lateral view from Ankadindapalas, 212= phallic organ in left lateral view from Ambovombe, 213= phallic organ in left lateral view from Ilakata.

and differs from the other species in the group by the particularly patterned lateral profile of the phallic head. The ventrum of the phallic head is elongated and regular rounded, almost circular.

Description. Male (in alcohol). Body light brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 13 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark without pattern on holotype, variously patterned on paratypes.

Male genitalia. Segment IX short, with short ventrum. Segment X short, rounded triangular in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Each coxopodite slightly shorter than respective harpago. Broadening phallobase in right angle to stem; phallic apex with right roundly elongated ventrum.

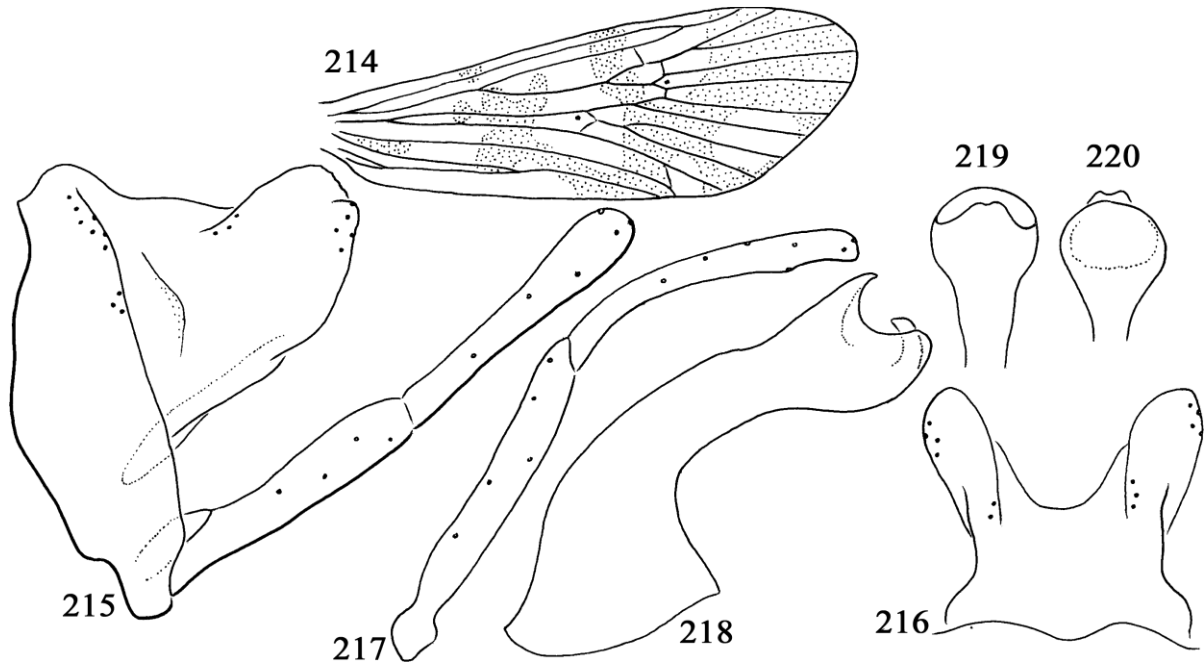
Etymology. Coined from the name of the *locus typicus*, Perinet, and treated as a noun in apposition.

Macrostemum pimatel Oláh, sp. nov.

(Figures 214–220)

Material examined. Holotype: **Madagascar**, Ampitameloka, 840 m, District Anosibe-Moramanga, xii.1956, leg. P. Griveaud (male, OPC). (Madagascar Est: S. de Moramanga, route d'Anosibe, km 54,900, Ampitameloka, 840 m) [19.212° S, 48.222°E].

Diagnosis In Madagascar there are three species described from the Massif de l'Andringitra with similarly pronounced forewing pattern and with bilobed phallic head in lateral view: *M. gihannae* Andriambelo & Gibon, 2001, *M. langettiferum* Andriambelo & Gibon, 2001, and *M. tsilo* Andriambelo & Gibon, 2001. However, *M. pimatel* sp. nov. has different forewing pattern as visible on Fig. 214, although pattern stability is not examined. Moreover, the speciation trait, the bilobed phallic head has dorsal lobe almost straight, short and thin, not stout long (*M. gihannae*), not slender long (*M. langettiferum*), not short, not down and backward curving (*M. tsilo*). The ventral lobe of bilobed phallic head elongated rounded and longer than dorsal lobe, not shorter (*M. gihannae*, *M. langettiferum*) as well as not short circular and not excised apicad (*M. tsilo*).



Figures 214–220. *Macrostemum pimatel* Oláh, sp. nov. Holotype: 214=Forewing pattern, 215=genitalia in left lateral view, 216=genitalia in dorsal view, 217=left gonopod in ventral view, 218=phallic organ in left lateral view, 219=phallic head in dorsal view, 220=phallic head in ventral view.

Description. Male (long in alcohol). The entire body is variously brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.

Forewing length 12 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane dark with light pattern composed of 3 distinct patches on apical half: One large semicircular around pterostigma and anastomosal region, one large circular on the apical region of M and one small ovoid on apical region of Cu; basal half has X-shaped pattern on middle.

Male genitalia. Segment IX short with very short ventrum. Segment X slightly directed upward apically in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Coxopodites as long as harpagones. Broadening phallobase in right angle to stem; phallic apex capitate in ventral view and bilobed in lateral view; dorsal lobe slim, tapering, pointed.

Etymology. Coined from the name of the *locus typicus*, Ampitameloka; a noun in apposition.

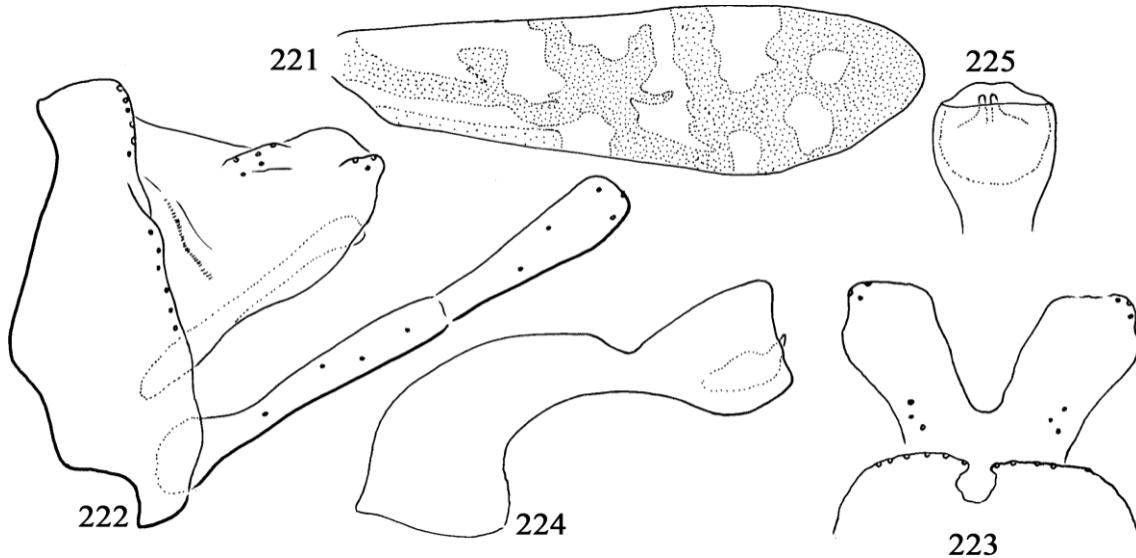
***Macrostemum vohipar* Oláh & Johanson, sp. nov.**

(Figures 221–225)

Material examined. Holotype: **Madagascar**, Fianarantsoa, Matsiatra Ambony, Ranomafana NP, Namorona river, 1.8 km from Vohiparara, 21.24032°S, 47.39186°E, 1130 m, 31.x.2011, 22 W black light, stony riverbank forest stream and stagnant pool, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. *Macrostemum vohipar* sp. nov. is similar to *Macrostemum madagas* sp. nov., from which it differs by the presence of light patch-pattern on the forewings as well as by the lateral and ventral profile of the phallic organ.

Description. Male (long in alcohol). Body brown, appendages lighter. Maxillary palp formula I-II-IV-III-V.



Figures 221–225. *Macrostemum vohipar* Oláh & Johanson, sp. nov. Holotype: 221=Forewing pattern, 222=genitalia in left lateral view, 223=genitalia in dorsal view, 224=phallic organ in left lateral view, 225=phallic head in ventral view.

Forewing length 13 mm; Sc on forewing united with R1 apically; nygma located distally in thyridial cell; forewing membrane darkly dotted, with light patch pattern.

Male genitalia. Segment IX short with very short ventrum. Segment X slightly directed upward apically in lateral view; diverging with rounded apices in dorsal view; cerci located basally along vertical hump represented by vestigial setal protuberance composed of minute pegs. Vestigial paraproct emarginating segment X ventrolaterally and forming sclerotized phallic guide. Coxopodite longer than harpago; harpago broadening apicad. Broadening phallobase in right angle to stem; phallic apex truncated both in ventral and lateral views.

Etymology. Coined from the name of the *locus typicus*, Vohiparara, and treated as a noun in apposition.

Hydropsychinae Curtis, 1835

Cheumatopsyche Wallengren, 1891

Cheumatopsyche ampanga Oláh & Johanson, 2008

Cheumatopsyche ampanga Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 69.

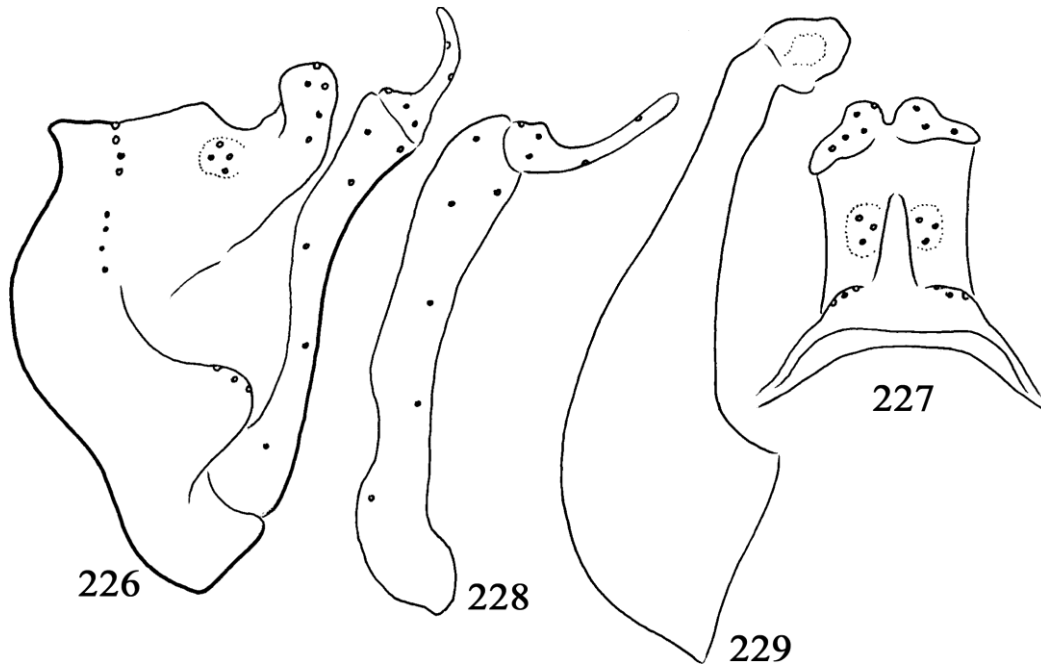
Material examined. **Madagascar:** Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1.8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalantiana & J. H. Randriamihaja (2 males, 5 females; NHRS; 1 male, 2 females, OPC).

Cheumatopsyche morona Oláh & Johanson, sp. nov.

(Figures 226–229)

Material examined. Holotype: **Madagascar,** Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1.8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalantiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. Due to presence of a small interlobular gap between the head of the apicoventral setose lobes this species resembles *Cheumatopsyche masiposa* Oláh & Johanson, 2008, from which it differs by monolobed, not bilobed mesal ridge of segment X, by differently pattern and dorsal shape of apicoventral setose lobes, and by



Figures 226–229. *Cheumatopsyche morona* Oláh & Johanson, sp. nov. Holotype: 226=genitalia in left lateral view, 227=genitalia in dorsal view, 228=left gonopod in ventral view, 229=phallic organ in left lateral view.

the slender slim coxopodites, that are very broad on their apical half in *C. masiposa*.

Description. Body uniformly brown, medium-sized; forewing length 10 mm.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulting in short dorsum and ventrum; posterior lobe above coxopodites well produced rounded; intersegmental depression between segment nine and ten lacking in lateral view, occupied by a less sclerotized mesal ridge. Body of segment X longer than high; circular lateral setose area (cerci) in middle position; apicoventral setose lobe discernible in lateral view as an obliquely positioned slightly elongated rounded structure, particularly patterned in dorsal view. Basal segment of gonopods slim slender slightly sigmoid in lateral view; harpagones slim with basal enlargement. Phallic apparatus robust with low phallobase narrowing apically; pair of endothelial sclerites short, irregular slightly downward directed.

Etymology. Coined from the name of the *locus typicus*, the Namorona river, and considered as a noun in apposition.

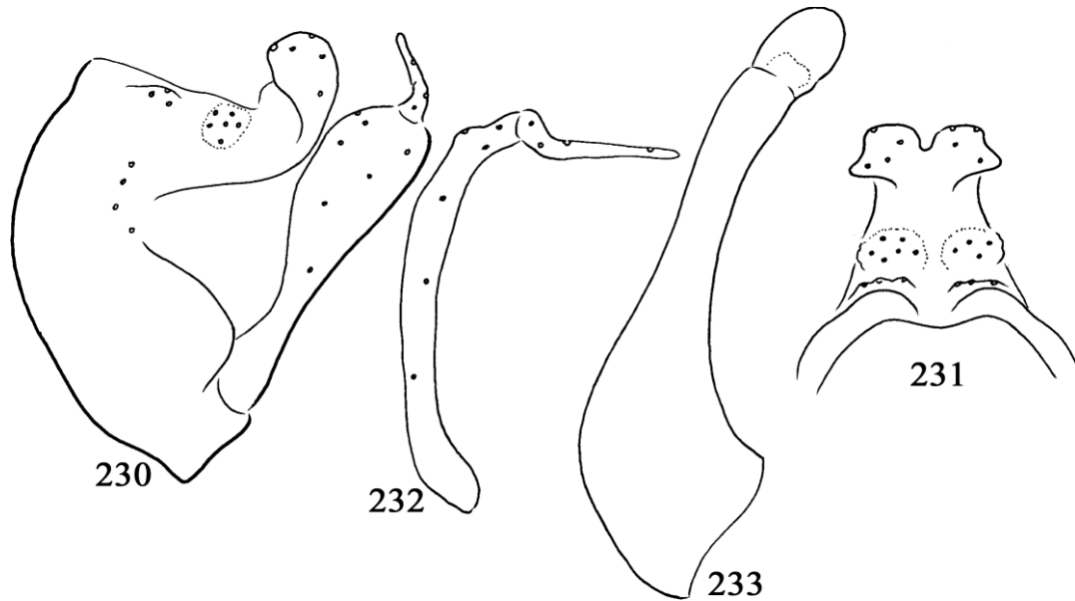
***Cheumatopsyche namora* Oláh & Johanson, sp. nov.**

(Figures 230–233)

Material examined. Holotype: **Madagascar**, Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1.8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg. J. Bergsten, R. Bukontaite, R. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (4 females, NHRS; 1 male, 1 female; OPC).

Diagnosis. *Cheumatopsyche namora* sp. nov. resembles *Cheumatopsyche perina* sp. nov. from which it differs by having longer posterior lobe of segment IX, a differently patterned dorsal shape of the apicoventral setose lobes, by the inverse L-shaped basal region of the harpagones, and by the different structure of the phallic head in lateral view.

Description. Uniformly dark brown coloured, small-sized, with forewing length 7 mm.



Figures 230–233. *Cheumatopsyche namora* Oláh & Johanson, sp. nov. Holotype: 230=genitalia in left lateral view, 231=genitalia in dorsal view, 232=left gonopod in ventral view, 233=phallic organ in left lateral view.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulting in short dorsum and ventrum; posterior lobe above coxopodites short, rounded; intersegmental depression between segment nine and ten lacking in lateral view. Body of segment X much longer than high; circular lateral setose area (cerci) in middle position; apicoventral setose lobe discernible in lateral view as upwardly oriented, rounded elongate structure, particularly patterned in dorsal view. Basal segment of gonopods with very wide after slender basal part in lateral view; harpagones slender, somewhat inverse L-shaped in ventral view. Phallic apparatus with low and broad phallobase narrowing apically; pair of endotheal sclerites long, rounded.

Etymology. Coined from the name of the *locus typicus*, the Namorona River, and considered as a noun in apposition.

***Cheumatopsyche nomafa* Oláh & Mey, sp. nov.**

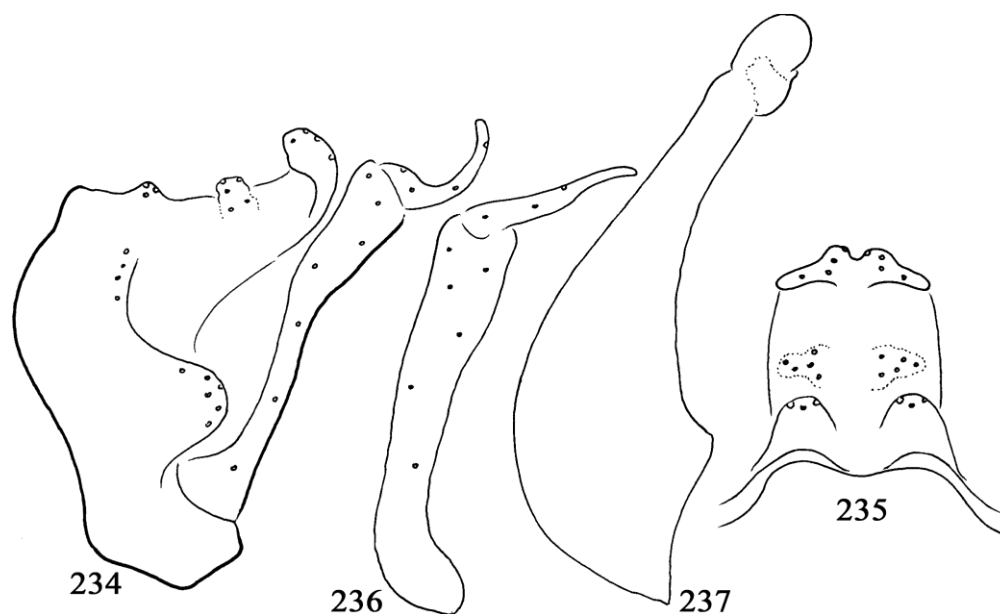
(Figures 234–237)

Material examined. Holotype: **Madagascar**, Ranomafana, 21.264°S, 47.419°E, 19.iv.2007, leg. W. Mey (male, ZMB).

Diagnosis. This new species of the Madagascar endemic group *Cheumatopsyche mahakaya* with a small reduced interlobular gap between the heads of the apicoventral setose lobes resembles *Cheumatopsyche ambala* Oláh & Johanson, 2008, but differs in the shape of the anterior margin and in a more developed apical lobe of segment IX; in a very short and narrow dorsal profile of the apicoventral setose lobes; and in elongated circular, not short, endotheal sclerites.

Description. Body uniformly brown, medium-sized; forewing length 11 mm.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin double convex, resulting in short dorsum and ventrum; posterior lobe above coxopodites well produced rounded; intersegmental depression between segment nine and ten lacking in lateral view, filled by pair of setose warts. Body of segment X longer than high; elevated setose area (cerci) in middle position; apicoventral setose lobe discernible in lateral view as an upward, slightly backward positioned rounding structure; particularly short and narrow patterned in dorsal view. Basal segment of gonopods with slender basal half slightly sigmoid in lateral view, broader and straight in ventral



Figures 234–237. *Cheumatopsyche nomafa* Oláh & Mey, sp. nov. Holotype: 234=genitalia in left lateral view, 235=genitalia in dorsal view, 236=left gonopod in ventral view, 237=phallic organ in left lateral view.

view; harpagones slim with basal enlargement in lateral view and with double broad basal half in ventral view. Phallic apparatus robust with produced phallobase narrowing apically; pair of endothecal sclerites elongated circular.

Etymology. Coined from the name of the *locus typicus*, Ranomafana, and considered as a noun in apposition.

***Cheumatopsyche olahi* Johanson, 2010**

Cheumatopsyche olahi Johanson, 2010: 271.

Material examined. **Madagascar**, Fianarantsoa, Vatovavy Fitovinany, Ifanadiana, Ranomafana, Parc National de Ranomafana, PN Ranomafana, Ambodiamontana, Namorona river by the bridge below park entrance, 1.xi.2011, 21.25809° S, 47.42165°E, 920 m, GB net and sieves, rock-pools, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (2 males, OPC). Madagascar, Antsiranana, Galoko mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (2 males, NHRS).

***Cheumatopsyche padaha* Oláh & Johanson, 2008**

Cheumatopsyche padaha Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 110.

Material examined. **Madagascar**, Antananarivo, Vakinankaratra, Ambatolampy, Tsiafajavona Ankaratra, Réserve de Ressources Naturelles de Manjakatempo Ankaratra, RRN Manjakatempo Ankaratra, 1.4 km E Lac Froid, 19.34507°S, 47.32599°E, 1770 m, 4.xi.2011, GB net and sieves, forest stream and waterfall, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (3 males, NHRS).

***Cheumatopsyche pali* Oláh & Johanson, 2008**

Cheumatopsyche pali Oláh & Johanson, 2008, in Oláh, Johanson & Barnard, 2008: 10.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, Manongarivo river, 19.xi.2012, 22W black light trap, 14.02869°S, 48.24859°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (14 male, NHRS). Madagascar, Antananarivo Prov., Bongo-

lava Dist., Ambohijanahary NP, Sakasarotra, light trap at stream in forest, 18°16'6.4"S, 45°27'48.7"E, 906 m, 19.xii.2009, leg. J. Bergsten & N. Jönsson (9 males, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (3 males, NHRS). Madagascar, Antsiranana, Galoko mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (2 males, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., bridge at Lac Ravelobe drainage, 16°18'23.5"S, 46°48'44.2"E, 108 m, 28.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (7 males, NHRS). Madagascar, Mahajanga Prov., Mitsinjo Dist., Res. Sp. Kinkony-Mahavavy, E shore of lake nr. Makary Vlg. 16°09.011'S, 46°55.058'E, 2.xii.2009, light trap, leg. J. Bergsten & N. Jönsson (1 male, NHRS). Madagascar: Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (2 males, NHRS). Madagascar, Andingitra, Tsaranoro Massif, 15-19.iv.2007, leg. W. Mey (1 male, 1 female; ZMB). Madagascar, Andingitra, Tsaranoro Massif, Vatomay River, LF, 1000 m, 15-19.iv.2007, leg. W. Mey (8 males, 7 associated females; ZMB). Madagascar: Andringitra, Tsaranoro Massif, Sahanambo River, LF, Cascades, 800 m, 22.042°S, 46.756°E, 15-19.iv.2007 leg. W. Mey (24 males, 25 females; ZMB).

***Cheumatopsyche parafra* Oláh & Johanson, 2008**

Cheumatopsyche parafra Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 75.

Material examined. **Madagascar**, Andasibe, Reserve Mitsinjo [18.938°S, 48.414°E], 920 m, 12.iv.2007, leg. W. Mey (3 males, 5 females; ZMB). Madagascar, Ibity Mts., Analamazoatra, Manandona [18.938°S, 48.434°E], 14.iv.2007, leg. W. Mey (12 males, 5 females; OPC).

Remarks. In the original material, consisting of a holotype and paratypes, no pattern was observed on the forewings, all of which were kept in alcohol for more than 5 years. We have detected some pattern of faint brown reticulation in the forewings of all recently collected specimens. Even this faint pattern is covered with dense setal pubescence, well discernible only on the denuded forewings.

***Cheumatopsyche perina* Oláh, sp. nov.**

(Figures 238–241)

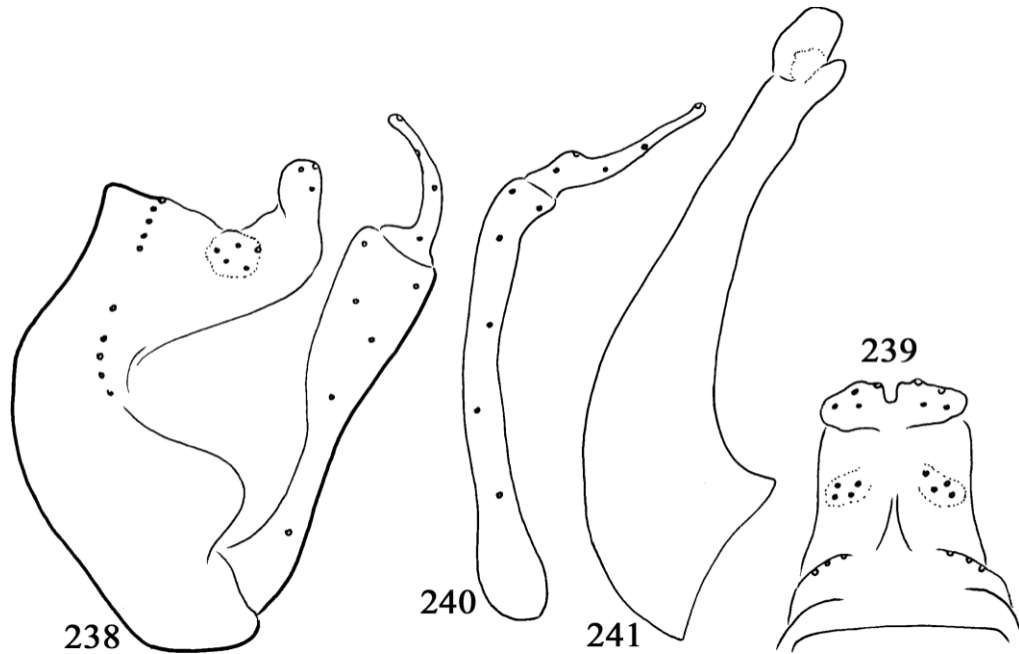
Cheumatopsyche ambala Oláh & Johanson, 2008a: 117 (part). Designated as a paratype of *Cheumatopsyche ambala*, a species in the *Cheumatopsyche mahakaya* species group described as similar to *Cheumatopsyche joariva* Oláh & Johanson, 2008. Misidentification!

Material examined. Holotype: **Madagascar**, Perinet [18.927°S, 48.414°E], xii.1954, leg. R. Paulian (male, OPC).

Diagnosis. *Cheumatopsyche perina* sp. nov. is placed in the *Cheumatopsyche mahakaya* species group endemic to Madagascar due to the presence of a small interlobular gap between the head of the apicoventral setose lobes and extremely broad coxopodites. It is considered to be closely related to *Cheumatopsyche namora* sp. nov., from which it differs by having differently patterned dorsal shape of apicoventral setose lobes, by the lack of inverse L-shaped basal region of the harpagones, as well as by the different structure of the phallic head in lateral view.

Description. Body uniformly brown, medium-sized; forewing length 11 mm.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulted in short dorsum and slightly longer ventrum; posterior lobe above coxopodite medium produced and rounded; intersegmental depression between segment nine and ten lacking in lateral view. Body of segment X much longer than high; circular lateral setose area (cerci) in middle posi-



Figures 238–241. *Cheumatopsyche perina* Oláh, sp. nov. Holotype: 238=genitalia in left lateral view, 239=genitalia in dorsal view, 240=left gonopod in ventral view, 241=phallic organ in left lateral view.

tion; apicoventral setose lobe discernible in lateral view as upwardly oriented, elongated rounded structure, particularly patterned in dorsal view. Basal segment of gonopods very wide after slender basal part in lateral view; harpagones slim, with broad basement in ventral view. Phallic apparatus with low and broad phallobase narrowing apically; pair of endothecal sclerites long, almost rectangular.

Etymology. Coined from the name of the *locus typicus*, Perinet, and considered as a noun in apposition.

***Cheumatopsyche ranomafana* Oláh & Johanson, 2008**

Cheumatopsyche ranomafana Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 99.

Material examined. **Madagascar**, Fianarantsoa, Vatovavy Fitovinany, Ranomafana NP, tributary stream Mariavaratra below park entrance: 21.2609°S, 47.4193°E, 890 m, 31.i-16.ii.2012, Malaise trap, near stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J.

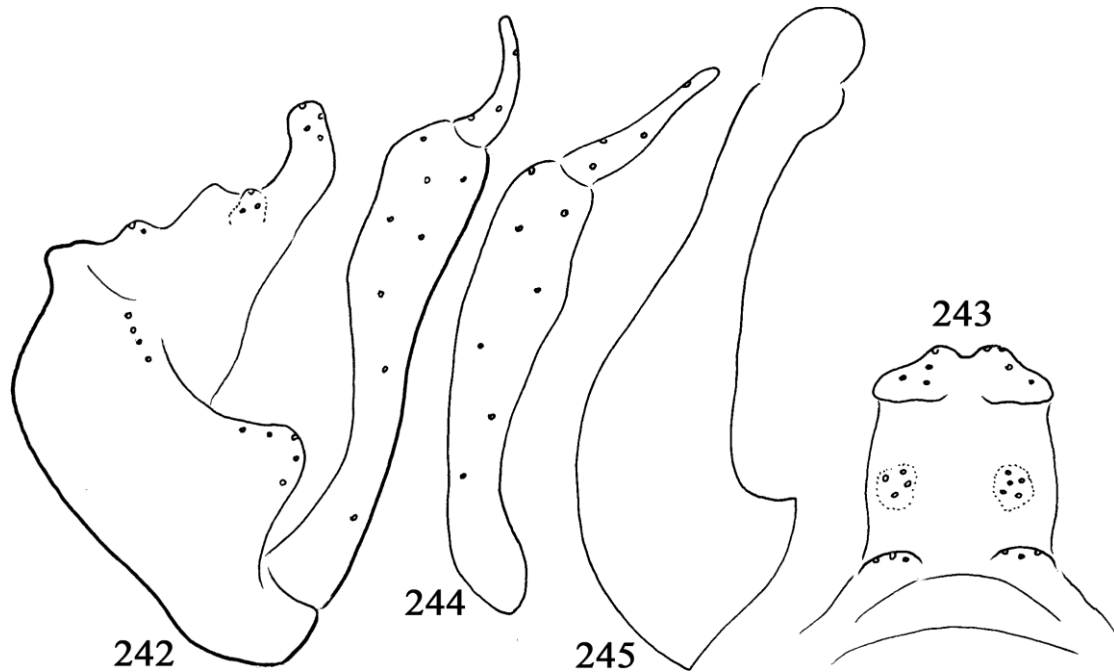
H. Randriamihaja (7 males, 2 females; NHRS). Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ranomafana NP, tributary stream Mariavaratra below park entrance: 21.26095°S, 47.41933°E, 890 m, 16-30.xi.2012, Malaise trap, next to stream in rainforest, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, 3 females; NHRS).

***Cheumatopsyche sahanamba* Oláh & Mey, sp. nov.**

(Figures 242–245)

Material examined. Holotype: **Madagascar**, Andringitra, Tsaranoro Massif, Sahanambo River, LF, Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007 leg. W. Mey (male, ZMB). Paratypes: same as holotype (12 males, ZMB; 10 males, OPC).

Diagnosis. *Cheumatopsyche sahanamba* new species in the *Cheumatopsyche mahakaya* species group, has long ventroapical setose lobe and reduced, almost vestigial interlobular gap on segment X. It resembles *Cheumatopsyche ranoma*



Figures 242–245. *Cheumatopsyche sahanamba* Oláh & Mey, sp. nov. Holotype: 242=genitalia in left lateral view, 243=genitalia in dorsal view, 244=left gonopod in ventral view, 245=phallic organ in left lateral view.

Oláh & Johanson and *Cheumatopsyche Navási* Johanson, 2010, but differs from both by having very short, almost vestigial interlobular gap between the pair of ventroapical setose lobes as visible in dorsal view; by elongated and less curving upward ventroapical setose lobe, very short in *C. olahi* and very upward curving in *C. ranoma*; by the ventral profile of harpagones being almost straight, basal half about 2x broader than distal half.

Description. Brown, small-sized animal, forewing length 6 mm; forewing without discernible pattern.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulting in very short dorsum and longer ventrum; posterior lobe above coxopodites well produced rounded triangular; intersegmental depression between segment nine and ten shallow in lateral view. Body of segment X longer than high; circular lateral setose area (cerci) in apical position; apicoventral setose lobe discernible in lateral view as horizontal elongated structure with upward turning rounded apex; in dorsal view exhibits pe-

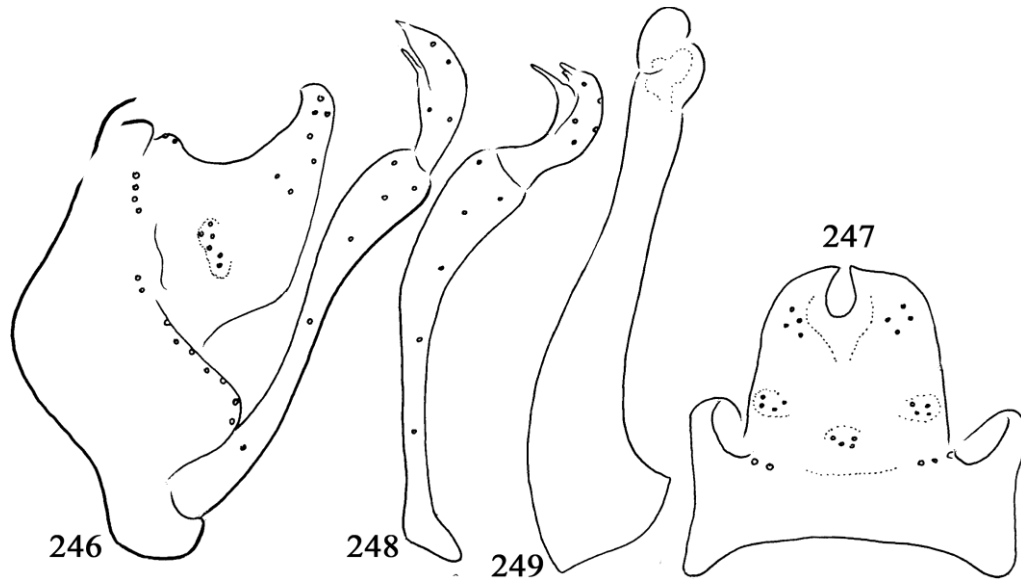
culiar pattern with very small interlobular gap; smooth mesocaudal lobe fused with segment X. Basal segment of gonopods with dilated apical half; harpagones with basal half about 2x wider than distal half in ventral view. Phallic apparatus with produced broadening phallobase and narrowing phallosheath towards apex; pair of endotheal sclerites well developed, circular.

Etymology. Coined from the name of the *locus typicus*, the Sahanambo River, and considered a noun in apposition.

***Cheumatopsyche sambava* Oláh & Johanson, 2008**

Cheumatopsyche sambava Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 77.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, Manongarivo river, 19.xi.2012, 22W black light trap, 14.02869°S, 48.24859°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (4 males, NHRS). Madagascar, Antananarivo Prov., Bon



Figures 246–249. *Cheumatopsyche siaposa* Oláh & Mey, sp. nov. Holotype: 246=genitalia in left lateral view, 247=genitalia in dorsal view, 248=left gonopod in ventral view, 249=phallic organ in left lateral view.

olava Dist., Ambohijanahary NP, Sakasarotra, light trap at stream in forest, 18°16'6.4"S, 45°27'48.7"E, 906 m, 19.xii.2009, leg. J. Bergsten & N. Jönsson (3 males, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., Ankarafantsika N.P., Andranomafana, pool in forest, 16°18'12.3"S, 46°48'38.6"E, 74 m, 29.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (1 male, NHRS). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (7 males, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., bridge at Lac Ravelobe drainage, 16°18'23.5"S, 46°48'44.2"E, 108 m, 28.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (2 males, NHRS). Madagascar: Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (5 males, NHRS).

Remarks. The species was described on the basis of old specimens preserved in alcohol and the forewings had no discernible pattern. These newly collected specimens show a faint pattern of

a few lighter spots which are variably developed and mostly along the costal region of the forewings.

Cheumatopsyche septa Oláh & Johanson, 2008

Cheumatopsyche septa Oláh & Johanson, 2008, in Oláh, Johanson & Barnard 2008: 153.

Material examined. Madagascar, Mahajanga, Manongarivo NP, Beraty, Manongarivo river, 19.xi.2012, light trap, 14.02869°S, 48.24859°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Mahajanga Prov., Marovoay Dist., bridge at Lac Ravelobe drainage, 16°18'23.5"S, 46°48'44.2"E, 108 m, 28.xi.2009, light trap, leg. J. Bergsten & N. Jönsson (1 male, NHRS).

Cheumatopsyche siaposa Oláh & Mey, sp. nov.

(Figures 246–249)

Material examined. Holotype: Madagascar, Andapa (Antsiranana), R. Masiaposa (crossing R N 3b at km 5-6) about 8 km upstream road bridge [14.659°S, 49.681°E], 700 m, 10.xi.2001, leg. Gerecke & Goldschmidt (male, ZMB).

Diagnosis. *Cheumatopsyche siaposa* sp. nov. belongs to the *Cheumatopsyche ayopa* species group which is characterised by having harpagones with bifid apex and an obliquely upwardly-directed ventroapical setose lobe. It resembles *Cheumatopsyche vacoana* Oláh & Johanson, 2008, from which it differs in having short, not long, basomesal setose lobe on segment X; almost closed circular interlobular gap or excision, not wide open V-shaped; harpagones longer, with bifid arrangement; phallic apparatus slender, not with broad phallobase.

Description. Brown, medium-sized, forewing length 10 mm.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulted in equally short dorsum and longer ventrum; posterior lobe above coxopodites produced into rounded triangle; intersegmental depression between segment nine and ten low, partially filled with single basomesal setose wart of segment X. Body of segment X as long as high; vertically elongate lateral setose area (cerci) located basally; pair of apicoventral setose lobes discernible in lateral view as upward directed, elongate structure, with small apicomesal oval excision; smooth mesocaudal lobe fused to these lobes. Coxopodites slender, slightly sigmoid in lateral view; harpagones elongate with bifid apex in ventral view; apex poorly discernible. Phallic apparatus with slender phallobase low phallosoma narrowing apically; pair of endothelial sclerites small and rounded.

Etymology. Coined from the name of the *locus typicus* the Masiaposa River, and considered as a noun in apposition.

***Cheumatopsyche siatra* Oláh & Johanson, sp. nov.**

(Figures 250–253)

Material examined. Holotype: **Madagascar**, Fianarantsoa: Matsiatra Ambony, Ranomafana area, Ambositra-Vondrozo PHP CF, Namorona river 1,8 km from Vohiparara, 21.2403°S, 47.3919°E, 1130 m, light trap, 30.xi.2011, stony river, leg.

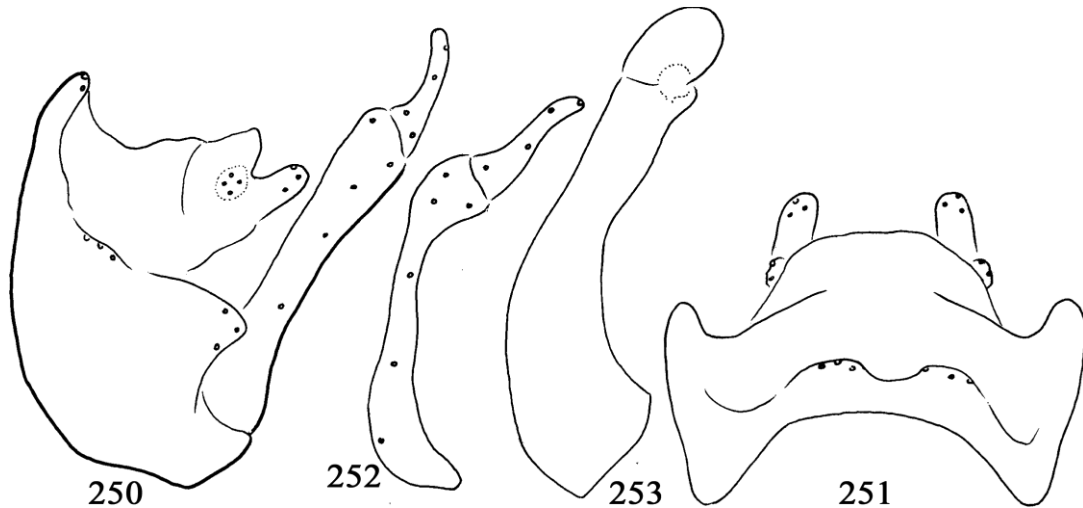
J. Bergsten, R. Bukontaite, R. Ranarilalantiana & J. H. Randriamihaja (male, NHRS). Paratype: same as holotype (1 associated female, OPC).

Diagnosis. *Cheumatopsyche siatra* sp. nov. of the *Cheumatopsyche ampanga* species group, has relatively short ventroapical setose lobe; its light-spotted forewing and its genitalia are similar to those of *Cheumatopsyche ampanga* Oláh & Johanson, 2008 and *Cheumatopsyche navasi* Johanson, 2010, from which it differs by the more strongly produced and triangular posterior lobe of segment X; by longer segment X; by the posterad produced triangular smooth mesocaudal lobe as visible in lateral view; by the straight not mesally directed or capitate dorsal profile of the ventrocaudal setal lobes; by the sigmoid ventral profile of the harpagones, not straight as in *C. ampanga* or capitate as in *C. navasi*.

Description. Brown, small-sized, forewings 6 mm; forewings evenly light-spot forming reticulate pattern.

Male genitalia. Abdominal segment IX fused annularly, short; anterior margin arciform, resulting in very short dorsum and longer ventrum; posterior lobe above coxopodites produced and triangular; intersegmental depression between segment nine and ten present, produced and rounded, right-angled in lateral view. Body of segment X slightly longer than high; circular lateral setose area (cerci) in apical position; apicoventral setose lobe discernible in lateral view as horizontal positioned elongated structure with regular rounded apex, straight and with similarly regular rounded apex in dorsal view; smooth mesocaudal lobe broad, semicircular in dorsal view, produced posteriorly into triangular in lateral view. Basal segment of gonopods straight, evenly robust; harpagones slightly sigmoid in ventral view. Phallic apparatus with weakly broadening phallobase, almost equally broad as phallosoma; pair of endothelial sclerites rounded elongated.

Etymology. Coined from the name of the *locus typicus*, Matsiatra Ambony, and treated as a noun in apposition.



Figures 250–253. *Cheumatopsyche siatra* Oláh & Johanson, sp. nov. Holotype: 250=genitalia in left lateral view, 251=genitalia in dorsal view, 252=left gonopod in ventral view, 253=phallic organ in left lateral view.

Potamyia Banks, 1900

***Potamyia andoba* Oláh & Barnard, 2006**

Potamyia andoba Oláh & Barnard, 2006, in Oláh, Barnard & Malicky 2006: 743.

Material examined. Madagascar, Antananarivo Prov., Bongolava Dist., Ambohijanahary NP, Sakasarotra, light trap at stream in forest, 18°16'6.4"S, 45°27'48.7"E, 906 m, 19.xii.2009, leg. J. Bergsten & N. Jönsson (4 males, NHRS). Madagascar, Antsiranana, Galoko mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilaladiana & J. H. Randriamihaja (2 males, OPC). Madagascar: Andringitra, Tsaranoro Massif, Sahanambo River, LF, Cascades, 800 m, 22.042°S, 46.756°E, 15-19.iv.2007 leg. W. Mey (4 males, OPC).

***Potamyia ifanadiana* Oláh & Barnard, 2006**

Potamyia ifanadiana Oláh & Barnard, 2006, in Oláh, Barnard & Malicky 2006: 745.

Material examined. Madagascar, Fianarantsoa, Vatovavy Fitovinany, Ifanadiana, Ranomafana, Parc National de Ranomafana, Ranomafana, Ambodiamontana, Namorona river by the bridge below park entrance, 21.25809°S, 47.42165°E,

920 m, 1.xi.2011. GB net and sieves, rockpools, leg. J. Bergsten, R. Bukontaite, T. Ranarilaladiana & J. H. Randriamihaja (20 males, NHRS; 7 males, OPC). Madagascar, Fianarantsoa, Matsiatra Ambony, Fianarantsoa Rural, Androy, Paysage Harmonieux Protégé du Corridor Forestier Ambositra-Vondrozo, PHP CF Ambositra-Vondrozo, Namorona river 1,8 km from Vohiparara, 21.24032°S, 47.39186°E, 1130 m, 30.x.2011. 22 W black light trap, stony river, leg. J. Bergsten, R. Bukontaite, T. Ranarilaladiana & J. H. Randriamihaja (7 males, NHRS). Madagascar, Antananarivo Prov., Bongolava Dist., Ambohijanahary NP, Sakasarotra, light trap at stream in forest, 18°16'6.4"S, 45°27'48.7"E, 906 m, 19.xii.2009, leg. J. Bergsten & N. Jönsson (2 males, NHRS). Madagascar, Ranomafana, Centre Val Bio, 12.iv.2018, leg. S. Nanmann (6 males, 2 females; ZMB).

Limnephiloidea Kolenati, 1848

Pisuliidae Ross, 1967

Small to big sized caddisflies with broad wings endemic to the Afrotropical Region and populating various hygropetric habitats shaded by vegetation (Stoltze 1989). The larvae feed on various dead plant materials and their population densities may reach more than thousand larvae per square meter. According to Malm, Johanson & Wahlberg (2013) the sister group of Pisuliidae

is the Oceanian+South American endemic Kokiriidae. The Pisuliidae comprises the two genera of *Pisulia* and *Silvatares* and 13 *Pisulia* species and 10 *Silvatares* species have so far been described from the Afrotropical Region Six *Pisulia* and a single *Silvatares* species have been recorded from Madagascar, and all appear to be endemic to the island. Below we describe 13 new *Pisulia* and 2 new *Silvatares* species from Madagascar. The 23 known Pisuliidae in the Afrotropical region are thus increased to 38 species.

***Pisulia ambina* Oláh, sp. nov.**

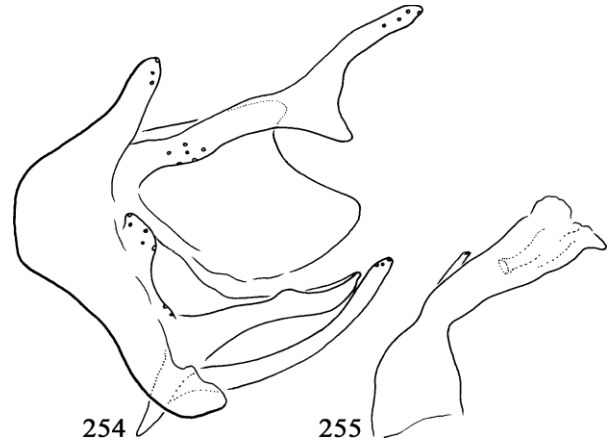
(Figures 254–255)

Material examined. Holotype: **Madagascar**, Ambinanytelo, Marojejy, 2030 m, June 1959, leg. Pierre Soga (male, OPC) [14.44°S, 49.733°E]. (Madagascar Est: massif du Marojejy, Ambinanytelo, 500 m.) [14.436°S, 49.774°E].

Diagnosis. *Pisulia ambina* sp. nov. is similar to *Pisulia tanana* sp. nov., from which it differs by having unmodified apicomeral spur of the posterior tibiae; this spur is typically modified into unisetose, usually curving spur. Both *Pisulia ambina* sp. nov. and *Pisulia tanana* sp. nov. have wings without any modified thickened scale-like hairs, present in many other species of the genus. *Pisulia ambina* sp. nov. differs also from *P. tanana* sp. nov. in the genitalia. The basolateral lobe of the cerci is reduced to a setose surface, while forming a lobe in *P. tanana* sp. nov. The lateral profile of the hooded fused segment X and paraproct is high and bilobed, not low and monolobous. The phallic organ is strongly constricted at midway, not forming a simple curving tube.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal fused interantennal setose wart modified into knob-like elevation. Spur formula 2,4,3; posterior legs with apicomeral spur unmodified.

Forewings 7 mm; rounded, densely covered with hairs, uniformly brownish with distinct whitish thyridial spot. Patches of modified thick-



Figures 254–255. *Pisulia ambina* Oláh, sp. nov. Holotype: 254=genitalia in left lateral view, 255=phallic organ in left lateral view.

ened, scaloid hairs lacking both on forewings and hindwings.

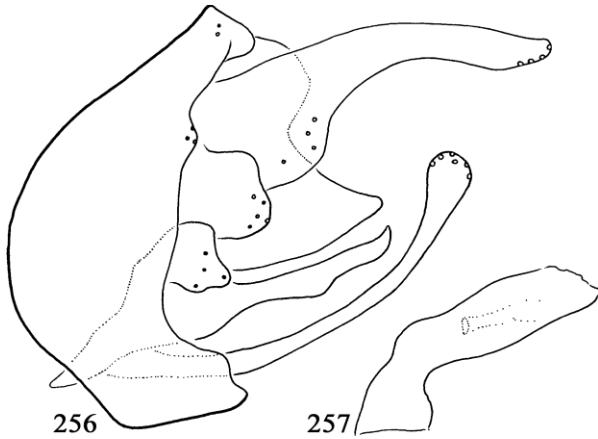
Male genitalia. Segment IX very short, with almost rectangular anterior lobe. Dorsal complex with fused segment X, paraproct high, bilobed in lateral view; elongated cerci with ventral subapical triangular lobe and without basolateral lobe. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe short, high, unisetose, highly sclerotized mesal lobe slender and elongated; pair of elongate, digitiform process of modified basal plate with rounded head. Phallosome highly constricted subbasad.

Etymology. Coined from the name of the *locus typicus*, Ambinanytelo and treated as a noun in apposition.

***Pisulia ambohita* Oláh, sp. nov.**

(Figures 256–257)

Material examined. Holotype: **Madagascar**, Ambohitantely, Dr. Ankazobe, xii.1956 (R. E.), (leg. Edouard Razafimamdimby?) (male, OPC). (Madagascar Centre: 25/30 km au N.-E. d'Ankazobe, lambeaux forestiers du tampoketsy d'Ambohitantely, 1550 à 1600 m) [18.167°S, 47.281°E]. Paratypes: same as holotype (1 male, 1 female; MNHN) [18.167°S, 47.281°E]. Madagascar, NE Andasibe, 950 m, Vakona Lodge, LF, 11-



Figures 256–257. *Pisulia ambohita* Oláh sp. nov. Holotype: 256=genitalia in left lateral view, 257=phallic organ in left lateral view.

13.iv.2007, leg. W.Mey (4 males, ZMB; 3 males, OPC) [18.931°S, 48.42°E].

Diagnosis. *Pisulia ambohita* sp. nov. is similar to *Pisulia ampolomita* sp. nov., from which it differs by having a longer segment IX; in the lateral profile of the cerci having significant ventrobasal widening lacking in *P. ampolomita*; the lateral lobe of the gonopods is short, not long; and the phallic organ is differently shaped.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal fused interantennal setose wart modified into knob-like elevation. Spur formula 2,4,3; hind tibiae with apicomesal spur less setose, pointed spine-like with curved apex.

Forewings 7 mm; rounded, densely covered with hairs, uniformly brownish with distinct whitish thyridial spot. Patches of modified thickened, scaloid hairs lacking both on forewings and hindwings.

Male genitalia. Segment IX short, ventrum produced posteriorly. Dorsal complex with short segment X; elongate cerci with basally broad in lateral view and having short dorsomesal and ventrolateral lobes; mesal plate-like paraproct forming short hood. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe short, unsetose, highly

sclerotized mesal lobe slender, elongate; elongate pair of digitiform processes of modified basal plate with clavate head. Phallosome constricted subbasally.

Etymology. Coined from the name of the *locus typicus*, Ambohitantely, and treated as a noun in apposition.

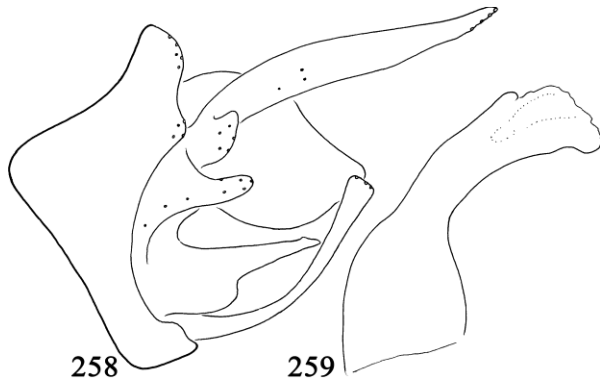
***Pisulia ampolomita* Oláh, sp. nov.**

(Figures 258–259)

Material examined. Holotype: **Madagascar**, Ampolomitra, east Belanitra, Distr. Ambatolampy, May 1956, leg. P. Griveaud. (male, OPC). (Ampolomita, Madagascar Centre: S.-E. d' Ambatolampy, S.-E. de Belanitra, Ampolomita, 1300 m). Paratypes: same as holotype (1 male, MNHN) [19.81°S, 47.82°E]. Madagascar, Ankaratra, Manjakatempo, 1953, Paulian (1 male, OPC) (Ankaratra massif de l'Ankaratra, Madagascar Centre: au S.-O. de Tananarive) [19.334°S, 47.326°E]. Madagascar, Andingitra 2000 m, I. 1958, leg. R. Paulian (1 male, MNHN; 1 male, OPC) [22.2°S, 46.87°E]. Madagascar, An Sringitra, Plateau Soadin Srano, 2070 m, 16.i.1958 (1 female, MNHN; 1 male, OPC) [unknown locality, probably Andingitra [22.2°S, 46.87°E]. Madagascar, Ifanadiana, Ranomafana, iii.1955, leg. Paulian (1 male, OPC). (Ifanadiana, Madagascar Est: S.-P. d'Ifanadiana) [21.26°S, 47.45°E].

Diagnosis. This species resembles *Pisulia ambohita* sp. nov., from which it differs by segment IX having triangular anterior margin, not semicircular, by the lateral profile of the cerci without ventrobasal broadening present in *P. ambohita*, the lateral lobe of the gonopod long digitiform not short and the phallic organ is differently shaped.

Description. Large-sized species. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3; on posterior leg the apicomesal modified spur almost double long than the other.



Figures 258–259. *Pisulia ampolomita* Oláh sp. nov. Holotype: 258=genitalia in left lateral view, 259=phallic organ in left lateral view.

Forewing length 11 mm. Forewings rounded, uniformly brownish with distinct whitish thyridial spot, densely covered with hairs. Modified scaloid hairs present on forewings and hind wings; on forewing particularly concentrated along anterior and posterior margins, on hindwing along the longitudinal veins and on the middle.

Male genitalia. Segment IX short characterized with a triangularly produced lobe anterad. Dorsal complex with short segment X; the elongated cerci without basal broadening in lateral view and having a setose ventrolateral lobe; mesal plate-like paraproct forming short hood. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe digitate, unsetose, highly sclerotized mesal lobe slender with ventrobasal broadening; pair of elongate, digitiform process of modified basal plate with clavate head. The phallosome constricted middle.

Etymology. Coined from the name of the *locus typicus*, Ampolomitra. Treated as a noun in apposition.

***Pisulia dingitra* Oláh, sp. nov.**

(Figures 260–261)

Material examined. Holotype: **Madagascar**, Andingitra, 2000 m, i.1958, leg. R. Paulian (1 male, OPC) [22.2°S, 46.87°E].

Diagnosis. *Pisulia dingitra* sp. nov. is similar to *Pisulia tanana* sp. nov., from which it is se-

parated by the much shorter segment IX, shorter segment X, shorter cerci and shorter lateral lobe of the gonopods complex. In addition, the phallosome is more robust.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3; hind tibia with apicomeral modified spur as long as other spurs.

Forewings 7 mm; rounded, densely covered with hairs, uniformly brownish with distinct whitish thyridial spot. Scaloid setae lacking on forewings and hind wings.

Male genitalia. Segment IX short, both on ventrum and dorsum characterized with a rounded anterior margin. Dorsal complex with short segment X; moderately elongated cerci with trilobed apex, with setose elongate ventrolateral lobe widening ventrobasally; mesal plate-like paraproct forming short hood together with segment X. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe short slightly subdivided, unsetose, highly sclerotized mesal lobe long and slender, basally wide; pair of elongate, digitiform process of modified basal plate slightly curving upward. Phallosome robust.

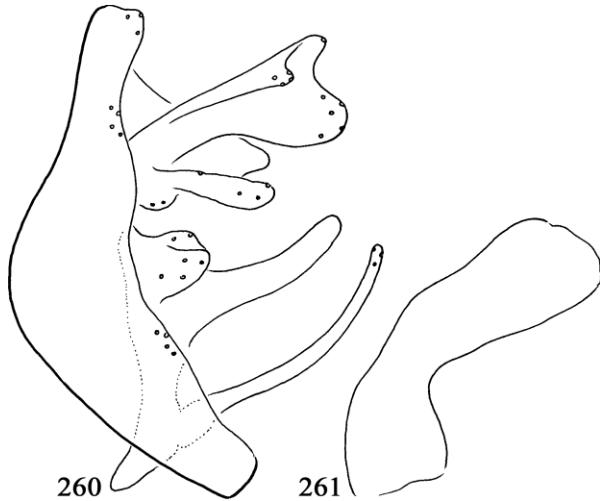
Etymology. Coined from the name of the *locus typicus*, Andingitra. Treated as a noun in apposition.

***Pisulia karatoa* Oláh, sp. nov.**

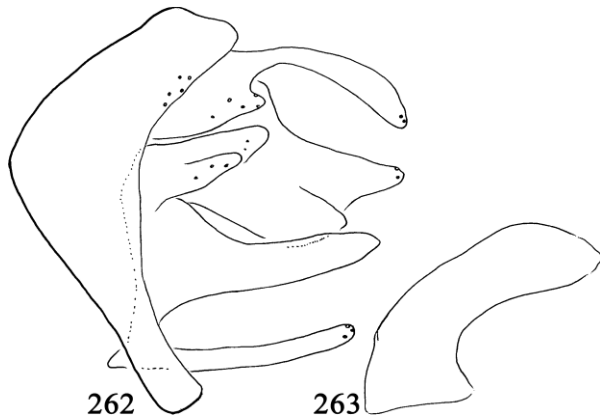
(Figures 262–263)

Material examined. Holotype: **Madagascar**, Ankaratra, (massif de l'Ankaratra. Madagascar Centre: au S.-O. de Tananarive) Manjakatempo, 1953, leg. Paulian (1 male, OPC). (Madagascar Centre: massif de l'Ankaratra, station forestière et réserve de Manjakatempo). Paratype: same as holotype (1 male, MNHN) [19.334°S, 47.326°E].

Diagnosis. The species is similar to *Pisulia pinheyi* Kimmins, 1957 described from Zimbab-



Figures 260–261. *Pisulia dingitra* Oláh sp. nov. Holotype: 260=genitalia in left lateral view, 261=phallic organ in left lateral view.



Figures 262–263. *Pisulia karatoa* Oláh sp. nov. Holotype: 262=genitalia in left lateral view, 263=phallic organ in left lateral view.

we, from which it differs by having a very short ventrum of segment IX, by the rounded and broadening apex of segment X, as well as by the less produced lateral lobe of the gonopod complex.

Description. Small-sized. Ocelli absent. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3; hind tibia with apicomeral modified spur as long as other spurs.

Forewing length 6 mm. Forewings rounded, uniformly brownish with distinct whitish thyridial spot, densely covered with hairs. Scaloid setae lacking on forewings and hind wings.

Male genitalia. Segment IX short, ventrum with rounded anterior margin. Segment X with dorsal complex long with rounded, broadening apical half, well visible in dorsal view; elongate cerci with basally broad in lateral view, with short setose ventrolateral lobe; mesal plate-like paraproct forming short hood together with segment X. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe bilobed digitate, unsetose, highly sclerotized mesal lobe long and slender, basally wide; elongate pair of digitiform processes of modified basal plate straight. The phallosome robust.

Etymology. Coined from the name of the *locus typicus*, Ankaratra. Treated as a noun in apposition.

***Pisulia lata* Johanson, 2010**

Pisulia lata Johanson, 2010:294–296. “Type material. Male Holotype: Madagascar, Fianarantsoa Prov., Ranomafana, Malaise trap near river in tropical forest, 1150 m, 21.2554°S, 47.4552°E, 12-20.xii.1999 (leg. M. E. Irwin & E. I. Schlinger) – INHS (alcohol).” [21.2554°S, 47.4552°E].

***Pisulia magna* Johanson, 2010**

Pisulia magna Johanson, 2010:296–298. “Type material. Male Holotype: Madagascar, Fianarantsoa Prov., Ranomafana, Malaise trap near river in tropical forest, 12-20.xii.1999, 1150 m, 21.2554°S, 47.4552°E, (leg. M. E. Irwin & E. I. Schlinger) – INHS (alcohol). Paratypes: 1♂: same data as holotype, except NHRS; 2♂: same data as holotype, except NHRS.” [21.26°S, 47.45°E].

***Pisulia maroa* Oláh, sp. nov.**

(Figures 264–265)

Material examined. Holotype: **Madagascar**, Maroanetra, Ivontaka, iii.1958, leg. Paulian (male, OPC). (Ivontaka. Madagascar Est: *ca.*

18/20 km au S. de Mananara Nord, Ivontaka, 8 m, Localité côtière) [16.3°S, 49.816°E].

Diagnosis. This species is similar to *Pisulia sandra* sp. nov., from which it differs by the smaller size; the straight, downward directed apices of segment X, not sigmoid; the lateral profile of the cerci having little bigger ventrobasal setose arm and supplied with an additional setose lobe, not just a basal setose surface; the lateral pattern of the gonopods; and by the phallic organ having more robust phallosome.

Description. Small-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3; apicomeral modified spur on hind tibiae 2x longer than other spurs.

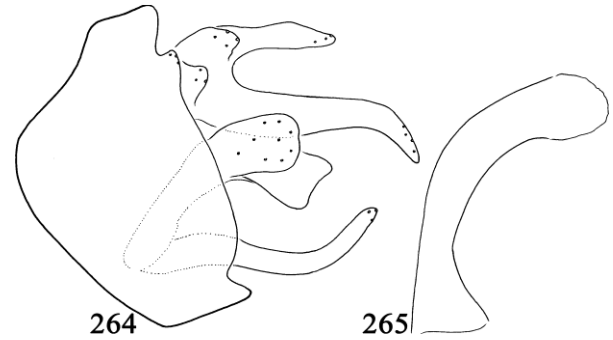
Forewings 7 mm; rounded, densely covered with hairs, uniformly brownish with less distinct whitish thyridial spot. Scaloid setae lacking on forewings and hind wings.

Male genitalia. Segment IX long, with bluntly triangle lobe produced anteriorly. Segment X with dorsal complex produced into downwardly oriented, pointed elongation; cerci with vestigial setose, ventrolateral, lobe, and additional small basal setose lobe; mesal paraproct plate-like, forming deeply divided hood together with segment X. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe almost rectangular, unsetose, highly sclerotized mesal lobe broad with truncated, slightly concave apex; elongate pair of digitiform processes of modified basal plate curving slightly upward. Phallosome simple, curving, robust.

Etymology. Coined from the name of the *locus typicus*, Maroansetra; a noun in apposition.

***Pisulia masuala* Malicky, 2020**

Pisulia masuala Malicky, 2020: 515. "Holotypus ♂: Madagascar, Cap Est, Nature Park Masoala, 27-30.xii.2003, leg. Dolin & Andrejeva." [15.63°S, 50.1°E].



Figures 264–265. *Pisulia maroa* Oláh sp. nov. Holotype: 264=genitalia in left lateral view, 265=phallic organ in left lateral view.

***Pisulia paulia* new species complex**

This new species complex is distinguished primarily by the gonopods having particularly developed basal plate forming a pair of elongated bow-shaped digitiform processes with well-developed apical group of sensory hairs. Another unique characteristic is the sexual dimorphism in head characters. Particularly visual is the existing of male frontal interantennal fused setose wart that are highly modified into a very high knob-like elevation. Five species belong to this complex: *Pisulia muramonga* Malicky, 2020; *P. nosiba* sp. nov., *P. paulia* sp. nov., *P. tsaranora* sp. nov. from Madagascar, and *P. austrina* Morse, 1974 from South Africa.

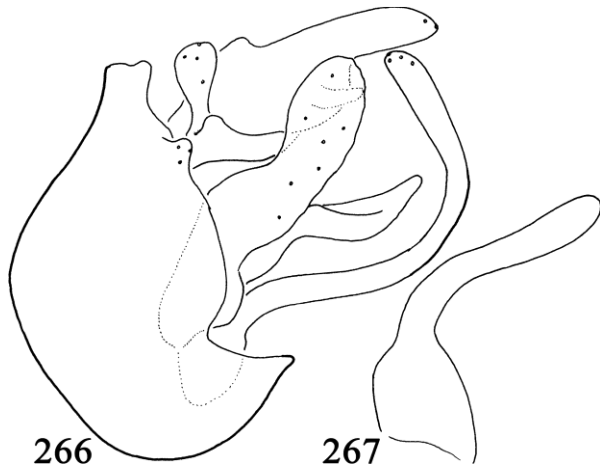
***Pisulia muromanga* Malicky, 2020**

Pisulia muromanga Malicky, 2020:514. "Holotypus ♂: Madagascar, Central Plateau, Moramanga, 1200 m, 11-15.xii.2000, leg. Dolin & Andrejeva [18.95°S, 48.24°E]. Paratypus ♂: Madagascar, Betampona Nature Reserve, 17°54'S, 49°12'E, 315 m, ohne datum, leg. Carlos Lopez."

***Pisulia nosiba* Oláh, sp. nov.**

(Figures 266–267)

Material examined. Holotype: **Madagascar**, Anosibe, km 57 route, 1955, leg. R. Paulian (male, OPC). (Madagascar Est: S.-P. de Moramanga, route d'Anosibe. Station km 57) [19.212°S, 48.222°E].



Figures 266–267. *Pisulia nosiba* Oláh sp. nov. Holotype: 266=genitalia in left lateral view, 267=phallic organ in left lateral view.

Diagnosis. The species is similar to *Pisulia muromanga* Malicky, 2020, from which it differs by the shape of segment IX in lateral view; the clavate lateral setose lobe of the cerci; the more robust lateral arm of the gonopods; the lower placement and differently patterned mesal arm of the gonopods in lateral view; as well as by the almost straight and parallel-sided, not sigmoid distal half of processes of the basal plate in ventral view. In addition, the phallic organ is broad-based in lateral view, and the apical section is rather straight, not curving.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart highly forming high knob-like elevation. Spur formula 2,4,3; apicomeresal tibial spur less setose, pointed spine-like with curved apex.

Forewing length 9 mm, rounded, uniformly brownish with distinct whitish thyridial spot, densely covered with hairs. Patches of scale-like hairs present on posterior margin of forewings, lacking in hind wings.

Male genitalia. Segment IX relatively long with short dorsum and long ventrum. Complex of fused segment X and paraproct low and bilobed in lateral view; elongate cerci with broad basal region and with clavate upwardly-directed setose

basolateral lobe. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe very long and robust; unsetose, more sclerotized mesal lobe slender, elongate; elongate pair of digitiform processes of modified basal plate semicircular. Phallosome broad-based.

Etymology. Coined from the name of the *locus typicus*, Anosibe, and as a noun in apposition.

***Pisulia paulia* Oláh, sp. nov.**

(Figures 268–269)

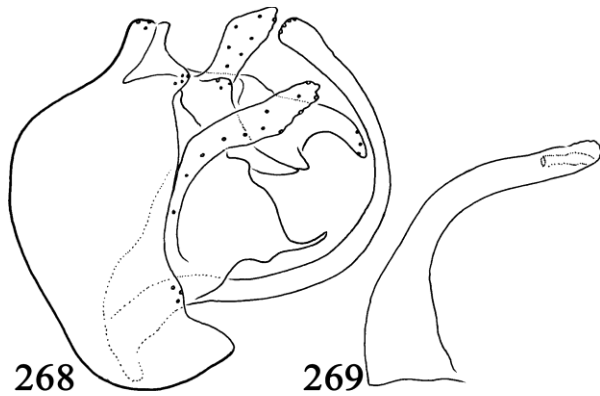
Material examined. Holotype: **Madagascar**, Anosibe, km. 57 route, 1955, leg. R. Paulian (male, OPC). (Madagascar Est: S.-P. de Moramanga, route d'Anosibe, Nombreuses stations: km 57) [19.212°S, 48.222°E].

Diagnosis. This species resembles *Pisulia tsaranora* sp. nov., from which it is distinguished by the shape of segment IX in lateral view, the obliquely truncated and triangular head of the cerci, the laterally angled lateral arm of the gonopods, as well as by the different pattern of the mesal arm of the gonopods in lateral view.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart modified into high, knob-like elevation. Spur formula 2,4,3; hind tibiae with apicomeresal spur less setose, more pointed, spine-like, with curved apex.

Forewing length 10 mm, rounded, densely covered with hairs, uniformly brownish with indistinct whitish thyridial spot. Patches of thick, scale-like, hairs along anal coastal margin, behind forewing anal veins.

Male genitalia. Segment IX produced anteriorly, forming almost half-circular, in lateral view with V-shaped, dorsal, groove. Segment X with mesal downwardly curving pair of digitate processes, lateral upwardly elongate cerci, and mesal plate-like paraproct forming dorsal complex above phallic organ. Complex of gonopods with basal plate form guiding apparatus of phallic organ.



Figures 268–269. *Pisulia paulia* Oláh, sp. nov. Holotype: 268=genitalia in left lateral view, 269=phallic organ in left lateral view.

Etymology. Coined in honour of the great French collector, Renaud Maurice Adrien Paulian. Treated as a noun in apposition.

***Pisulia tsaranora* Oláh & Mey, sp. nov.**

(Figures 270–273)

Material examined. Holotype: **Madagascar**, Andringitra, Tsaranoro Massif, stream 2, 18.iv.2007, leg. W. Mey (male, OPC). Paratypes: same as holotype (2 males, OPC; 4 males, 1 female; ZMB). Madagascar, Andringitra, Tsaranoro Massif, stream 2, 15.iv.2007, leg. W. Mey (2 males, 1 female; ZBM) [22.09°S, 46.77°E].

Diagnosis. This species resembles *Pisulia muromanga* Malicky, 2020, from which it is distinguished by the shape of segment IX in lateral view, the pointed or tapering head of the lateral arm of the gonopods, the different pattern of the mesal arm of the gonopods in lateral view, as well as by the straight and parallel-sided, bow-shaped, digitiform, processes of the basal plate in ventral view, not sigmoid as in *P. muromanga*.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart forming high, knob-like, elevation. Spur formula 2,4,3; hind tibiae with smaller apicomeral modified into less setose, pointed spine-like with curved apex.

Forewing length 9 mm, rounded, densely covered with hairs, uniformly brownish with indistinct whitish thyridial spot. Patches of thick, scale-like, hairs along anal coastal margin, behind forewing anal veins.

Male genitalia. Segment IX short, single vertical dorsal groove present. Segment X with mesal downwardly curving pair of digitate processes, lateral upwardly elongate cerci and mesal plate-like paraproct form dorsal complex above phallic organ. Complex of gonopods with basal plate form guiding apparatus of phallic organ. Elongate, bow-shaped, digitiform process straight parallel-sided in ventral view.

Etymology. Coined from the name of the *locus typicus*, Tsaranoro Massif, and treated as a noun in apposition.

***Pisulia poelli* Malicky, 2020**

Pisulia poelli Malicky, 2020:515. "Holotypus ♂: Madagascar, Prov. Antsiranana, Nosy Be, NW Hell Ville (Andoany), 1 km Lac Djabala, 13.37°S, 48.23°E, 40 m, 25.x.2013, leg. N. Pöll."

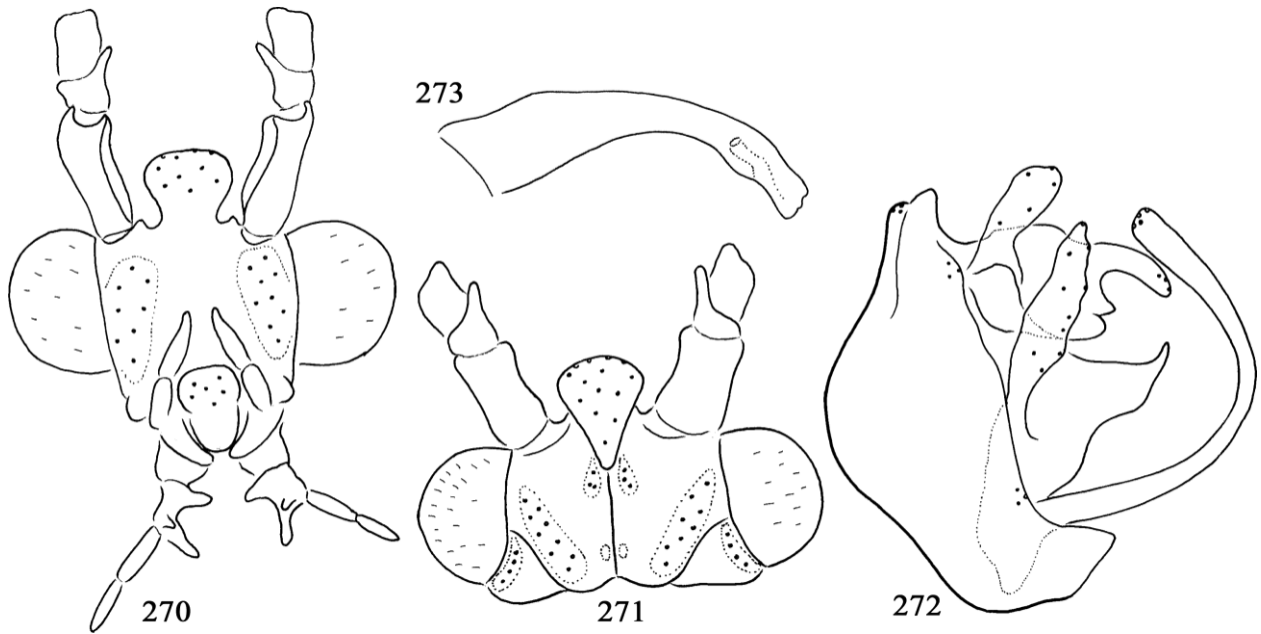
***Pisulia ranoma* Oláh, sp. nov.**

(Figures 274–275)

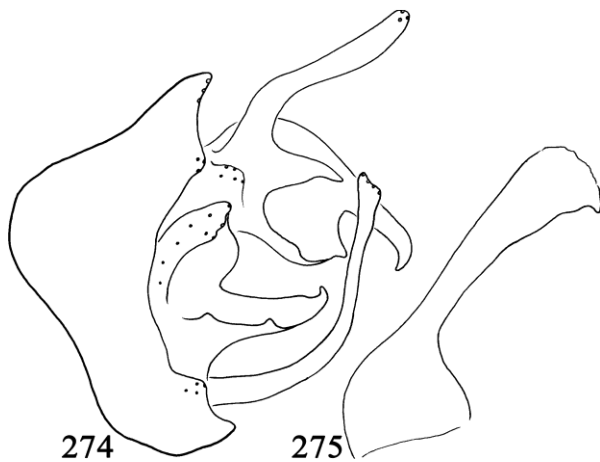
Material examined. Holotype: **Madagascar**, Ifanadiana, Ranomafana, Mar. 1955, leg. Paulian (male, OPC). (Madagascar Est: S.-P. d'Ifanadiana) [21.26°S, 47.45°E].

Diagnosis. This species resembles *Pisulia ampolomita* sp. nov., from which it differs by the apical region of segment X that is produced into a downward directed digitiform process, the lateral profile of the cerci having a ventrobasal pointed arm, the lateral pattern of the gonopods as well as by the phallic organ having pointed ventroapical elongation on the phallosome.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3;



Figures 270–273. *Pisulia tsaranora* Oláh & Mey, sp. nov. Holotype: 270=head in frontal view, 271=head in dorsal view, 272=genitalia in left lateral view, 273=phallic organ in left lateral view.



Figures 274–275. *Pisulia ranoma* Oláh, sp. nov. Holotype: 274=genitalia in left lateral view, 275=phallic organ in left lateral view.

hind tibia with apicomesal modified spur as long as other spurs.

Forewing length 9 mm, rounded, densely covered with hairs, uniformly brownish with less distinct whitish thyridial spot. Modified scaloid hairs present on forewings and hind wings; few thickened hairs along basal part of forewing longitudinal veins Sc, R and M, and along longitudinal veins and on middle of hind wings.

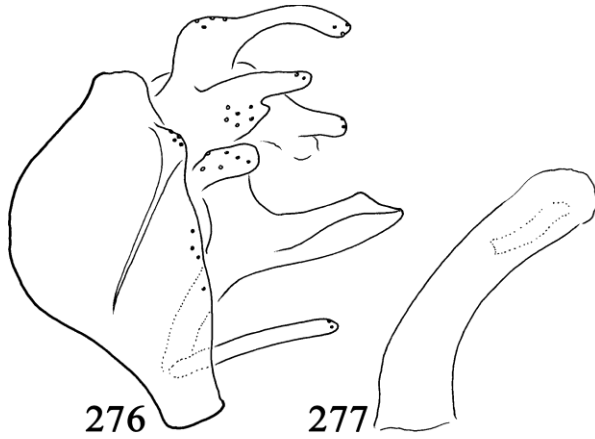
Male genitalia. Segment IX short, with bluntly triangular lobe anteriorly. Segment X with dorsal lobe anteriorly produced into downwardly oriented, pointed elongation; cerci with vestigial setose, ventrolateral, lobe; mesal plate-like paraproct forming short hood. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe curving digitate, unsetose, highly sclerotized mesal lobe slender with ventrobasal broadening and upwardly-directed pointed apex; elongate pair of digitiform processes of modified basal plate with obliquely cut clavate head. Phallosome constricted at midway, with downwardly directed, pointed ventroapical elongation.

Etymology. Coined from the name of the *locus typicus*, Ranomafana, and treated as a noun in apposition.

***Pisulia rina* Oláh, sp. nov.**

(Figures 276–277)

Material examined. Holotype: **Madagascar**, Perinet, 1955, leg. R. Paulian (male, OPC). (Madagascar Est: 30 km à l'E. de Moramanga, Perinet, Station forestière et réserve spéciale d'Analamazaotra-Perinet) [18.939°S, 48.434°E].



Figures 276–277. *Pisulia rina* Oláh, sp. nov. Holotype: 276=genitalia in left lateral view, 277=phallic organ in left lateral view.

Diagnosis. This species resembles *Pisulia nosiba* sp. nov., a member of *Pisulia paulia* species complex, from which it differs by lacking any modified thickened scale-like hairs present on the posterior margin of forewing at *P. nosiba*. *P. rina* sp. nov. differs from *P. nosiba* sp. nov. also by the genital structure. The setose lateral lobe of the gonopod more developed as well as the pair of the digitiform processes on the basal plate double long and semicircular in lateral view, not short and straight. The phallic organ is a simple curving tube not broad-based.

Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart moderately forming high knob-like elevation. Spur formula 2,4,3; apicomesal tibial spur less setose, pointed spine-like with curved apex.

Forewings 7 mm; rounded, densely covered with hairs, uniformly brownish with distinct whitish thyridial spot. Patches of modified thickened, scaloid hairs lacking both on forewings and hindwings.

Male genitalia. Segment IX relatively long with abbreviation of dorsum and ventrum. Complex of fused segment X and paraproct low and monolobed in lateral view; elongate cerci with broad basal region and with long bifid basolateral lobe. Complex of gonopods with basal plate form

guiding apparatus of phallic organ; setose lateral lobe short, the unsetose more sclerotized mesal lobe is broad and elongated; elongate pair of digitiform processes of modified basal plate straight. The phallosome is a simple curving tube.

Etymology. Coined from the name of the *locus typicus*, Réserve Spéciale d'Analamazaotra-Perinet. Treated as a noun in apposition.

***Pisulia sandra* Oláh, sp. nov.**

(Figures 278–279)

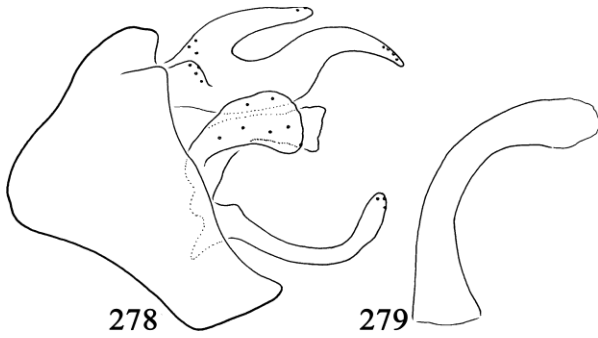
Material examined. Holotype: **Madagascar**, Sandrangato, Moramanga, xii.1954, leg. Paulian (male, OPC). (Madagascar Est: S.-P. de Moramanga, route d'Anosibe, km 26, forêt de Sandrangato). Paratype: same as holotype (1 male, MNHN) [19.15°S, 48.234°E].

Diagnosis. This species resembles *Pisulia maroa* sp. nov., from which it differs by the bigger size, the sigmoid lateral profile of segment X, not straight with downward curving apices; the lateral profile of the cerci having little smaller ventrobasal setose arm and without additional setose lobe, there is just a basal setose surface; the lateral pattern of the gonopods exhibiting downward curving lateral arm with narrow basal region, almost rectangular. The phallic organ has less robust phallosome.

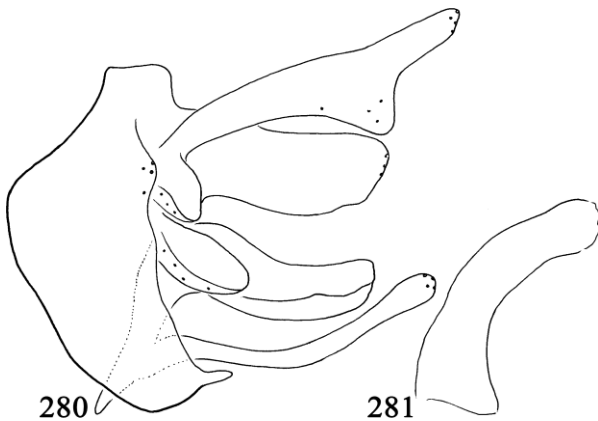
Description. Medium-sized. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal interantennal fused setose wart less modified, forming knob-like elevation. Spur formula 2,4,3; apicomesal modified spur on hind tibiae 2x longer than other spurs.

Forewing length 9 mm; rounded, densely covered with hairs, uniformly brownish with less distinct whitish thyridial spot. Scaloid setae lacking on forewings and hind wings.

Male genitalia. Segment IX long, with train-gularly produced lobe anteriorly. Segment X with dorsal complex produced into sigmoid downwardly directed, pointed elongation; cerci with vestigial setose, ventrolateral, lobe; mesal para-



Figures 278–279. *Pisulia sandra* Oláh, sp. nov. Holotype: 278=genitalia in left lateral view, 279=phallic organ in left lateral view.



Figures 280–281. *Pisulia tanana* Oláh, sp. nov. Holotype: 280=genitalia in left lateral view, 281=phallic organ in left lateral view.

proct plate-like, forming deeply divided hood together with segment X. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe downward curving, un-setose, highly sclerotized mesal lobe broad with truncated apex; elongate pair of digitiform processes of modified basal plate curving strongly upward. Phallosome uniformly curving, almost uniformly slender.

Etymology. Coined from the name of the *locus typicus*, Sandrangato, and treated as a noun in apposition.

***Pisulia stoltzei* Johanson & Mary, 2009**

Pisulia stoltzei Johanson & Mary, 2009:3. France. “Mayotte: Koualé river, affluent forêt 1 (DAF-19),

12°47'57.84”S, 45°09'51.77”E, 201 m, 18.v.2006. Abdomen mounted in Euparal on microscope slide, rest of body in alcohol (MNHN)”

***Pisulia tanana* Oláh, sp. nov.**

(Figures 280–281)

Material examined. Holotype: **Madagascar**, Mt Tsaratanana, 500 m, leg. R. Paulian (male, OPC). (Massif du Tsaratanana, Madagascar Sambirano et Centre: au S.-E. d’Ambanja) [14°S, 48.735°E]. Paratype: Madagascar, Mt Tsaratanana, 1700 m, leg. R. Paulian (1 male, MNHN). (Massif du Tsaratanana, Sambirano et Centre: au S.-E. d’Ambanja) [14.03°S, 48.903° E].

Diagnosis. This species is similar to *Pisulia ambina* sp. nov. from which it differs by having modified apicomesal hindtibial spur; this spur is otherwise modified into an un-setose, usually curving spur in other members of the genus. Both species, *Pisulia tanana* sp. nov. and *Pisulia ambina* sp. nov. have wings without modified thickened scale-like hairs common in many other species of the genus. *Pisulia tanana* sp. nov. differs from *P. ambina* sp. nov. also in the genitalia. The basolateral lobe of the cerci is present but does not form a flat setose surface. The lateral profile of the fused segment X and paraproct is situated low and is monolobed, not situated high and bilobed. The phallic organ forms a simple, curving tube, not strongly constricted at mid-length.

Description. Large-sized species. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Male head with frontal fused interantennal setose wart modified into knob-like elevation. Spur formula 2,4,3; apicomesal tibial spur less setose, pointed spine-like with curved apex. Forewing length 12 mm. Forewings rounded, uniformly brownish with distinct whitish thyridial spot, densely covered with hairs. Patches of modified thickened, scaloid hairs lacking both on forewings and hindwings. Male genitalia. Segment IX relatively long with dorsoapical abbreviation. Complex of fused segment X and paraproct low, monolobed in lateral view; elongate

cerci with ventral subapical triangular lobe and with basolateral lobe. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe elongate, unsetose, highly sclerotized mesal lobe broad and elongate; elongate pair of digitiform processes of modified basal plate with clavate head. Phallosome simple, curving tube.

Etymology. Coined from the name of the *locus typicus*, Mt Tsaratanana, and treated as a noun in apposition.

***Silvatares ampolomit* Oláh, sp. nov.**

(Figures 282–283)

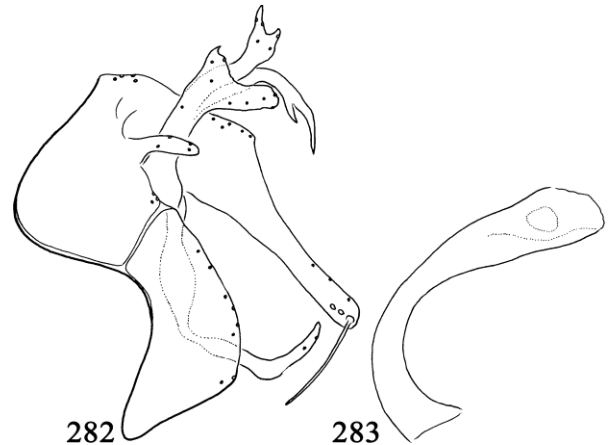
Material examined. Holotype: **Madagascar**, Ampolomitra, Est Belanitra, Dist. Ambatolampy, v.1956, leg. P. Griveaud (male, OPC). (Ampolomitra, Madagascar Centre: S.-E. d'Ambatolampy, S.-E. Belanitra, Ampolomitra, 1300 m). Paratypes: same as holotype (1 male, 1 female OPC; 3 males, MNHN, 1 male, ZMB) [19.81°S, 47.82°E].

Diagnosis. This new species forms a species complex of incipient siblings together with *Silvatares madagascarensis* (Stoltze, 1989) and *S. marojej* sp. nov., and differs from both by the lateral shape of the dorsal complex of segment X and paraproct, by the bifid or bilobed apices of the two setose arms of the lateral lobe of gonopods.

Description. Large. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Legs with spur formula 2,4,4; posterior legs with apicomeres unmodified, pointed spine-like with curved apex.

Forewing length 17 mm. Forewing rounded, densely covered with hairs, uniformly brownish. Patches of modified thickened, scaloid hairs lacking both on forewings and hindwings.

Male genitalia. Segment IX with pronounced sigmoid anterior margin, divided at middle by dark suture. Complex of fused segment X and paraproct broadly based with elongate apical region armed with three megasetae; cerci digitiform fused to segment IX. Complex of gonopods



Figures 282–283. *Silvatares ampolomit* Oláh, sp. nov. Holotype: 282=genitalia in left lateral view, 283=phallic organ in left lateral view.

with basal plate form guiding apparatus of phallic organ; setose lateral lobe composed of two elongate and variously bifid or bilobed apex, mesal arm less setose, spine-like, with bifid apex; free apices of basal plate of gonopods blade-like. Phallosome simple, curving, broadening apically.

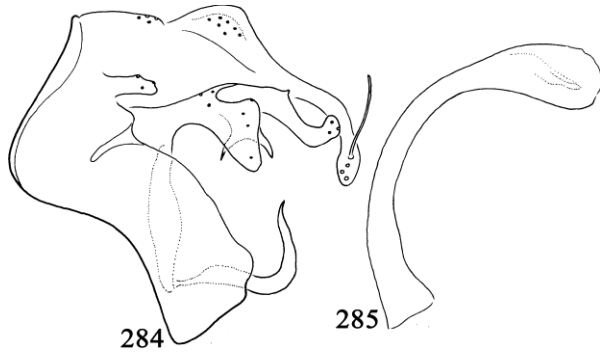
Etymology. Coined from the name of the *locus typicus*, Ampolomitra, and treated as a noun in apposition.

***Silvatares marojej* Oláh, sp. nov.**

(Figures 284–285)

Material examined. Holotype: **Madagascar**, Marojejy, R. N. XII, 2030 m, vi.1959, leg. P. Soga (male, OPC). (Marojejy ou Marojezy (massif du), Madagascar Est: massif du Marojejy, réserve naturelle intégrale n° 12). Paratype: same as holotype (1 female MNHN) [14.44°S, 49.733° E].

Diagnosis. This new species forms a species complex of incipient siblings together with *S. madagascarensis* and *S. ampolomit* sp. nov. It resembles *S. madagascarensis* from which it differs by the lateral shape of the dorsal complex of segment X, and the paraproct exhibiting sloppy, not vertical dorsum, by the lobe pattern of the gonopods as well as by the pointed, not blunt apices of the blade-shape pair of the basal plates of the gonopods.



Figures 284–285. *Silvatares marojej* Oláh, sp. nov. Holotype: 284=genitalia in left lateral view, 285=phallic organ in left lateral view.

Description. Large. Ocelli lacking. Eyes covered with short bristles. Antennae stout, as long as forewings. Legs with spur formula 2,4,4; posterior legs with apicomeral spur unmodified, pointed spine-like with curved apex.

Forewing length 12 mm. Forewing rounded, densely covered with hairs, uniformly brownish. Patches of modified thickened, scaloid hairs lacking both on forewings and hindwings.

Male genitalia. Segment IX with pronounced sigmoid anterior margin, divided middle halfway by a dark suture; the ventral curve less deep. Complex of fused segment X and paraproct broad-based with elongate apical region armed with megasetae; cerci digitiform fused to segment IX. Complex of gonopods with basal plate form guiding apparatus of phallic organ; setose lateral lobe composed of two elongate, variously curved monolobed apex, mesal arm less setose, spine-like, with widely opened bifid apex; free apices of basal plate of gonopods blade-like, acutely pointed. Phallosome simple, curving, broadening apically.

Etymology. Coined from the name of the *locus typicus*, Marojejy; a noun in apposition.

Lepidostomatidae Ulmer, 1903

Lepidostoma ambatov Oláh, sp. nov.

(Figures 286–289)

Material examined. Holotype: **Madagascar**, Reserve Nat. III, Ambatovesitra, Andranomalaza, ii.1957, leg. P. Soga, (1 male, OPC). (Ambato-

vositra. Madagascar Est: réserve naturelle intégrale n° 3, Andranomalaza, Ambatovesitra. Au N.-E. d'Ambatondrazaka) [17.767°S, 48.659°E].

Diagnosis. The wing venation, the morphology of the scapes, the maxillary palps and the genitalia, except the paraproct, are similar to those in *Lepidostoma pastinium* Weaver & Gibon, 2007, from which it differs by the much shorter second segment of the maxillary palps and as well as by the differently shaped and asymmetrical paraproct.

Description. Male (in alcohol). Medium-sized, dark brown. First segments of maxillary palps held adjacent to frons, equally wide, flat in transversal plane, mesal face with mixture of long scales and setae; second segment short, tapering distally, with dense tuft of long setae. Scapes elongate, cylindrical, mesal cavity with small basomesal hump absent.

Forewing length 7 mm.

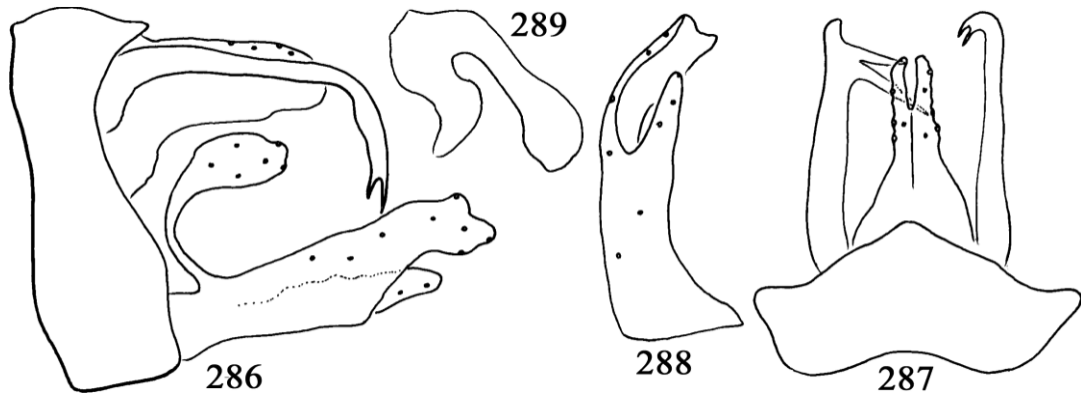
Male genitalia. Segment IX fused annularly, dorsum and venter nearly equally long. Dorsal complex of segment X, cerci and paraproct reduced to dorsomesal pair of processes fused basally, and setose dorsally and to lateral pair of spine-like setaless processes; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraproct, asymmetrical with differently shaped and directed bifid apical endings. Gonopods in lateral view with posterad curving clavate basodorsal process, extended vertically; in ventral view basal portion straight without mesal projection; harpagones fused with coxopodites, setaless. Phallic organ without parameres, phallicata curving ventrally, clavate, capitate.

Etymology. Coined from the name of the *locus typicus*, Ambatovesitra, and treated as a noun in apposition.

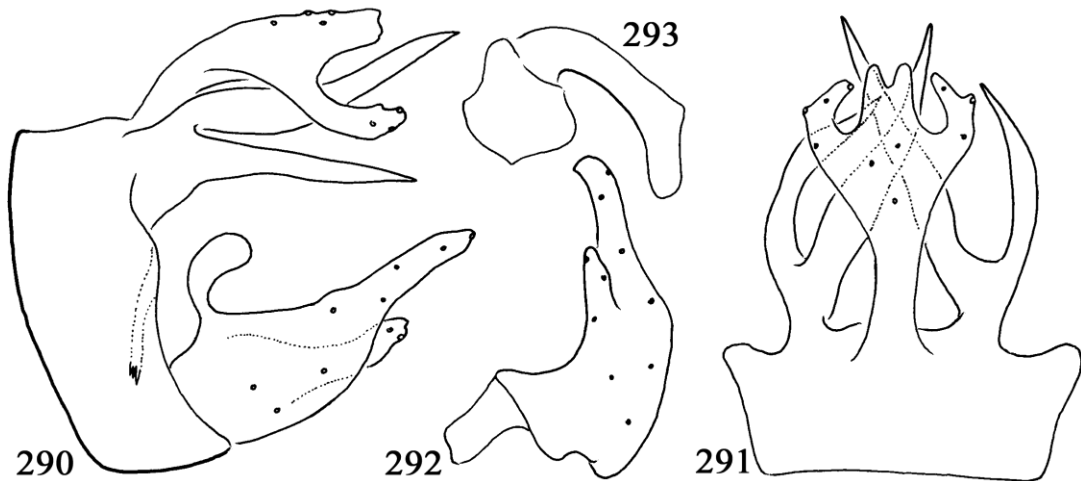
Lepidostoma ankar Oláh, sp. nov.

(Figures 290–293)

Material examined. Holotype: **Madagascar**, Ankarafantsika, (Forest Reserve) near Marovoay,



Figures 286–289. *Lepidostoma ambatov* Oláh, sp. nov. Holotype: 286=genitalia in left lateral view, 287=genitalia in dorsal view, 288=left gonopod in ventral view, 289=phallic organ in left lateral view.



Figures 290–293. *Lepidostoma ankar* Oláh, sp. nov. Holotype: 290=genitalia in left lateral view, 291=genitalia in dorsal view, 292=right gonopod in ventral view, 293=phallic organ in left lateral view.

1.xii.1959, light: mercury vapor, decid. forest, leg. E. S. Ross (male, OPC). (Ankarafantsika. Madagascar Ouest: forêt de l'Ankarafantsika, Voir aussi Ampijoroa. Plateau et réserve naturelle intégrale n° 7, à l'E. de Marovoay et au N.-E. d'Ambato-Boeni) [16.224°S, 46.94°E].

Diagnosis. The wing venation and the shape of the scapes and maxillary palps are similar to *Lepidostoma pastinium* Weaver & Gibon, 2007, but this new species differs by the much shorter second segment of the maxillary palp as well as the differently shaped genitalia. The dorsomesal complex is quadrifid, not bifid; the lateral spine of the

paraproct is longer and not so strongly curving, the coxopodites are widening basally, not parallel-sided.

Description. Male (in alcohol). Small-sized, light brown. First segments of maxillary palps held adjacent to frons equal wide, flat in transversal plane, mesal surface bearing mixture of long scales and setae; second segment of maxillary palps short, tapering distally, with dense tuft of long setae. Scapes cylindrical, medium long, without mesal cavity, with small basomesal hump.

Forewing length 6 mm.

Male genitalia. Segment IX fused annularly, dorsum and venter nearly equally long. Dorsal complex of segment X, cerci and paraproct reduced to dorsomesal complex of processes fused basally, setose, dorsally quadrifid, and to lateral pair of spine-like, setaless processes; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraproct, deeply divided into smaller lateral and larger mesal spine-like structure. Gonopods in lateral view with posterad curving clavate basodorsal process, extended vertically, in ventral view basal portion broadening without mesal projection; harpagones fused to coxopodites. Phallic organ without parameres, phallicata curving ventrally.

Etymology. Coined from the name of the *locus typicus*, Ankarafantsika. Treated as a noun in apposition.

***Lepidostoma badikal* Oláh, sp. nov.**

(Figures 294–297)

Material examined. Holotype: **Madagascar**, Ambadikala, Près Riviéra, Ranoma, Brickaville, ix.1954, leg. Paulian (male, OPC). (Madagascar Est: S.-P. de Brickaville, rivière Ranomena, Ambadikala (A. Robinson). [18.25°S, 48.94°E, found on GeoMondiale.fr].

Diagnosis. The wing venation, the scapes and maxillary palps, and the genitalia, are similar to those in *Lepidostoma mergarum* Weaver & Gibon, 2007, but it differs mostly by the shape of the paraproct and the phallic organ. The paraproct is simple spine-like, not widely open and bifid. The phallic organ with membranous part at mid-length produced dorsally, not simple and downward-curving.

Description. Male (in alcohol). Small-sized, light brown. Scapes cylindrical, medium long, without mesal cavity with small basomesal hump.

Forewing length 6 mm.

Male genitalia. Segment IX fused annularly, dorsum and venter nearly equally long. Dorsal complex of segment X, cerci and paraproct re-

duced to dorsomesal complex of processes fused basally, and setose dorsally and to lateral pair of spine-like setaless processes; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraproct, with pair of large spine-like structure. Gonopods in lateral view with posteriorly curving clavate basodorsal process, extended vertically, in ventral view basal part broadening with small mesal projection; harpagones fused with coxopodites. Phallic organ without paramere, phallicata curving ventrally, with dorsally producing membranous structure at mid-length.

Etymology. Coined from the name of the *locus typicus*, Ambadikala, and treated as a noun in apposition.

***Lepidostoma brunneum* (Ulmer, 1905)**

Crunoeciella brunnea Ulmer, 1905b: 68.

Lepidostoma brunneum (Ulmer, 1905) Weaver 2002: 174.

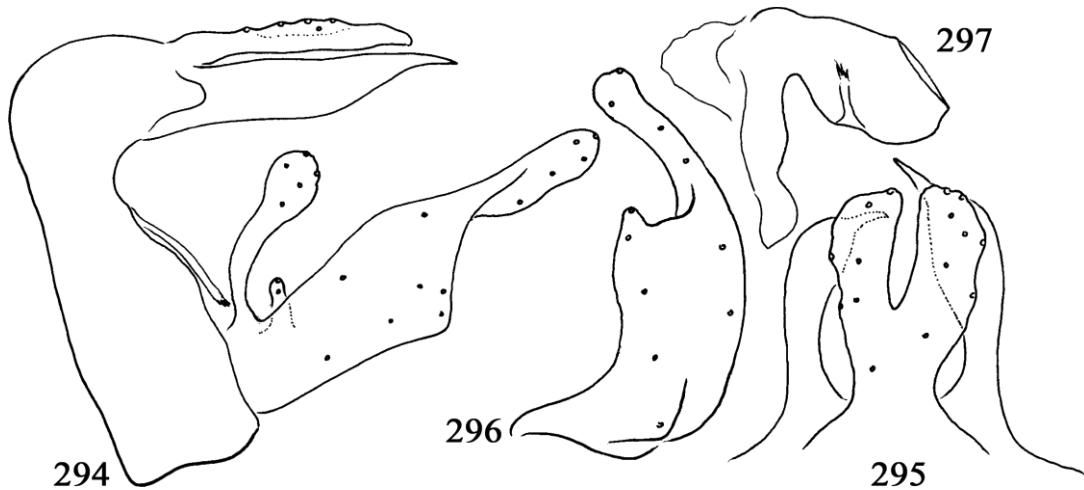
Material examined. **Madagascar**, Ambinanitelo, Marojejy, 2030 m, vi.1959, leg. P. Soga (1 male, OPC) [14.44°S, 49.733°E]. (Ambinanitelo. Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m), (Marojejy ou Marojezy (massif du), Madagascar Est: massif du Marojejy, réserve naturelle intégrale n° 12) [14.436°S, 49.774°E].

***Lepidostoma ding* Oláh, sp. nov.**

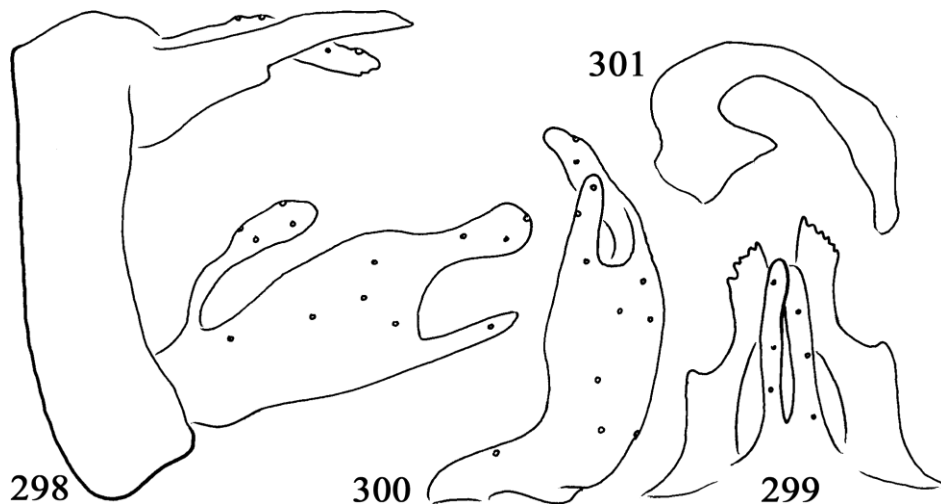
(Figures 298–301)

Material examined. Holotype: **Madagascar**, Andringitra, 2000 m, i.1958, leg. R. Paulian (Andringitra (massif de l'Andringitra. Madagascar Centre: au Sud d'Ambalavao. Réserve naturelle intégrale n° 5, 1500 à 2650 m.) (male, OPC). Paratype: same as holotype (1 male, MNHN) [22.205°S, 46.87°E].

Diagnosis. The genitalia of the new species resemble those of *Lepidostoma olahi* Weaver & Gibon, 2007, but differ in the shape of the periphallic organs of paraproct and the gonopods. The paraproct is almost symmetrical with serrated



Figures 294–297. *Lepidostoma badikal* Oláh, sp. nov. Holotype: 294=genitalia in left lateral view, 295=genitalia in dorsal view, 296=right gonopod in ventral view, 297=phallic organ in left lateral view.



Figures 298–301. *Lepidostoma ding* Oláh, sp. nov. Holotype: 298=genitalia in left lateral view, 299=genitalia in dorsal view, 300=left gonopod in ventral view, 301=phallic organ in left lateral view.

apex and well produced lateral angle discernible both in lateral and dorsal views. The gonopods are distinguished from those *L. olahi* of by the the dorsal apical arm that is is capitate and longer than the apicoventral arm.

Description. Male (in alcohol). Large-sized light brown. Scapes cylindrical, medium long, without mesal cavity with small basomesal hump.

Forewing length 10 mm.

Male genitalia. Segment IX fused annularly, dorsum as long as ventrum. Dorsal complex of segment X, cerci and paraproct reduced to dorsomesal complex of processes fused on base, and setose dorsally and to lateral pair of spine-like setaless processes; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraproct, as pair of large spine-like structure with serrated apex and lateral angle. Gonopods in

lateral view with posterad directed clavate basodorsal process, in ventral view basal portion broadening with shorter mesal projection; harpagones fused with coxopodites. Phallic organ without paramere; phallicata slender, curving ventrally.

Etymology. Coined from the name of the *locus typicus*, Andringitra, and treated as a noun in apposition.

***Lepidostoma forcipulatum* Weaver & Gibon,
2007**

Lepidostoma forcipulatum Weaver & Gibon, 2007:
337.

Material examined. **Madagascar**, Anosibe, km 57 route, 1955, leg. Paulian (5 males, 1 female, OPC; 6 males, 1 female; MNHN). (Madagascar Est: S.-P. de Moramanga, route d'Anosibe, km 57) [19.212°S, 48.222°E]. Madagascar, Ampitameloka, dist. Anosibe-Moramanga, 840 m, xii. 1956, leg P. Grievaud (2 males, 2 females; OPC). (Ampitameloka. Madagascar Est: S. de Moramanga, route d'Anosibe, km 54,900, Ampitameloka, 840 m) [19.212°S, 48.222°E]. Madagascar, Ifanadiana, Ranomafana, iii.1955, leg. Paulian (1 male, OPC). (Madagascar, Est: S.-P. d'Ifanadiana). [21.26°S, 47.45°E].

***Lepidostoma madagassicum* Weaver & Gibon,
2007**

Lepidostoma madagassicum Weaver & Gibon, 2007:
339.

Material examined. **Madagascar**, Sa Mandraka, Prov. Tamatave, x.1956, leg. Paulian (1 male, OPC). (Mandraka. Madagascar Centre: voir La mandraka). [18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Tananarive].

***Lepidostoma maroant* Oláh, sp. nov.**

(Figures 302–305)

Material examined. Holotype: **Madagascar**, Maroantsetra, Mahalevona, iii.1958, leg. R. Pau-

lian (male, OPC). (Madagascar Est: S.-P. de Maroantsetra. (chasses de J. Vadon). Port-Choiseul sur des cartes anciennes). [15.438°S, 49.758°E].

Diagnosis. This new species is similar to *Lepidostoma vibrissae* Weaver & Gibon, 2007, but separated by the periphallic organs of the paraproct and gonopods, in both lateral and dorsal views. The paraproct has two branches at both species. In *L. maroant* sp. nov. the longer mesal branch of the paraproct is clavate capitate while in *L. vibrissae* it is narrowing pointed; the lateral branch of the left paraproct is digitiform in the new species and aviform at *L. vibrissae*. The length ratio of the trilobed gonopods is different between the two species.

Description. Male (in alcohol). Small-sized, light brown. Scapes cylindrical, medium long, without mesal cavity with small basomesal hump.

Forewing length 5 mm.

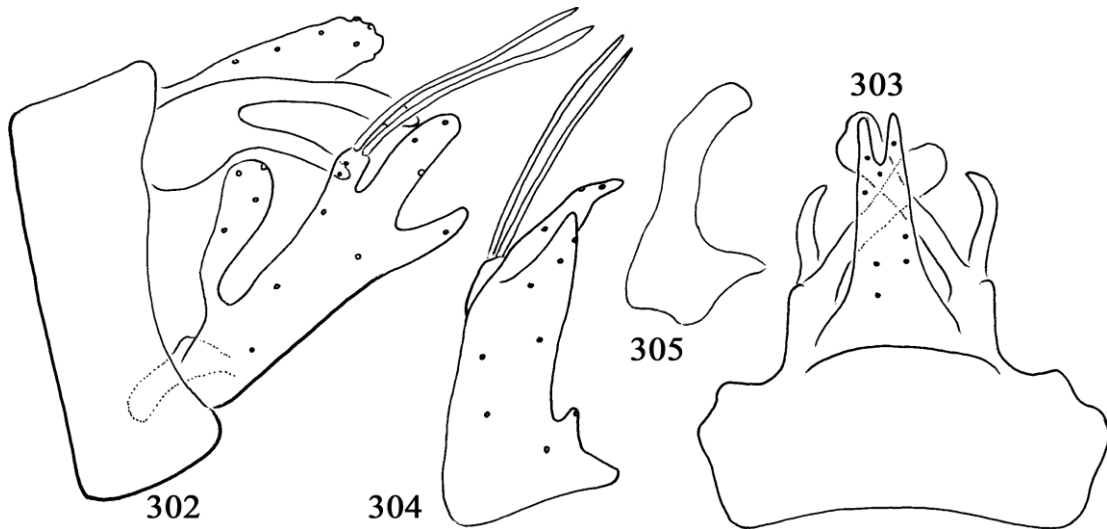
Male genitalia. Segment IX fused annularly, dorsum as long as ventrum. Dorsal complex of segment X, cerci and paraproct reduced to dorsomesal complex of processes fused almost along the entire length, split bifid only on apex, setose dorsally and to lateral pair of spine-like setaless processes with two branches; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraproct, as pair of large spine-like structures with capitate clavate mesally and digitate lateral branches. Gonopods in lateral view with posterad directed clavate basodorsal process and with trilobed apex; in ventral view basal portion broadening with shorter mesal projection; harpagones fused with coxopodites. Phallic organ without parameres; phallicata slim, curving ventrally.

Etymology. Coined from the name of the *locus typicus*, Maroantsetra; a noun in apposition.

***Lepidostoma mergarum* Weaver & Gibon, 2007**

Lepidostoma mergarum Weaver & Gibon, 2007: 347.

Material examined. **Madagascar**, Manjakatempo, Ambahona, Jtion forest, 1700 m, Ruis-



Figures 302–305. *Lepidostoma maroant* Oláh, sp. nov. Holotype: 302=genitalia in left lateral view, 303=genitalia in dorsal view, 304=left gonopod in ventral view, 305=phallic organ in left lateral view.

seaux et Mares, 4.vii.1956, leg. Paulian (2 males, MNHN; 1 male, OPC, 1 male, ZBM) [19.334°S, 47.326°E]. (Manjakatombo. Madagascar Centre: massif de l'Ankaratra, station forestière et réserve de Manjakatombo), (Ambahona. Madagascar Centre: massif de l'Ankaratra, station forestière de Manjakatombo, forêt d'Ambahona, à différentes altitudes à partir de 1980 m) [19.338°S, 47.308°E].

***Lepidostoma olahi* Weaver & Gibon, 2007**

Lepidostoma olahi Weaver & Gibon, 2007: 337.

Material examined. **Madagascar**, Sa Mandraka, Prov. Tamatave, x.1956, leg. Paulian (1 male, OPC). (Mandraka, Madagascar Centre: voir La Mandraka), [18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Tananarive]. Madagascar, Morefenobe Forêt, Mahajeby, v.1952, leg Paulian (1 male, MNHN). (Madagascar Ouest: S.-P. de Morafenobe, une ou deux journées de marche à l'E. de Morafenobe, forêt de Mahajeby, ca 600 m, à mi-hauteur de la falaise occidentale (R. Paulian, comm. pers.). Madagascar, Sandrangato, Moramanga, xii.1954, leg. Paulian (1 male, OPC). (Madagascar Est: S.-P. de Moramanga, route d'Anosibe, km 26, forêt de Sandrangato) [19.15°S, 48.234°E]. Madagascar, Ambatofinandrahana, Fianarantsoa Prov.,

vii.1957, leg. R. Paulian (1 male, OPC). (Madagascar Centre: S.-P. d'Ambatofinandrahana, 1180 m) [20.575°S, 46.705°E].

***Lepidostoma steineri* Weaver & Gibon, 2007**

Lepidostoma steineri Weaver & Gibon, 2007: 341.

Material examined. **Madagascar**, Ampangalambolosy, 10 IX. 1957 leg. P. Soga (1 male, OPC) [17.5°S, 48.715°E]. Madagascar, Ambinanitelo, 480 m, iii.1959, leg. P. Soga (14 males, 3 females; OPC). (Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m.) [14.436°S, 49.774°E]. Madagascar, Ambinanitelo, 2030 m, iv.1959, leg. P. Soga (2 males, MNHN) [14.44°S, 49.733°E]. (Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m.). Madagascar Ibity Mts. Analamazoatra, Manandona, 14.iv.2007, leg. W. Mey, LF, (1 male, OPC; 2 males ZMB) [18.94°S, 48.43°E].

***Lepidostoma tamatavicum* Weaver & Gibon, 2007**

Lepidostoma tamatavicum Weaver & Gibon, 2007: 343.

Material examined. **Madagascar**, Perinet, P. Viette, xi.1954, leg. Paulian (6 males, OPC).

(Madagascar Est: 30 km à l'E. de Moramanga, Perinet. Station forestière et réserve special d'Analamazaotra-Perinet). [18.936°S, 48.433°E]. Madagascar, Anosibe, km 57 route, 1955, leg Paulian (1 male, 3 females; MNHN) [19.212°S, 48.222°E]. (Madagascar Est: S.-P. de Moramanga, route d'Anosiba). Madagascar, Ambadikala, Pres Riviera, Ranomana, Brickaville, ix.1954, leg. Paulian (5 males, OPC). (Madagascar Est: S.-P. de Brickaville, rivière Ranomena, Ambadikala (A. Robinson). Madagascar, Andasibe, 920 m, Réserve. Mitsinjo, 12.iv.2007, leg. W. Mey (1 male, 3 females; ZMB). [18.25°S, 48.94°E, found on GeoMondiale.fr].

***Lepidostoma vakoan* Oláh, sp. nov.**

(Figures 306–309)

Material examined. Holotype: **Madagascar**, Vakoana, Forêt Imatso, 1550 m, 22.i.1958, leg. Paulian (male, OPC). (Madagascar Centre: massif de l'Andringitra, forêt Vakoana (voir Ambalamarovandana). Paratypes: same as holotype (1 male, MNHN) [22.197°S, 46.846°E]. Madagascar, Ambinanytelo, Marojejy 2030, vi.1959, leg. Pierre Soga (1 male, OPC). [14.44°S, 49.733°E]. (Ambinanitelo, Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m) [14.436°S, 49.774°E].

Diagnosis. The genitalia of this species are similar to those of *Lepidostoma volsellatum* Weaver & Gibon, 2007, but differ both in the shape of the periphallic organs of the paraprot and gonopods, and in the phallic organ. The paraprot is almost symmetrical, not asymmetrical; the gonopods are differently shaped, particularly the dorsobasal lobe is uniquely formed. The phallic organ is very broad, not slim.

Description. Male (in alcohol). Small-sized, light brown. Scapes cylindrical, medium long, without mesal cavity with small basomesal hump.

Forewing length 7 mm.

Male genitalia. Segment IX fused annularly, dorsum shorter than ventrum. Dorsal complex of segment X, cerci and paraprot reduced to dorsomesal complex of processes fused basad and setose dorsad with fingered apex and to lateral

pair of spine-like, setaless, processes; dorsomesal fused process representing segment X and vestigial, setose cerci; lateral, spine-like process, representing paraprot, as pair of large, spine-like structures with small, subapical ventral spine. Gonopods in lateral view with posteriorly directed, clavate basodorsal process, in ventral view basal portion broadening with small mesal projection; harpagones fused with coxopodites. Phallic organ without paramere, phallicata curving ventrally, with broadening apical region.

Etymology. Coined from the name of the *locus typicus*, Vakoana, and treated as a noun in apposition.

***Lepidostoma voang* Oláh sp. nov.**

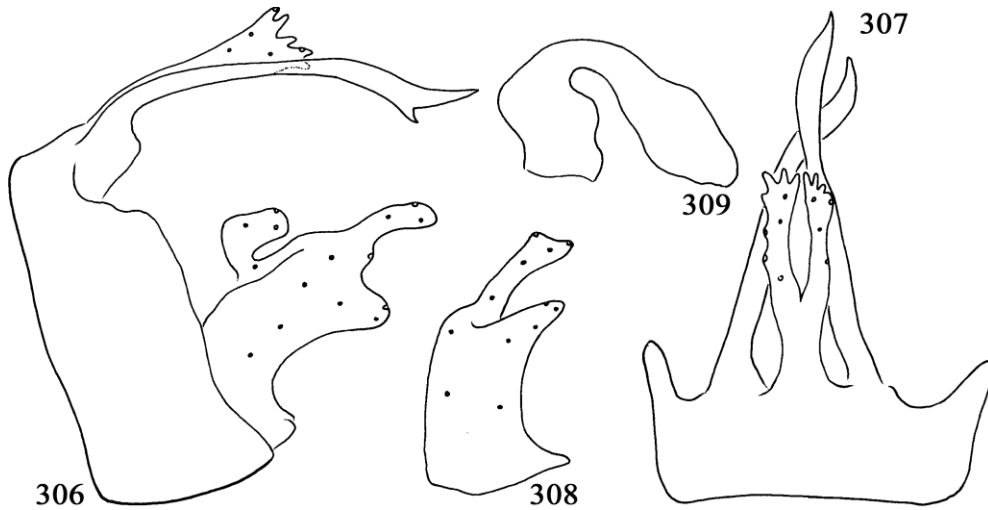
(Figures 310–313)

Material examined. Holotype: **Madagascar**, Ambodivoangy, vi.1952, at light, leg. Paulian (male, OPC). (?Ambodivoangy ou Ambodivoangy. Madagascar Est: E. de Maroantsetra, Ambodivoangy, 5 à 50 m, Station détruite.) Paratype: Madagascar, leg Paulian, no more information (1 male, MNHN) [15.433°S, 49.75°E].

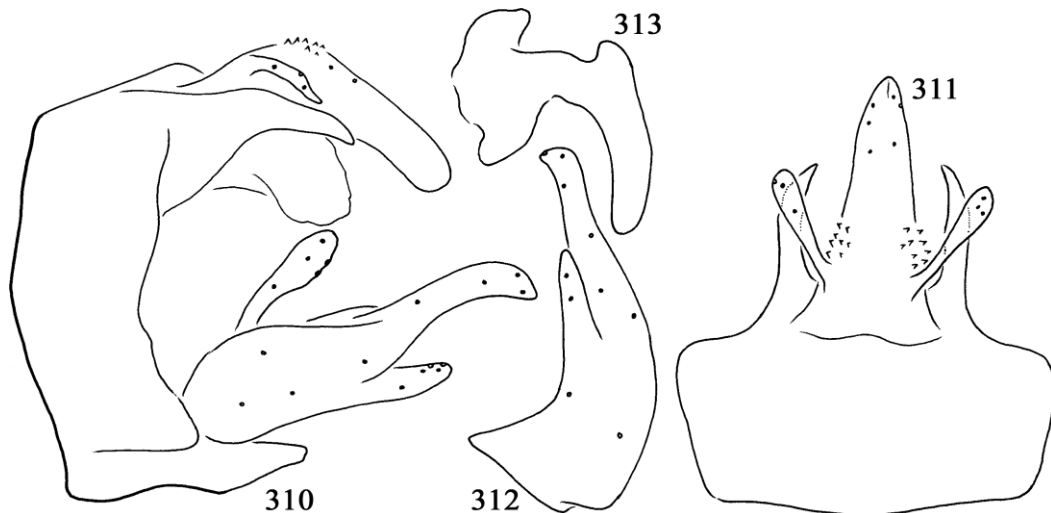
Diagnosis. Based upon the dorsal complex of segment X, cerci and paraprot this new species differs from all the Afrotropical *Lepidostoma* species by having a pair of well differentiated cercal processes on segment X. In most Afrotropical species this fused complex is composed of the mesal structure of segment X together with the completely fused cerci, represented only by the setose dorsum of the mesal structure and of the spine-like setaless paraprot. In some species of the Afrotropical mainland this complex is completely fused, forming a single bilobed structure without any sign of the paraprot (as in *Lepidostoma bilobata*, *Lepidostoma ligulata*, *Lepidostoma saka*, *Lepidostoma ulrikae*, and *Lepidostoma wliense*).

Description. Male (in alcohol). Small-sized, light brown. Scapes cylindrical, medium long, without mesal cavity with small basomesal hump.

Forewing length 5 mm.



Figures 306–309. *Lepidostoma vakoan* Oláh sp. nov. Holotype: 306=genitalia in left lateral view, 307=genitalia in dorsal view, 308=left gonopod in ventral view, 309=phallic organ in left lateral view.



Figures 310–313. *Lepidostoma voang* Oláh sp. nov. Holotype: 310=genitalia in left lateral view, 311=genitalia in dorsal view, 312=right gonopod in ventral view, 313=phallic organ in left lateral view.

Male genitalia. Segment IX fused annularly, dorsum slightly shorter than ventrum. Dorsal complex of segment X, cerci and paraproct represented by the monolobed segment X with slightly bifid apex discernible on the paratype only, and with a unique pair of well differentiated digitiform slightly clavate cerci and to a lateral pair of spine-like setaless processes. Gonopods in lateral view with posterad directed clavate

basodorsal process, in ventral view basal portion broadening with shorter mesal projection; harpagones fused with coxopodites. Phallic organ without parameres, phallicata curving ventrad with dorsal hump.

Etymology. Coined from the name of the *locus typicus*, Ambodivoangy, and treated as a noun in apposition.

***Lepidostoma volsellatum* Weaver & Gibon,
2007**

Lepidostoma volsellatum Weaver & Gibon, 2007: 343.

Material examined. **Madagascar**, Avalavelona, 1300 m, iv.1954 (2 males, 1 female, MNHN; 2 males, OPC). Madagascar, Andringitra, Tsaranoro Massif, forêt sacrée, LF, stream 1 and 2, 950 m, 15-19.iv.2007, leg. W. Mey (8 males, 3 females, OPC; 9 males, 5 females, ZBM) [22.08°S, 46.775°E].

Goeridae Ulmer, 1903

***Goera* Stephens, 1829**

Goera is poorly represented in the Afrotropical Region. Only a single species, *Goera hageni* (Barnard, 1934), was described from South Africa. A second species, *Goera madagassa* Johanson, 2010 and a third, *Goera betsiboka* Malicky, 2020, were described recently, both from Madagascar. Here we describe four new species: *Goera ambodiva* sp. nov., *Goera fanadia* sp. nov., *Goera gitra* sp. nov., *Goera maroa* sp. nov.

***Goera ambodiva* Oláh sp. nov.**

(Figures 314–317)

Material examined. Holotype: **Madagascar**, Maroantsetra, Ambodivoangy, [15.433°S, 49.75°E], iii.1952, leg. Paulian (male, OPC).

Diagnosis. This species resembles *Goera betsiboka* Malicky, 2020, from which it differs by giving a more produced ventromesal process of segment IX as well as by the short, not long dorsum of segment IX. The paraproct exhibits well discernible shape divergences, but it is distorted on the single holotype and uncertain for exact comparative study; a spine-like setaless mesal arm of the harpagones is sigmoid, not simply curving in ventral view.

Description. Male (in alcohol). Medium sized, yellowish light brown, with antennal scapes two times longer than wide. Maxillary palps 3-segmented, terminal segment enlarged, sagittally

flat elongated ovoid, touching each other mesally and face; having densely setose outer and inner surfaces, with central longitudinal band of black scaloid androconia. Spur formula 2,4,4. Sternite VI with fingerlike, longitudinally stridulated, straight, slender, process accompanied by single smaller lateral spines.

Forewing length 7 mm, fork 2 sessile.

Male genitalia. Segment IX with short bulky dorsum and slender elongated ventrum fused into long ventromesal process with excised apex. Cerci originating from dorsolateral corners of segment IX, elongated, digitiform. Dorsomesal process, vestigium of segment X broader based and gradually narrowing apically. Paraproctal complex represented by pair of long, spine-like processes with slightly curving asymmetrical apices and without setae, probably distorted during copulation or preparation. Gonopods with high-based and apically almost pointed coxopodites in lateral view; harpagones composed of setose lateral and setaless mesal arms; spine-like mesal arm slightly sigmoid in ventral view. Phallic organ forming simple, tube-like structure with less sclerotized membranous apical region.

Etymology. Coined from the name of the *locus typicus*, Ambodivoangy, as a noun in apposition.

***Goera betsiboka* Malicky, 2020**

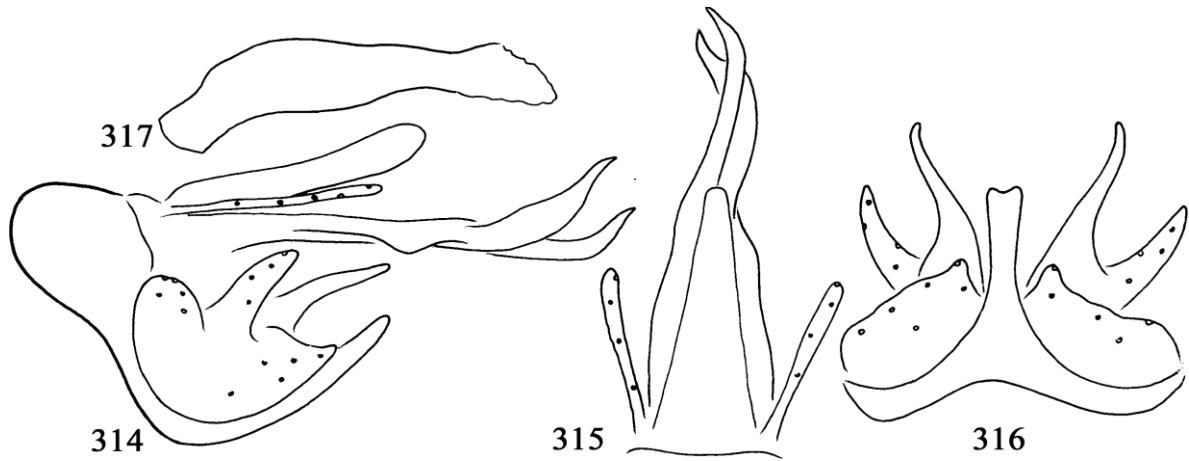
Goera betsiboka Malicky, 2020: 514.

Material examined. **Madagascar**, Maroantsetra, Ambodivoangy, [15.433°S, 49.75°E], 1955, leg. (J.V.) Paulian (1 male, OPC). Madagascar, Maroantsetra, Navana, iii.1958, leg. Paulian (1 male, OPC). Madagascar, Perinet, 1955, leg. Paulian (2 males, OPC). Madagascar, Andringitra, 2000 m, 1958, leg. R. Paulian (1 male, 1 female; OPC).

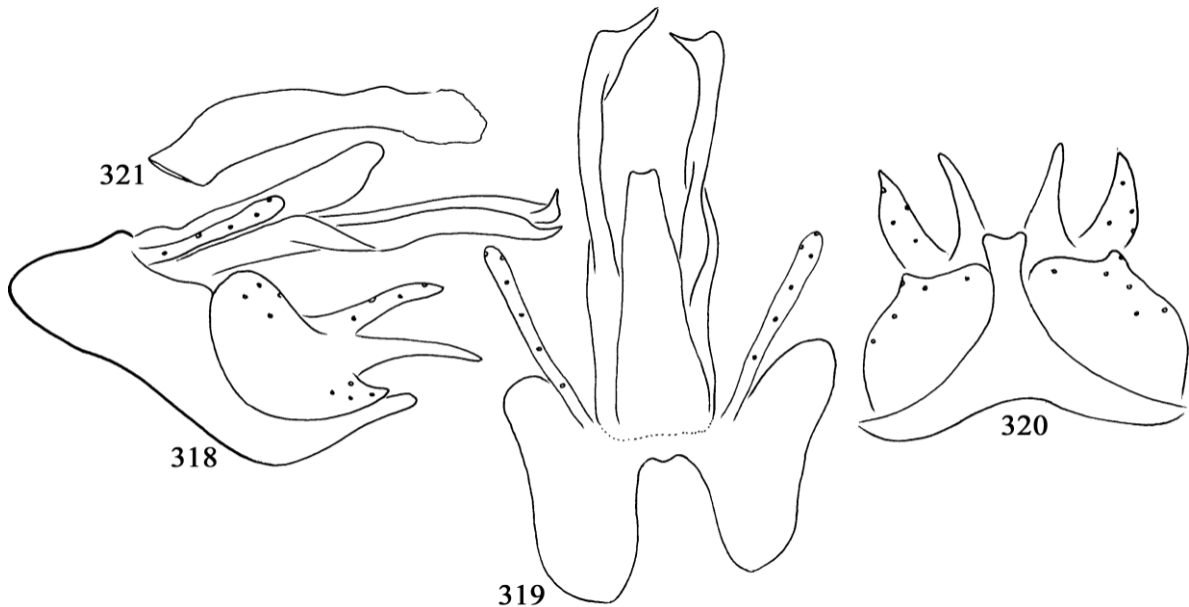
***Goera fanadia* Oláh, sp. nov.**

(Figures 318–321)

Material examined. Holotype: **Madagascar**, Ifanadiana, Ranomafana, [21.258°S, 47.422°E], iii.1955, leg. Paulian (male, OPC).



Figures 314–317. *Goera ambodiva* Oláh, sp. nov. Holotype: 314=genitalia in left lateral view, 315=genitalia in dorsal view, 316=genitalia in ventral view, 317=phallic organ in left lateral view.



Figures 318–321. *Goera fanadia* Oláh, sp. nov. Holotype: 318=genitalia in left lateral view, 319=genitalia in dorsal view, 320=genitalia in ventral view, 321=phallic organ in left lateral view.

Diagnosis. This species resembles *Goera gitra* sp. nov., from which it differs by having a less produced ventromesal process of segment IX, as well as by a shorter dorsum of segment IX. The apex of segment X is excised, not pointed. The spine-like paraproct has an apex not simply right-angled, but aviform right-angled.

Description. Male (in alcohol). Large sized, brown animal with antennal scapes two times longer than wide. Maxillary palps 3-segmented, terminal segment enlarged, sagittally flat elongated, ovoid, pressed against face, having densely setose outer and inner surfaces, with central longitudinal band of black scaloid androconia. Spur

formula 2,4,4. Sternite VI with fingerlike, longitudinally stridulated, straight, slender, process accompanied by single smaller lateral spines.

Forewing length 9 mm, fork 2 sessile.

Male genitalia. Segment IX with anteriorly rounded dorsum and elongated ventrum fused into a relatively short ventromesal process with excised apex. Cerci originating from dorsolateral corners of segment IX, elongated, digitiform. Dorsomesal process, vestigium of segment X broader based and gradually narrowing apically; apex excised. Paraproctal complex represented by pair of long spine-like processes with aviform asymmetrical apices and without setae. Gonopods with high base and apically almost pointed coxopodites in lateral view; harpagones composed of setose lateral and setaless mesal arms; spine-like mesal arm laterad curving in ventral view. Phallic organ forming simple, tube-like structure with less sclerotized membraneous apical region.

Etymology. Coined from the name of the *locus typicus*, Ifanadiana, as a noun in apposition.

***Goera gitra* Oláh, sp. nov.**

(Figures 322–325)

Material examined. Holotype: **Madagascar**, An Sringitra, Plateau Soadin Srano, 2070 m, 16.i.1958 (male, OPC) [unknown locality, probably Andingitra [22.2°S, 46.87°E]. Paratypes: same as holotype (2 male, 3 females; OPC).

Diagnosis. This species resembles *Goera fanadia* sp. nov., from which it differs by having a more strongly produced ventromesal process of segment IX as well as a longer dorsum of segment IX. The apex of segment X is pointed, not excised. The spine-like paraproct has an apex being simple right-angled, not aviform right-angled.

Description. Male (in alcohol). Large sized, light brown. Antennal scapes two times longer than wide. Maxillary palps 3-segmented, terminal segment enlarged, sagittally flat elongated, ovoid, pressed against face, having densely setose outer and inner surfaces, with central longitudinal band of black scaloid androconia. Spur formula 2,4,4.

Sternite VI with fingerlike, longitudinally stridulated, straight, slender, process accompanied by single smaller lateral spines.

Forewing length 10 mm; fork 2 sessile.

Male genitalia. Segment IX with anteriorly rounded, long, dorsum and elongate ventrum fused into long ventromesal process with excised apex. Cerci originating from dorsolateral corners of segment IX, elongated, digitiform. Dorsomesal process, vestigium of segment X broader based and gradually narrowing apically; apex pointed. Paraproctal complex represented by pair of long, spine-like processes with right-angled asymmetrical apices and without setae. Gonopods with high-based and apically angled coxopodite in lateral view; harpagones composed of setose lateral and setaless mesal arms; spine-like mesal arm laterad curving in ventral view. Phallic organ forming simple, tube-like structure with less sclerotized membraneous apical region.

Etymology. Coined from the name of the *locus typicus*, An Sringitra, as a noun in apposition.

***Goera madagassa* Johanson, 2010**

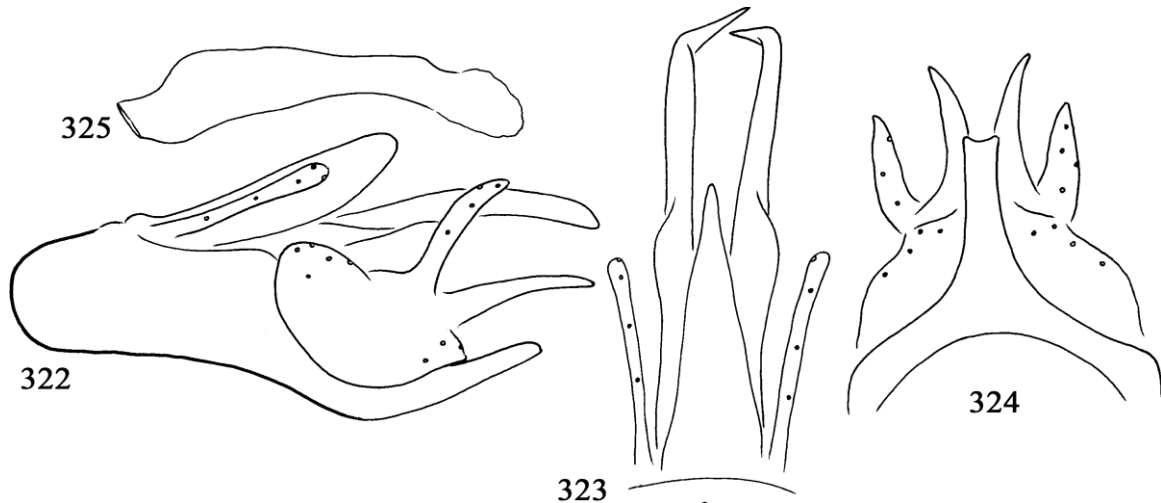
Goera madagassa Johanson, 2010: 291.

Material examined. **Madagascar**, Anpangalambolosy, Nord oust R. N. III Chasse à la vue, 10.ix.1957, leg. P. Soga (1 male, OPC). Madagascar, Andasibe, Réserve. Mitsinjo, 920 m, 12.iv.2007, leg W. Mey (3 males, OPC). Madagascar, Toamasina, Alaotra-Mangoro, Moramanga, Andasibe, Parc National de Mantadia, PN Mantadia, waterfall Andranomanamponga, 6 km from entrance of the park, 11.xi.2011, 18.83396° S, 48.43777°E, 1000 m, GB nets and sieves, waterfall and stream, leg. J. Bergsten, R. Bukontaitte, T. Ranarilalaitiana & J. H. Randriamihaja (2 males, NHRS).

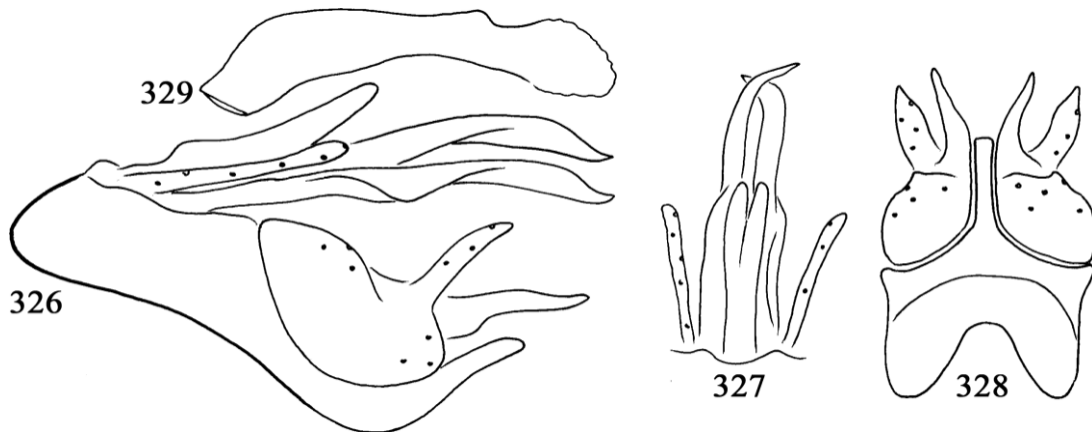
***Goera maroa* Oláh, sp. nov.**

(Figures 326–329)

Material examined. Holotype: **Madagascar**, Maroantsetra, Ambodivoangy, [15.433S, 49.75E], iii.1952, leg. Paulian (male, OPC).



Figures 322–325. *Goera gitra* Oláh, sp. nov. Holotype: 322=genitalia in left lateral view, 323=genitalia in dorsal view, 324=genitalia in ventral view, 325=phallic organ in left lateral view.



Figures 326–329. *Goera maroa* Oláh, sp. nov. Holotype: 326=genitalia in left lateral view, 327=genitalia in dorsal view, 328=genitalia in ventral view, 329=phallic organ in left lateral view.

Diagnosis. This species resembles *Goera betsiboka* Malicky, 2020, particularly by having a simply curving terminal of the paraproct. It is distinguished from *G. betsiboka* by the more strongly produced and slim ventromesal process of segment IX as well as by the unique modification of segment X. *Goera maroa* is the only species having subdivided bifid head of segment X.

Description. Male (in alcohol). Medium sized, light brown, with antennal scapes two times longer than wide. Maxillary palps 3-segmented, terminal segment enlarged, sagittally flat elongat-

ed, ovoid, pressed against face, having densely setose outer and inner surfaces, with central longitudinal band of black scaloid androconia. Spur formula 2,4,4. Sternite VI with fingerlike, longitudinally stridulated, straight, slender, process accompanied by single smaller lateral spines.

Forewing length 7 mm, fork 2 sessile.

Male genitalia. Segment IX with anteriorly rounded, long, dorsum and elongate ventrum fused into long ventromesal process with truncate apex. Cerci originating from dorsolateral corners of segment IX, elongated, digitiform. Dorsomesal process, vestigium of segment X, subdivided,

bifid at apical third. Paraproctal complex represented by pair of long spine-like processes with mesally curving asymmetrical apices and without setae. Gonopods each with high-based and apically rounded coxopodite in lateral view; harpagones composed of setose lateral and setaless mesal arms; spine-like mesal arm laterad curving in ventral view. Phallic organ forming simple, tube-like structure with less sclerotized membranous apical region.

Etymology. Coined from the name of the *locus typicus*, Maroantsetra. Treated as a noun in apposition.

Leptoceroidea Leach, 1815

Leptoceridae Leach, 1815

Leptocerinae Leach, 1815

***Parasetodes* McLachlan, 1880**

***Parasetodes mahajan* Oláh & Johanson, 2024**

(Figures 330–335)

Parasetodes mahajan Oláh & Johanson 2024: 34.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, Manongarivo river, 19.xi.2012, 22W black light trap, 14.02869°S, 48.24859°E. leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, 2 females, NHRS; 1 male, 2 females, OPC). Madagascar, Fianarantsoa, Isalo NP, 100 m from entrance of Canyon de Makis, 684 m, 12-14.xi.2012, Malaise trap, 22.48694°S, 45.37534°E, 684 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana, J.H. Randriamihaja (1 male, OPC).

Revised diagnosis (male). *Parasetodes mahajan* was described from a single male. Based on additional material of two males and five females, collected from the same national park, but from different rivers, we are able to present the following revised diagnosis: *The forewing* membrane brown pattern is similar, with small differences in the patches and the small dots. There are small differences in the lateral shape of the phallic head, that is less rounded and more truncated; the

ventral perpendicular profile of the titillating plate with more angled upper mesal corner on the plate; less angled, almost gradually narrowing on the holotype.

Description (female). The dominating larger patches of forewing membrane similar to that of males, but with less number of small dots. Female genitalia with mesal dorsoapical lobe well discernible in lateral and dorsal views, short, rounded. Dorsal profile of segment X moderately elongate, rounded triangular; lateral shape slender digitiform, directed straight posteriorly; lamellae greatly produced, directed and slightly curved downwards.

Remarks. This is the first record of *Parasetodes* females from Madagascar.

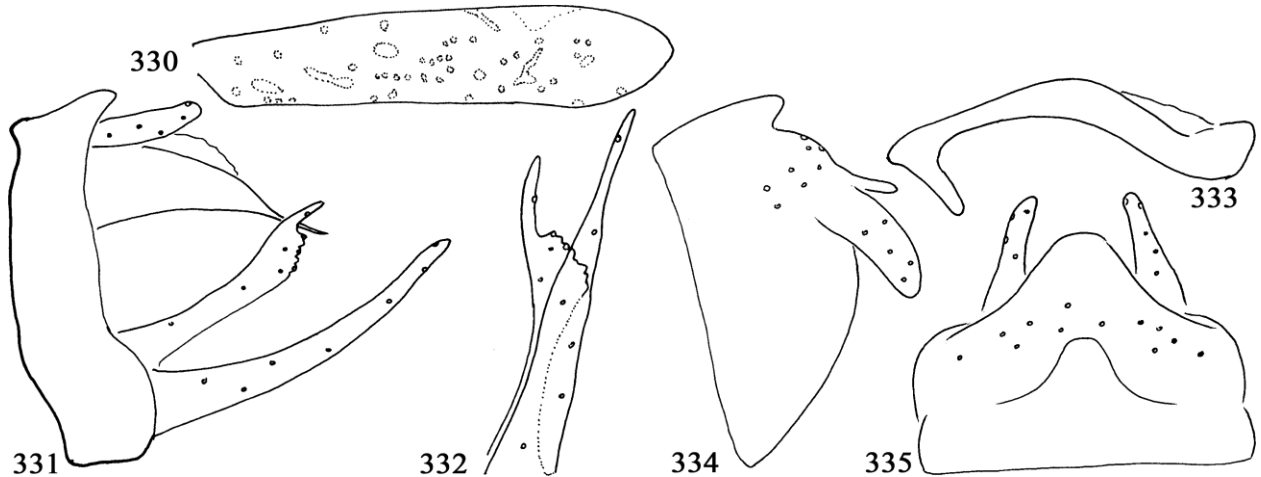
Athripsodini Morse & Wallace, 1976

Probably a monophyletic group as evidenced by the relatively short larva with its broad metathorax and mesonotal bars (Morse 1981, 1984) and supported by molecular data (Malm & Johanson 2011). In adults, the anal region of the hind wings is usually broader than in species of other tribes (Yang & Morse, 1988).

***Athripsodes* Billberg, 1820**

Head with median epicranial suture. In forewings, the venation is different between females and males. Fork 3 (M_1) is present in the females. Furthermore, the forewing M branches after the anastomosis resulting in a stalked M. In the hind wings R_s runs more or less parallel to R_1 .

Based upon the morphology of segment X we distinguished four species groups for the *Athripsodes* species in Madagascar. (1) The *Athripsodes gitra* new species group having monolobed segment X. (2) The *Athripsodes ampa* new species group having short bilobed segment X. (3) The *Athripsodes amboasa* new species group having long bilobed segment X. (4) And the *Athripsodes mapera* new species group having quadrilobed segment X.



Figures 330–333. *Parasetodes mahajan* Oláh & Johanson, 2024. Male: 330=forewing pattern, 331=genitalia in left lateral view, 332=left gonopod in ventral view, 333=phallic organ in left lateral view. Female: 334= genitalia in left lateral view, 335=genitalia in dorsal view.

Athripsodes gitra new species group

Species in the *Athripsodes gitra* new species group are characterized by having monolobous segment X. The group includes the following species: *Athripsodes gitra* sp. nov. and the species included in the *Athripsodes mandra* new species complex (*A. mandra* sp. nov., *A. meloka* sp. nov., *A. vakoana* sp. nov.), *A. nanitela* sp. nov., *A. nilaza* sp. nov., and *A. paulia* sp. nov.

Athripsodes gitra Oláh, sp. nov.

(Figures 336–339)

Material examined. Holotype: **Madagascar**, Andingitra, 2000 m, i.1958, leg. R. Paulian (male, OPC). Paratype: same as holotype (1 male, MNHN) [22.2°S, 46.87°E].

Diagnosis. *Athripsodes gitra* sp. nov. lacks discernible mediocranial sulcus and has monolobous segment X. It is separated from other species in the *Athripsodes gitra* species group by the presence of tree pairs of parameres well developed in the high phallic organ.

Description. Male (in alcohol). Medium-sized, light brown.

Forewing length 7 mm; there is no any pattern on the forewing of this old specimen preserved 65 years in alcohol.

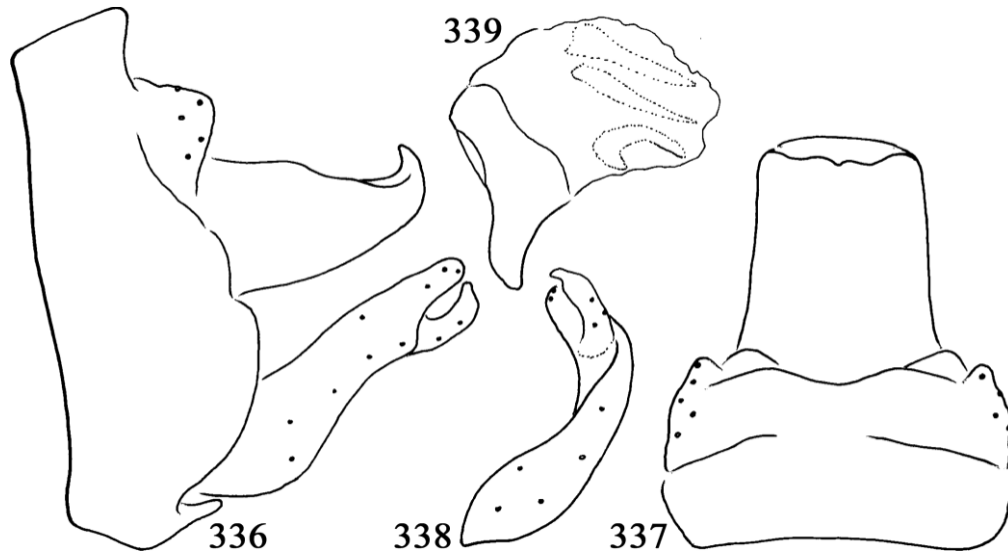
Mediocranial sulcus or median epicranial stem almost completely present on holotype, but reduced vestigial on paratype. Sclerotization on maxillary palp segment IV is unknown; maxillary palps are lost.

Male genitalia. Segment IX fused annularly, very short dorsum and ventrum almost with equal length; there is a bilobed process ventroapical. Cerci fused to segment IX, forming pair of triangular lobes. Segment X with moderately elongated and high shape with upward turning apex in lateral view; almost rectangular in dorsal view. Gonopods typical of the subgenus with well separated and short harpago. Phallic organ with well-developed anteroventral lip and three pairs of distinct black, stout spine-like parameres, two pairs straight, one pair curved.

Etymology. Coined from the name of the *locus typicus* Andingitra, as a noun in apposition.

Athripsodes mandra species complex

Species with monolobed segment X characterized by apical metasetae. Following species



Figures 336–339. *Athripsodes gitra* Oláh, sp. nov. Holotype: 336=genitalia in left lateral view, 337=genitalia in dorsal view, 338=right gonopod in ventral view, 339=phallic organ in left lateral view.

belong to this small complex: *Athripsodes mandra* sp. nov., *Athripsodes meloka* sp. nov., *Athripsodes vakoana* sp. nov.

***Athripsodes mandra* Oláh, sp. nov.**

(Figures 340–342)

Material examined. Holotype: **Madagascar**, Two original labels: 1. Graphite handwriting: La Mandraka, iii.1954, R.P. (Madagascar Centre: voir La Mandraka). [18.912°S, 47.92°E]. 2. Indian ink handwriting: La Mandrara R., March.1954, Paulian (Madagascar Sud: fleuve Mandrare, traversant du N. au S. la partie orientale de l'Androy) (male, OPC). [this second label is probably wrong according to the locality of the paratypes that is much nearer La Mandraka]. Paratype: Madagascar, Ampitameloka, dist. Anosibe-Moramanga, 840 m, xii.1956, leg. P. Griveaud (1 male, MNHN). (Madagascar Est: S. de Moramanga, route d'Anosibe, km 59,900, Ampitameloka, 840 m). [19.212°S, 48.222°E].

Diagnosis. This species resembles *Athripsodes vakoana* sp. nov., from which it differs by the basally fused cerci with bifid lateral lobes, not rounded monolobed; segment X longer and

narrower; trilobed gonopod differently shaped in lateral view; phallic organ with large lateral lobes less developed at *A. vakoana* sp. nov. as well as the parameres are more robust.

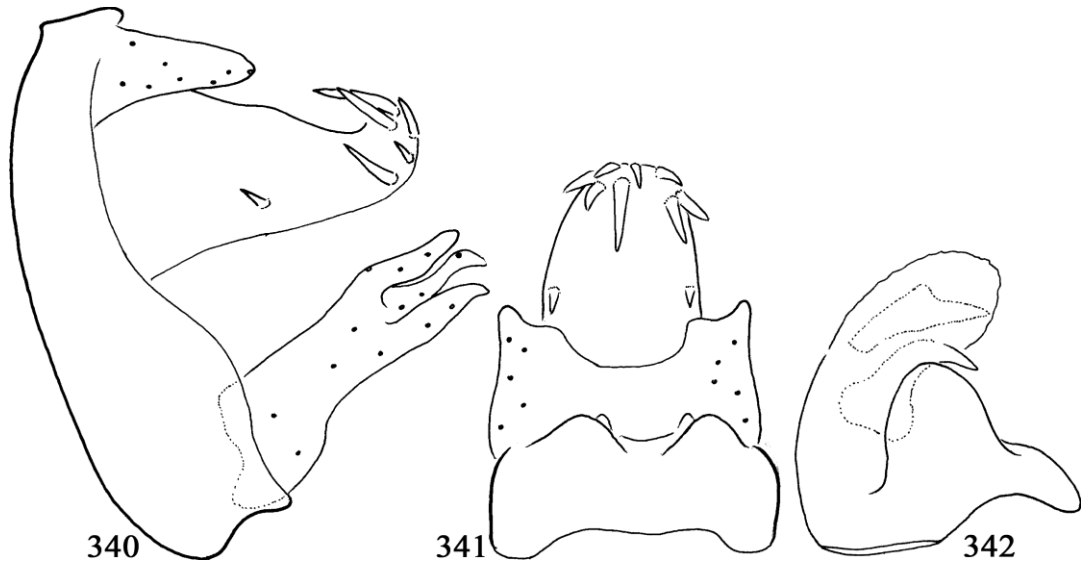
Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 10 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annularly, dorsum slightly shorter than ventrum. Cerci strongly produced, elongate and basally fused with lightly bifid apicolateral lobes. Segment X single-lobed, without apical excision, armed with strong apical macrosetae. Gonopods with small basoventral broadening in lateral view; apex trilobed, partially fused harpagones slightly sigmoid in lateral view. Phallic organ with highly membranous phallicata, phallosome with produced mesal and ventroapical lobes, with two large, differently shaped parameres.

Etymology. Coined from the name of the *locus typicus*, La Mandraka. Treated as a noun in apposition.



Figures 340–342. *Athripsodes mandra* Oláh, sp. nov. Holotype: 340=genitalia in left lateral view, 341=genitalia in dorsal view, 342=phallic organ in left lateral view.

Remarks. The vial containing the holotype specimen has two original labels, as shown above. The graphite label appears to be the older and correct one.

***Athripsodes meloka* Oláh, sp. nov.**

(Figures 343–346)

Material examined. Holotype: **Madagascar**, Ampitameloka, 840 m, sud Moramanga, viii. 1956, leg. P. Griv. (male, OPC). (Ampitameloka, Madagascar Est: S. de Moramanga, route d’Anosibe, km 54,900, Ampitameloka, 840 m, P. Griv. =Paul Griveaud). [19.212°S, 48.222°E].

Diagnosis. This species is distinguished from all others by the following character combination: the monolobed segment X, the basally fused and produced cerci, the bifid gonopods, and one pair of large parameres.

Description. Male (in alcohol). Small sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 6 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annular and long; Dorsum and ventrum equally long. Cerci fused basally and very produced with long mesal lobe and downward-curving shorter lateral lobes. Segment X single-lobed with tiny apical excision, armed with strong apical macrosetae; head ventrally right-angled. Gonopods curving, bifid. Phallic organ with highly membranous phallicata, phallosome with produced ventral lobes and with 1 pair strong sigmoid parameres.

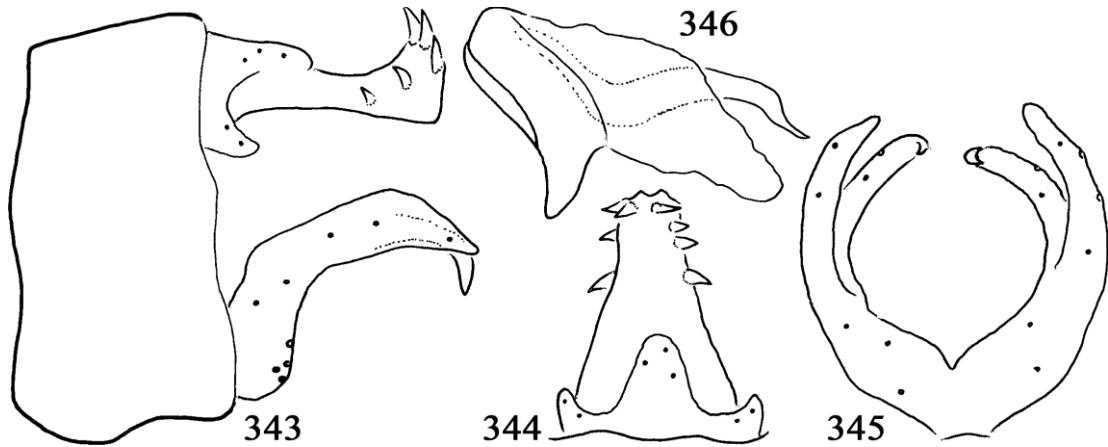
Etymology. Coined from the name of the *locus typicus*, Ampitameloka. Treated as a noun in apposition.

***Athripsodes vakoana* Oláh, sp. nov.**

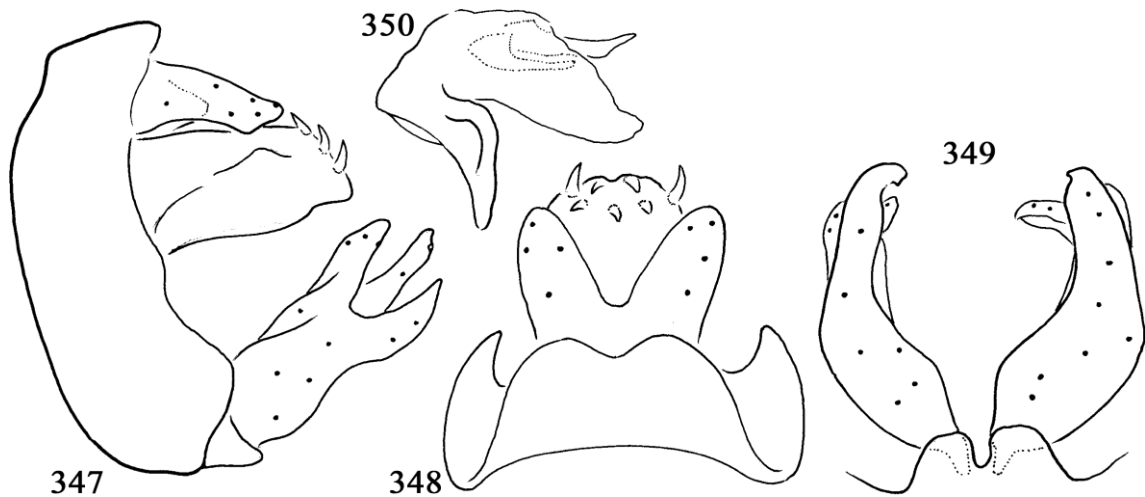
(Figures 347–350)

Material examined. Holotype: **Madagascar**, Vakoana, Forêt Imatso, 1550 m, 22.i.1958, leg. R. Paulian, (male, OPC). (Madagascar Centre: massif de d’Andringitra, forêt Vakoana (voir Ambalamarvandana). Paratypes: same data as for the holotype (2 males, MNHN) [22.197°S, 46.846°E].

Diagnosis. This species resembles *Athripsodes mandra* sp. nov., from which it differs by the presence of basally fused cerci with simple



Figures 343–346. *Athripsodes meloka* Oláh, sp. nov. Holotype: 343=genitalia in left lateral view, 344=genitalia in dorsal view, 345=gonopods in ventral view, 346=phallic organ in left lateral view.



Figures 347–350. *Athripsodes vakoana* Oláh, sp. nov. Holotype: 347=genitalia in left lateral view, 348=genitalia in dorsal view, 349=gonopods in ventral view, 350=phallic organ in left lateral view.

rounded, not bifid lateral lobes; the segment X being shorter and broader; the trilobed gonopods which are differently shaped in lateral view; the phallic organ with smaller lateral lobes more developed at *A. mandra* sp. nov., as well as the parameres which are differently shaped.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture. Forewing M branching after anastomosis resulting in stalked M.

Forewing length 9 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annularly, dorsum slightly longer than ventrum; sternum produces bilobed apicomeral configuration. Cerci strongly produced, elongate and basally fused with round-headed apicolateral lobes. Segment X short, single lobed without apical excision, armed with strong apical macrosetae. Gonopods with small basoventral broadening in lateral view; apex trilobed, partially fused harpagones middle positioned, longest in lateral view. Phallic organ with highly membranous phallicata and phallosome

with less produced mesal and more produced ventroapical lobes, with two large differently shaped parameres.

Etymology. Coined from the name of the *locus typicus*, Vakoana. Treated as a noun in apposition.

***Athripsodes nanitela* Oláh, sp. nov.**

(Figures 351–354)

Material examined. Holotype: **Madagascar**, Ambinanitelo, 480 m, Marojejy, iii.1959, leg. P. Soga (male, OPC). (Madagascar Est: massif du Marojejy, Ambinanitelo, 500 m) [14.436°S, 49.774°E].

Diagnosis. This species resembles *Athripsodes nilaza* sp. nov., from which it differs by having much larger cerci, spreading over segment X; segment X long triangular in lateral view, not long subquadrangular with serrated apical dorsum; harpago monolobed, not bilobed; both pairs of parameres long, not only one pair of parameres.

Description. Male (in alcohol). Small sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 5 mm, without visible patterns.

Maxillary palps lost and sclerotization on segment IV unknown.

Male genitalia. Segment IX fused annularly, dorsum short; ventrum long with pair of small ventromedian processes with deep, narrow gap. Cerci strongly produced, elongate irregular triangular spread over segment X. Segment X single-lobed with rounded apical ending in dorsal view; long triangular in lateral view. Gonopods with small basoventral rounded lobe in lateral view; apex bilobed, fused harpago digitiform. Phallic organ with highly membranous phallicata and phallosome with produced ventroapical lobe and two pairs of equally long parameres.

Etymology. Coined from the name of the *locus typicus*, Ambinanitelo, as a noun in apposition.

***Athripsodes nilaza* Oláh, sp. nov.**

(Figures 355–358)

Material examined. Holotype: **Madagascar**, E. d'Ambatondrazaka, Mananilaza Borne, Sud Ouest R. N. III, Chasse a la vue, 28.vii.1957, leg. P. Soga (male, OPC). [17.83°S, 48.48°E? Mananilaza remains an unknown locality but we can ascertain that it is located eastward Ambatondrazaka, according Griveaud (1977)].

Diagnosis. The new species resembles *Athripsodes italavina* sp. nov., from which it differs by the cerci, elongated, not semicircular; segment X with monolobed head, not bilobed and with serrated dorsolateral lobes, absent at *A. italavina* sp. nov.; gonopod bilobed, not trilobed; phallic organ monolobed and parameres differ as well.

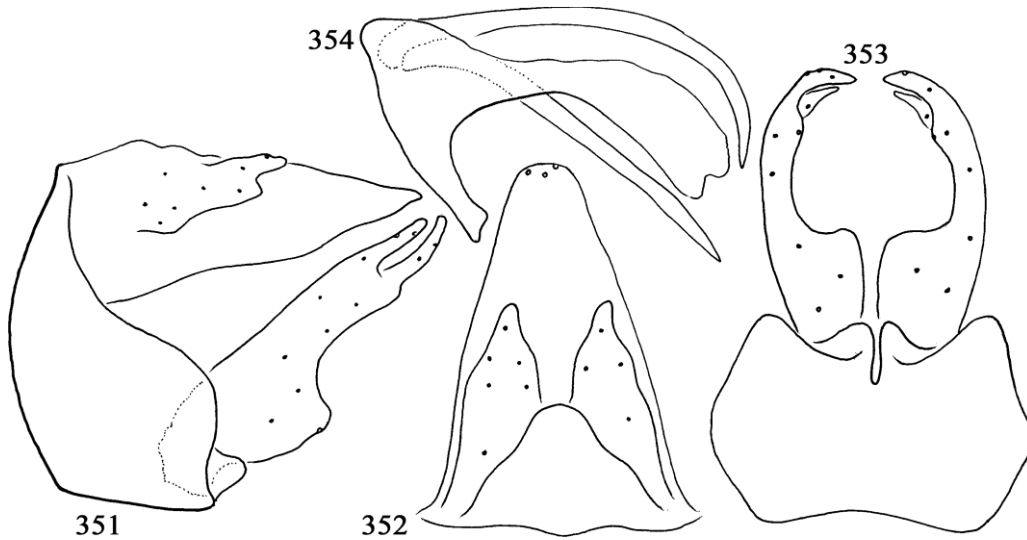
Description. Male (in alcohol). Small sized, light brown. Head with median epicranial suture.

Forewing length 5 mm, without any pattern present. Forewing M branching after anastomosis resulting in stalked M. In hind wings R_s runs more or less parallel to R_1 .

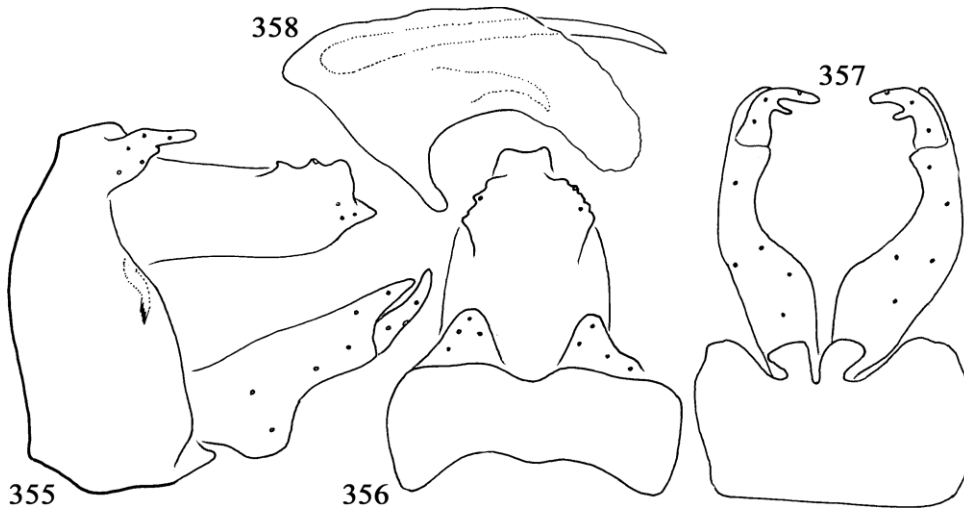
Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annularly, dorsum shorter than ventrum; depression visible in lateral view and deep, narrow excision visible in ventral view ventroapically on sternum. Cerci short, triangular in dorsal view, elongate in lateral view. Segment X single-lobed, elongate quadrangular in lateral view with pair of elongate, serrate lobes located dorsoapically, apex truncate with shallow excision in dorsal view. Vestigial paraproct present as small indistinct band connecting phallic organ with complex of segment X and cerci. Gonopods with produced basoventral rounded lobe in lateral view; apex indistinctly bilobed. Phallic organ with highly membranous phallicata; armed with pairs of long and strong dorsal and small ventral spine-like parameres; phallosome with a ventroapical elongation.

Etymology. Coined from the name of the *locus typicus*, Mananilaza, as a noun in apposition.



Figures 351–354. *Athripsodes nanitela* Oláh, sp. nov. Holotype: 351=genitalia in left lateral view, 352=genitalia in dorsal view, 353=gonopods in ventral view, 354=phallic organ in left lateral view.



Figures 355–358. *Athripsodes nilaza* Oláh, sp. nov. Holotype: 355=genitalia in left lateral view, 356=genitalia in dorsal view, 357=genitalia in ventral view, 358=phallic organ in left lateral view.

Remarks. No patterns were visible on the forewings, but they may have faded due to the age of the material, which was stored in alcohol for 65 years.

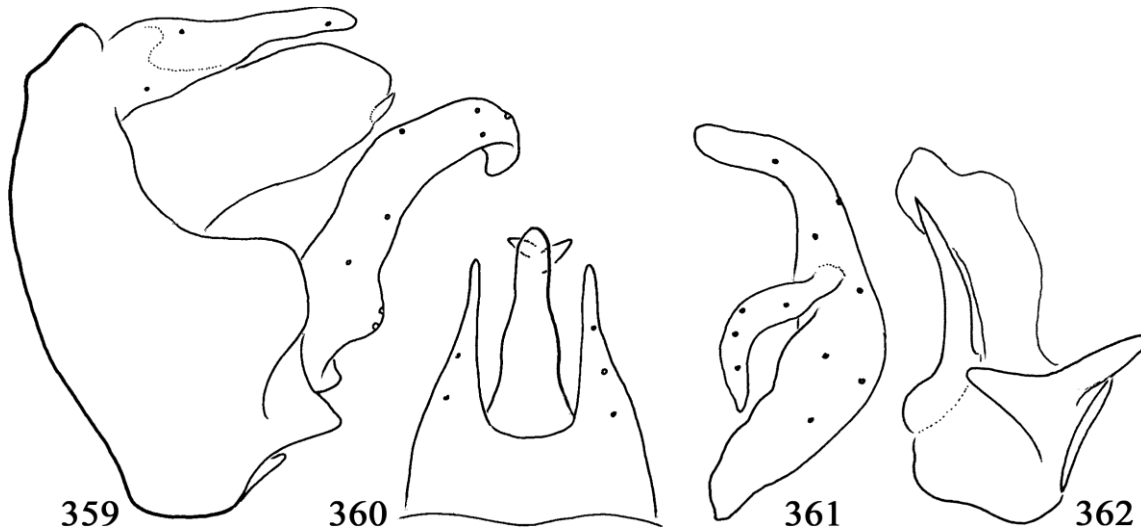
Athripsodes paulia Oláh, sp. nov.

(Figures 359–362)

Material examined. Holotype: **Madagascar**, Perinet, xii.1954, leg. R. Paulian (male, OPC).

(Perinet. Madagascar Est: 30 km à l'E de Moramanga, Perinet Station forestière et réserve special d'Analamazaitra-Perinet) [18.939°S, 48.434°E].

Diagnosis. This new species is separated from all other species by the following character combination: the monolobed and vertically flattened segment X with a pair of short subapical ventral processes; each cercus very long and tapering; the presence of monolobed gonopods; the phallic organ with one pair of large parameres.



Figures 359–362. *Athripsodes paulia* Oláh, sp. nov. Holotype: 359=genitalia in left lateral view, 360=genitalia in dorsal view, 361=right gonopod in ventral view, 362=phallic organ in left lateral view.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture present, weakly discernible.

Forewing M branching after anastomosis, resulting in stalked M. Forewing length 9 mm, without visible patterns.

Sclerotization present on segment and article IV of maxillary palps.

Male genitalia. Segment IX fused annularly, short dorsum, long ventrum. Cerci strongly produced, forming pair of elongate, tapering, finger-like processes. Segment X undivided, single lobed narrow in dorsal view, broad in lateral view, with pair of subapical short teeth located ventrally. Gonopods monolobed, curving ventromesally; harpagones articulated at mesal surface at mid-length. Phallic organ with highly membranous high phallicata; phallosome with produced ventral lobes and single pair of strong parameres.

Etymology. Dedicated to the collector, the renowned French entomologist Renaud Maurice Adrien Paulian.

Athripsodes ampa species group

Athripsodes species having segment X with short bilobed apex belong to this species group. The group includes the following species: *Athrip-*

sodes ampa sp. nov., *A. anda* sp. nov., *A. diana* Malicky, 2020, *A. italavina* sp. nov., *A. lambola* sp. nov., *A. montambra* sp. nov., *A. rineta* sp. nov., *A. toamasina* sp. nov., and *A. tola* sp. nov.

Athripsodes ampa Oláh, sp. nov.

(Figures 363–366)

Material examined. Holotype: **Madagascar**, Ampangalambolosy, Nord ouest R. N. III. Chasse à la vue, 10.ix.1957, leg. P. Soga (male, OPC) [17.5°S, 48.715°E].

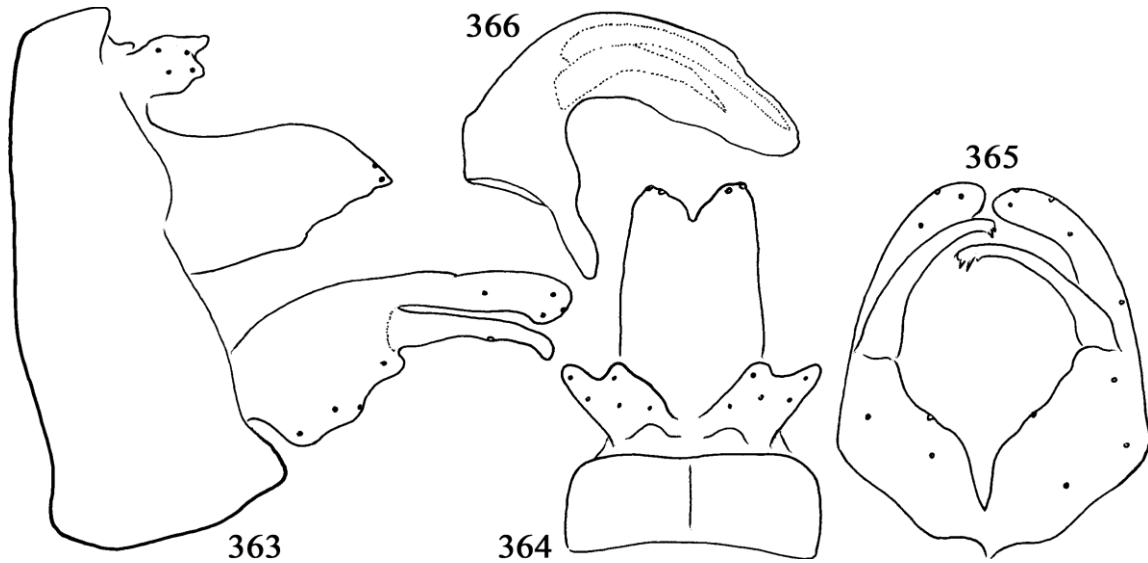
Diagnosis. This species resembles *A. italavina* sp. nov. but differs by the lateral shape of segment X, cerci and the gonopods, as well as phallic organ with two pairs of long parameres.

Description. Male (in alcohol). Large sized, light brown.

Forewing length 13 mm; indistinct dark pattern mostly along anterior margin of forewings.

Mediocranial sulcus or median epicranial stem vestigial or partly reduced. Sclerotization on maxillary palps segment IV discernible.

Male genitalia. Segment IX fused annularly, dorsum shorter than ventrum. Cerci fused to segment IX forming pair of short bilobed processes. Segment X moderately elongating, high,



Figures 363–366. *Athripsodes ampa* Oláh, sp. nov. Holotype: 363=genitalia in left lateral view, 364=genitalia in dorsal view, 365=gonopods in ventral view, 366=phallic organ in left lateral view.

divided apically by triangular excision. Gonopods with well separated and long, digitate harpagones. Phallic organ with well-developed anteroventral lip and two pairs distinct black, stout spine-like parameres.

Etymology. Coined from the name of the *locus typicus*, Ampangalambolosy. Treated as a noun in apposition.

***Athripsodes anda* Oláh, sp. nov.**

(Figures 367–370)

Material examined. Holotype: **Madagascar**, Andingitra, 2000 m, i.1958, leg. R. Paulian (male, OPC) [22.2°S, 46.87°E].

Diagnosis. This species resembles *A. lambola* sp. nov. from which it differs by having shorter segment X with widely divided apical lobes as well as supplied with a produced apico-mesal ventral process on segment IX, a typical character state otherwise present in the subgenus *Ceraclea* (*Pseudoleptocerus*) of the African mainland.

Description. Male (in alcohol). Small sized, light brown.

Forewing length 6 mm; indistinct darker pattern present mostly along anterior margin.

Mediocranial sulcus or median epicranial stem absent. Maxillary palps lost and sclerotization on maxillary palps unknown.

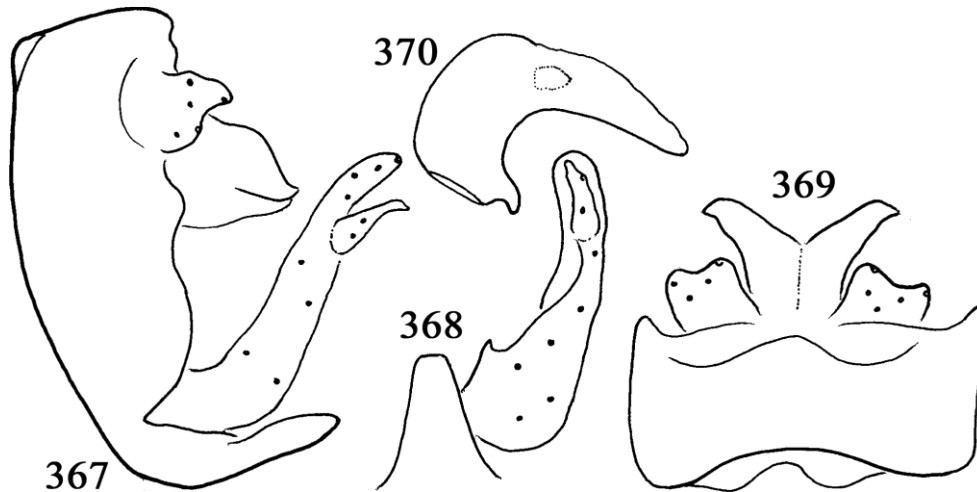
Male genitalia. Segment IX fused annularly, dorsum long; ventrum modified by elongation apicomediaally to tapering truncate process. Cerci fused to segment IX forming pair of short, bilobed processes in dorsal view. Segment X high, short in lateral view, divided apically by triangular excision, lobes diverted laterally, pointed. Gonopods with well separated and short harpagones. Phallic organ with short anteroventral lip, parameres absent.

Etymology. Coined from the name of the *locus typicus*, Andingitra. Treated as a noun in apposition.

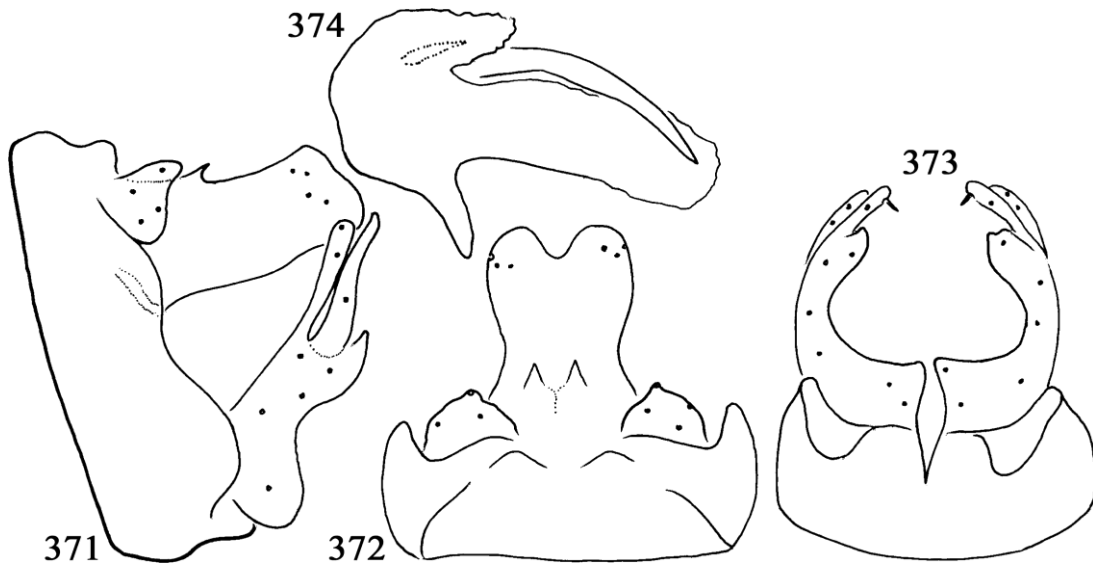
***Athripsodes italavina* Oláh, sp. nov.**

(Figures 371–374)

Material examined. Holotype: **Madagascar**, Italavina, 730 m, 6 kn N. Fanovana, vi.1956, leg. Paulian (male, OPC). (Madagascar Est: S.-P. de Moramanga, au N.-O. de Fanovana, chemin de fer Tananarive-Tamatave, Italavina (forêt de la Com-



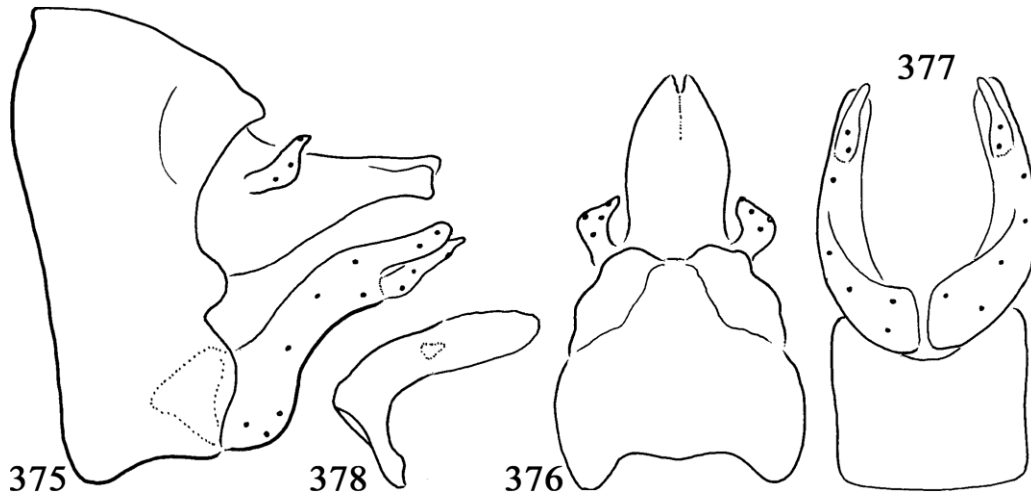
Figures 367–370. *Athripsodes anda* Oláh, sp. nov. Holotype: 367=genitalia in left lateral view, 368=right gonopod in ventral view, 369= genitalia in dorsal view, 370=phallic organ in left lateral view.



Figures 371–374. *Athripsodes italavina* Oláh, sp. nov. Holotype: 371=genitalia in left lateral view, 372=genitalia in dorsal view, 373=genitalia in ventral view, 374=phallic organ in left lateral view.

pagnie coloniale), 730 m (P. Griveaud) [18.923°S, 48.508°E]. Paratypes: Madagascar, La Mandraka, Prov. Tamatave, x.1956, leg. A. R. (Paulian) (1 male, 3 females; MNHN). (Madagascar Centre: voir La Mandraka, A. R.=Pierre Andria Robinson). [18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Antananarive].

Diagnosis. The new species resembles *Athripsodes nilaza* sp. nov., from which it differs by the semicircular, not elongated cerci; segment X having a bilobed head, not monolobed and without serrated dorsolateral lobes otherwise characteristic for *A. nilaza*; gonopods trilobed, not bilobous; the phallic organ bilobed with dorsal lobe as well as parameres are different.



Figures 375–378. *Athripsodes lambola* Oláh, sp. nov. Holotype: 375=genitalia in left lateral view, 376=genitalia in dorsal view, 377=genitalia in ventral view, 378=phallic organ in left lateral view.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M. In hind wings R_s runs more or less parallel to R_1 . In forewings fork 3 present in females and absent in males. Forewing length 8 mm; darker patches present along crossveins s, s-m and m-cu.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annularly, dorsum shorter than ventrum; lateral depression present apicoventrally on sternum. Cerci short, semicircular in dorsal view, with small central outgrowth. Segment X single-lobed, elongate quadrangular in lateral view, with pair of small, pointed, thorn-like, processes on dorsum; apex bilobed with short rounded excision in dorsal view. Vestigial paraproct present as small indistinct band connecting phallic organ with complex of segment X and cerci. Gonopods with produced basoventral rounded lobe in lateral view; apex trilobed, fused harpagones forming next longest, digitiform, slightly sigmoid process. Phallic organ with highly membranous phallicata that is bilobed; a small dorsal lobe with a pair of short and black spines and a large ventral lobe with a single long, strong black spine, dominating on the entire phallic organ; phallobase with a ventroapical elongation.

Etymology. Refers to the name of the *locus typicus* Italavina; a noun in apposition.

***Athripsodes lambola* Oláh, sp. nov.**

(Figures 375–378)

Material examined. Holotype: **Madagascar**, Ampangalambolosy, Nord ouest R. N. III. Chasse à la vue, 10.ix.1957, leg. P. Soga (male, OPC). Paratypes: same as holotype (3 males, OPC; 4 males; MNHN) [17.5°S, 48.715°E].

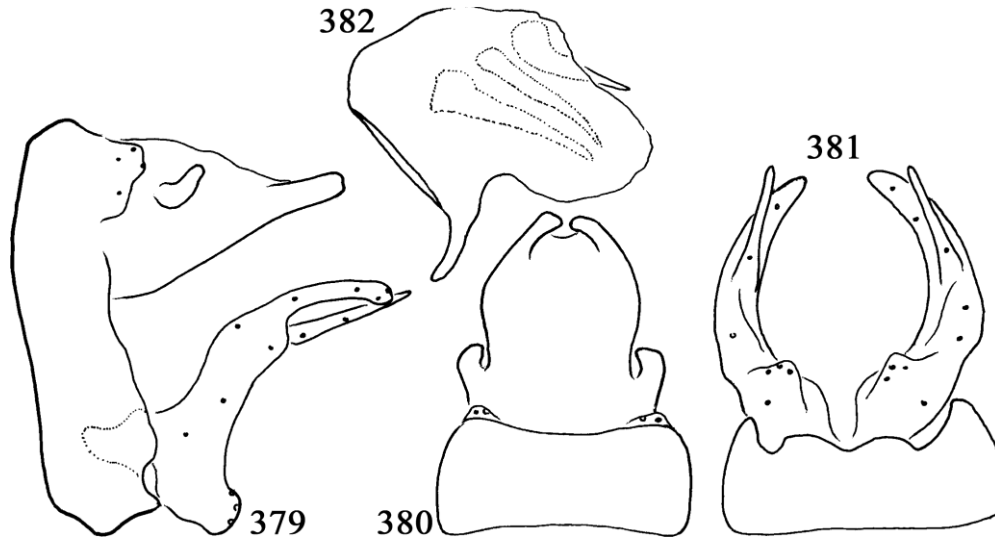
Diagnosis. This *Athripsodes* species belongs to the *Athripsodes ampa* species group with short bilobed segment X. Without well-defined parameres this species resembles *A. anda* sp. nov. but differs by having longer segment X with very small apical excision forming a very small bilobed apex as well as without any produced apico-mesal ventral process on segment IX.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 9 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annularly, dorsum longer than ventrum. Cerci small, slightly



Figures 379–382. *Athripsodes montambra* Oláh, sp. nov. Holotype: 379=genitalia in left lateral view, 380=genitalia in dorsal view, 381=genitalia in ventral view, 382=phallic organ in left lateral view.

elongated and mesally turning in dorsal view. Segment X single-lobed with a narrow and deep apical excision. Gonopods with small basoventral rounded lobe in lateral view; apex bilobed, fused harpago digitiform. Phallic organ with highly membranous phallicata and phallosome with a produced ventroapical lobe and without any discernible paramere.

Etymology. Coined from the name of the *locus typicus*, Ampangalambolosy, as a noun in apposition.

***Athripsodes montambra* Oláh, sp. nov.**

(Figures 379–382)

Material examined. Holotype: **Madagascar**, Madagascar Nord, Mt. d’Ambre, Les Roussettes, 1100 m, XI–XII, 1958, leg. Andria Robinson (male, OPC). (Ambre (montagne) Madagascar Nord: S.-P. de Diego-Suarez, Mmontagne d’Ambre. Parc National). Allotype: same as holotype (1 female, associated only) [12.542°S, 49.18°E].

Diagnosis. This small species is delineated from all the species by the following character combination: monolobed segment X with short basolateral and apicolateral processes, indistinct

concave cerci as well as with bifid gonopod and three pairs of large parameres.

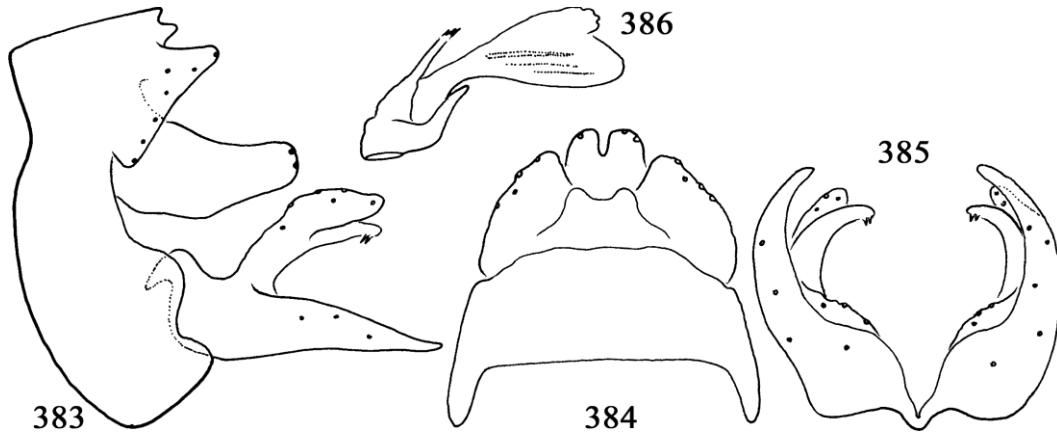
Description. Male (in alcohol). Small sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M; venation differing in the sexes, fork 3 (M₁) present in the associated female. Forewing length 6 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annular and very short; dorsum and ventrum short with different lateral pattern. Cerci indistinct, forming a small ventrally concave structure somehow fused to segment X with a few badly visible setae. Segment X undivided, single lobed with small mesally turning apicolateral processes embracing the apical margin as well as a short mesally turning process present basolaterad. Gonopods curving and bifid with produced basoapical highly setose lobe. Phallic organ with highly membranous very high phallicata, phallosome with produced ventral lobes and with three pairs of strong parameres.

Etymology. Coined from the name of the *locus typicus*, Mt. d’Ambre, as a noun in apposition.



Figures 383–386. *Athripsodes rineta* Oláh sp. nov. Holotype: 383=genitalia in left lateral view, 384=genitalia in dorsal view, 385=gonopods in ventral view, 386=phallic organ in left lateral view.

***Athripsodes rineta* Oláh, sp. nov.**

(Figures 383–386)

Material examined. Holotype: **Madagascar**, Perinet, xii.1954, leg. Paulian (male, OPC). (Madagascar Est: 30 km à l'E de Moramanga, Perinet. Station forestière et réserve spéciale d'Analama-zaitra-Perinet) [18.939°S, 48.434°E].

Diagnosis. This *Athripsodes* species with short bilobed segment X belongs to the *Athripsodes ampa* species group. It differs from all members of the species group by having very short segment X as well as by the filament-like structures, probably the diffused parameres inside the phallic organ.

Description. Male (in alcohol). Medium-sized, light brown.

Forewing length 9 mm, distinct pattern on forewings absent.

Mediocranial sulcus or median epicranial stem absent. Sclerotization on maxillary palp segment IV unknown, palps are broken.

Male genitalia. Segment IX fused annularly, dorsum slightly longer than ventrum. Cerci fused to segment IX forming pair of short and high processes. Segment X with moderately elongated shape and subdivided apicad by a deep and short excision. Gonopods composed of a strong straight and narrowing arm and an arching dorsal arm

with a partially fused harpago armed with a pair of small spines subapicad and directed downward. Phallic organ with ventral elongation and dorsal strip connecting phallic organ to segment IX, aedeagus slightly sclerotized, especially the dorsal lobe; paramere indistinct, there are elongations inside endotheca, however their real structures are indiscernible.

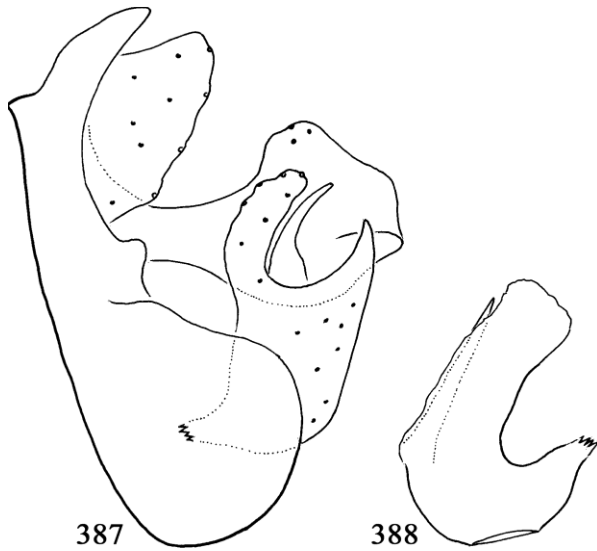
Etymology. Coined from the name of the *locus typicus*, Perinet. Treated as a noun in apposition.

***Athripsodes toamasina* Oláh & Johanson, sp. nov.**

(Figures 387–388)

Material examined. Holotype: **Madagascar**, Toamasina, Alaotra Mangoro, Mantadia National Park, Mantadia, River Sahanody, 9 km from entrance of park, 18,81345°S, 48,43007°E, 960 m, 22W UV lamp, forest stream in mid-altitude rainforest, MAD11-38, 11.xi.2011, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (1 female, NHRS; 1 female, OPC).

Diagnosis. This species with intact, not annulated segment IV of the maxillary palp and with different male and female venation of the forewing belongs to the *Athripsodes* genus as well as with short bilobed segment X it is a member of *Athripsodes ampa* species group. The character



Figures 387–388. *Athripsodes toamasina* Oláh & Johanson, sp. nov. Holotype: 387=genitalia in left lateral view, 388=phallic organ in left lateral view.

state combination of bilobed dorsum on segment IX, enlarged cerci, clavate capitate segment X, and phallic organ with a pair of long parameres differentiates *Athripsodes toamasina* sp. nov. from all members of the group.

Description. Male (in alcohol). Medium-sized, light brown.

Forewing length 9 mm; brown coloured and heavily setosed, with thin white lines along A1, M stem and r-m crossvein.

Mediocranial sulcus or median epicranial stem broken injured, indiscernible. Sclerotization on segment and article IV of maxillary palps complete is present.

Male genitalia. Segment IX fused annularly, deeply bilobed dorsum as long as ventrum. Cerci unusually enlarged, broad foliform. Segment X with lateral profile of constricted basal half and very broad, particularly patterned apical half clavate capitate. Gonopods with coxopodite of blunt heavily setose dorsal lobe and pointed less setose ventral lobe. Mesad, between the lobes of coxopodite articulated a digitate broad based less setose harpago. Phallic organ with one pair of distinct black, stout spine-like parameres, located dorsad.

Etymology. Coined from the name of the *locus typicus*, as a noun in apposition.

***Athripsodes tola* Oláh, sp. nov.**

(Figures 389–392)

Material examined. Holotype: **Madagascar**, Ampolomitra, est Belanitra, Distr. Ambatolampy, May 1956, leg. P. Griveaud. (male, OPC). (Ampolomitra, Madagascar Centre: S.-E. d' Ambatolampy, S.-E. de Belanitra, Ampolomitra, 1300 m) [19.81°S, 47.82°E].

Diagnosis. This medium-sized species is delineated from species of the *Athripsodes ampa* species group by the following character combination: monolobed segment X with high and lamellated apical half seems narrowing in dorsal view and with a pair of trilobed plates basally dorsolaterad; cerci well produced and foliated, almost half-circular in dorsal view, gonopods with well developed harpago and phallic organ with one pair of small and one pair of large parameres.

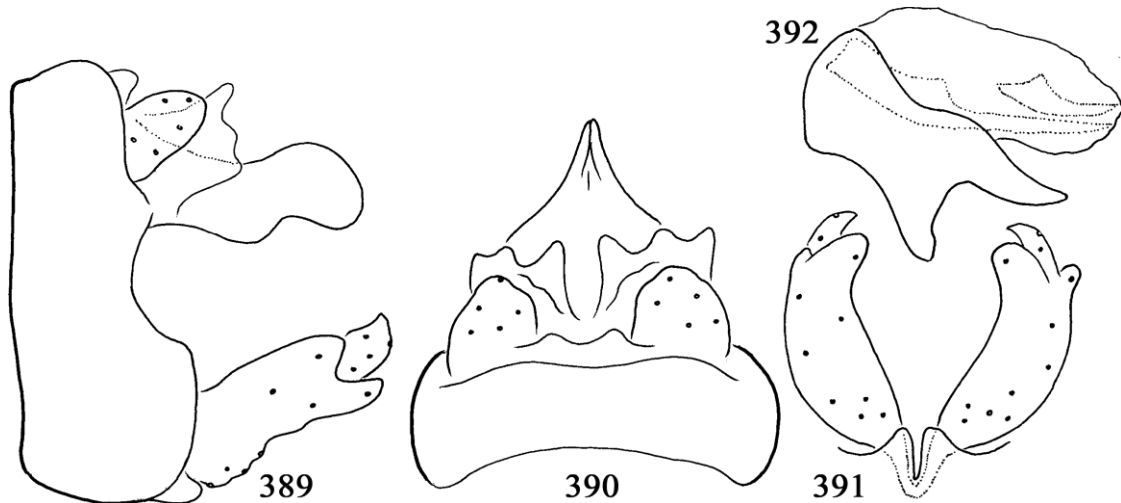
Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture.

Forewing M branching after anastomosis resulting in stalked M; length 8 mm, without visible patterns.

Sclerotization on segment and article IV of maxillary palps complete.

Male genitalia. Segment IX fused annular and short; its ventral part longer, supplied with a bilobed mesal structure. Cerci foliform. Segment X with unique high and clavate lateral profile, tapering from the middle to apicad in dorsal view. Gonopods broad having two short apical lobes; harpago robust, longer and pitted. Phallic organ with highly membranous very high phallicata, phalotheca with produced ventral and apical lobes and with two pairs of strong parameres; one is long and the other is short.

Etymology. Coined from the name of the *locus typicus*, Ambatolampy, and treated as a noun in apposition.



Figures 389–392. *Athripsodes tola* Oláh sp. nov. Holotype: 389=genitalia in left lateral view, 390=genitalia in dorsal view, 391=gonopods in ventral view, 392=phallic organ in left lateral view.

Athripsodes amboasa species group

Species in this group have a segment X with a long bilobed apex. Composed of *Athripsodes amboasa* sp. nov., *A. ampita* sp. nov., *A. andoba* new species complex (*A. andoba* sp. nov., *A. batola* sp. nov., *A. ivoa* sp. nov., *A. maroana* sp. nov., *A. matava* sp. nov., *A. siranana* sp. nov.), *A. fora* sp. nov., *A. griveaudi* sp. nov., *A. pangala* sp. nov., *A. perineta* sp. nov., *A. rasuil* Malicky, 2015,

Athripsodes amboasa Oláh, sp. nov.

(Figures 393–396)

Material examined. Holotype: **Madagascar**, Amboasary (Bac), Route Fort Dauphin [25.04°S, 46.385°E], iii.1955, H.R. leg. R. Paulian, (male, OPC).

Diagnosis. This small-sized species resembles *Athripsodes ampita* sp. nov. but is easily delineated by the bilobed segment X curving downward, not upward; cerci clavate, not digitiform in dorsal view, gonopods elongated and narrowing, not broadening middle in lateral view and phallic organ with a pair of paramere-like composed structure, not without any sclerotized structures.

Description. Male (in alcohol). Small-sized, light brown. Median epicranial suture on head indiscernible. Sclerotization on segment and article IV of maxillary palps complete.

Forewing M branching after anastomosis resulting in stalked M;. Forewing length 5 mm, without visible patterns.

Right maxillary palp is lacking.

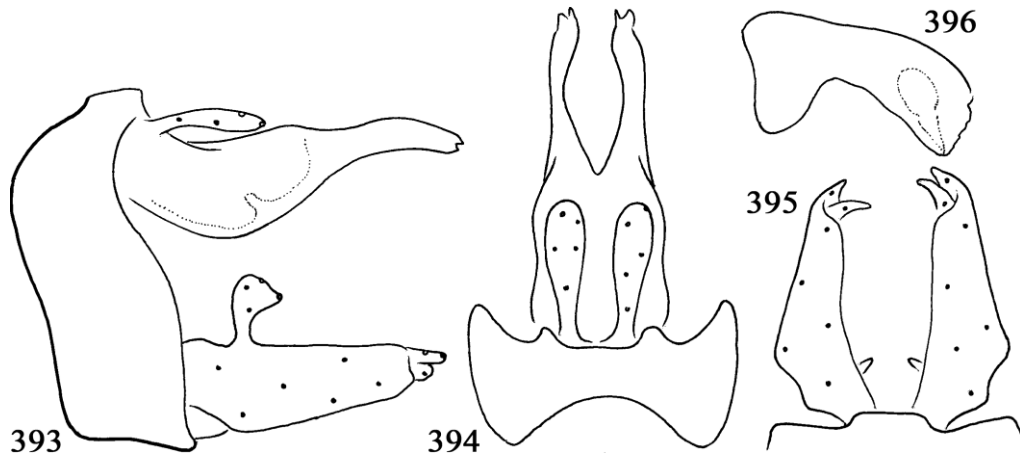
Male genitalia. Segment IX fused annular very short; its ventral part longer. Cerci half long as segment X, digitate in lateral and clavate in dorsal view. Segment X subdivided, bilobed from the middle. Gonopods elongated with apical pair of short processes, one of these is the harpagones. Phallic organ composed of the almost straight, less curving phallicata, phallotheca with produced basoventral lobes and with one pair of probable parameres; composed by a basal circular body and partially attached apical pointed short structure.

Etymology. Coined from the name of the *locus typicus*, Amboasary, as a noun in apposition.

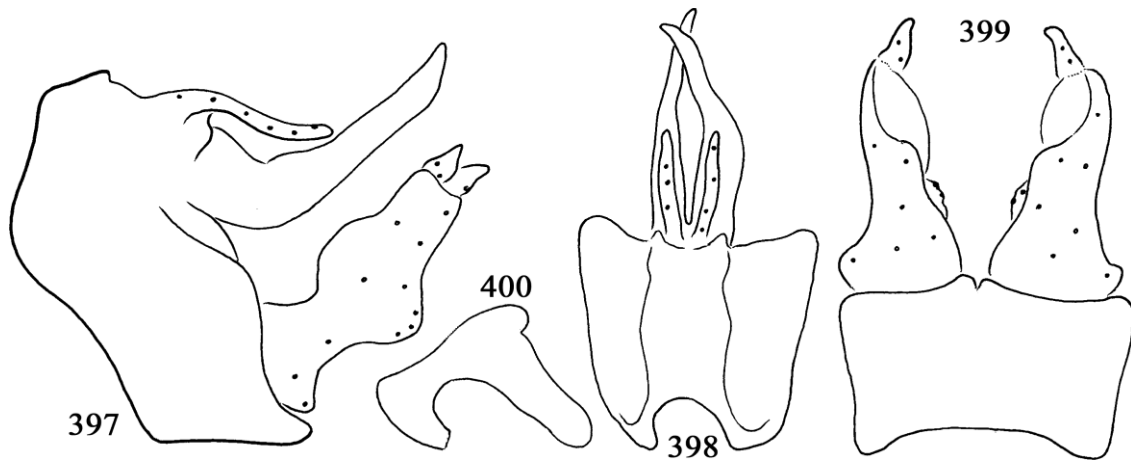
Athripsodes ampita Oláh, sp. nov.

(Figures 397–400)

Material examined. Holotype: **Madagascar**, Ampitameloka dist., Anosibe-Moramanga, 840 m,



Figures 393–396. *Athripsodes amboasa* Oláh sp. nov. Holotype: 393=genitalia in left lateral view, 394=genitalia in dorsal view, 395=gonopods in ventral view, 396=phallic organ in left lateral view.



Figures 397–400. *Athripsodes ampita* Oláh sp. nov. Holotype: 397=genitalia in left lateral view, 398=genitalia in dorsal view, 399=genitalia in ventral view, 400=phallic organ in left lateral view.

[19.212°S, 48.222°E], XII.1956, leg. P. Griveaud, (male, OPC). (Madagascar Est: S. de Moramanga, route d'Anosibe, Ampitameloka, 840 m).

Diagnosis. This medium-sized species resembles *Athripsodes amboasa* sp. nov. but is easily distinguished by the bilobed segment X curving upward, not downward; cerci digitiform not clavate in dorsal view, gonopods broadening middle in lateral view not elongated and narrowing; phallic organ without any parameres.

Description. Male (in alcohol) Medium-sized, light brown. Median epicranial suture on head

vestigial, only its dorsal part is visible. Sclerotization on segment and article IV of maxillary palps complete.

Forewing M branching after anastomosis resulting in stalked M;. Forewing length 9 mm, without visible patterns.

Male genitalia. Segment IX fused annular very short; its ventral part longer. Cerci half long as segment X, digitate and slightly sigmoid in lateral view. Segment X deeply subdivided, bilobed from the basal region and upward curving. Gonopods broadened middle part and with apical pair of short processes, one of these is the harpagones. Phallic organ composed of the almost straight,

less curving phallicata, phalotheca with produced basoventral lobes and without any discernible parameres.

Etymology. Coined from the name of the *locus typicus* Ampitameloka, and treated as a noun in apposition.

Athripsodes andoba species complex

This small species complex is characterized by median epicranial suture poorly discernible, not distinct or lacking; fourth article of the maxillary palp is not flexible, without partial desclerotization or; mottled loss of sclerotization; Forewing M branching after anastomosis resulting in stalked M. Fused complex of setose cerci composed of a pair of small lateral surfaces and a large mesal setose triangular lobe. Segment X deeply subdivided and represented by two elongated parallel-sided setaless lobes armed with a small unique basolateral fingered variously shaped process. Gonopods with bilobed dorsal lobe. Phallic organ characterized by highly asymmetric paramere complex composed of short and long spine-like structures. Composed of the following species: *Athripsodes andoba* sp. nov., *Athripsodes batola* sp. nov., *Athripsodes ivoa* sp. nov., *Athripsodes maroana* sp. nov., *Athripsodes matava* sp. nov., *Athripsodes siranana* Oláh & Johanson, sp. nov.

Athripsodes andoba Oláh, sp. nov.

(Figures 401–404)

Material examined. Holotype: **Madagascar**, Andobo Forêt d'Antsingy, dist Antsalova, ii.1957, (A.R.) leg. Paulian (male, OPC). (Andobo. Madagascar Quest: S.-P.d'Antsalova, forêt de l'Antsingy, Andobo, 190 m. Réserve naturelle intégrale n°9, du tsingy de Bemaraha) [18.6°S, 44.71°E].

Diagnosis. The nominate species of the *A. andoba* species complex is characterized by the tapering head of segment X; by an upper dominating single finger of the unique basolateral finger patterned structure; by the short apical lobe of

the bilobed dorsal process of the gonopod and by the low curving of the stout phallic organ having two short apical spines and a single stout long spine, compared to high curving and with only a single apical spine on the other two known species of the complex: *A. ivoa* sp. nov. and *A. maroana* sp. nov.

Description. Median epicranial suture poorly discernible, not distinct; fourth article of the maxillary palp is not flexible, without any partial desclerotization or mottled loss of sclerotization.

Forewing M branching after anastomosis resulting in stalked M.

Male genitalia. Fused complex of setose cerci composed of a pair of small lateral surfaces and a large mesal setose triangular lobe. Segment X deeply subdivided and represented by two elongated parallel-sided setaless lobes with narrowing apical head in lateral view; armed with a small unique basolateral finger patterned structure of an upper dominating finger. Gonopods with bilobed dorsal lobe as well as characterized by a short and mesad extending apical lobe. Phallic organ characterized by a low curving and by two apical short spines and a single large, long stout spine.

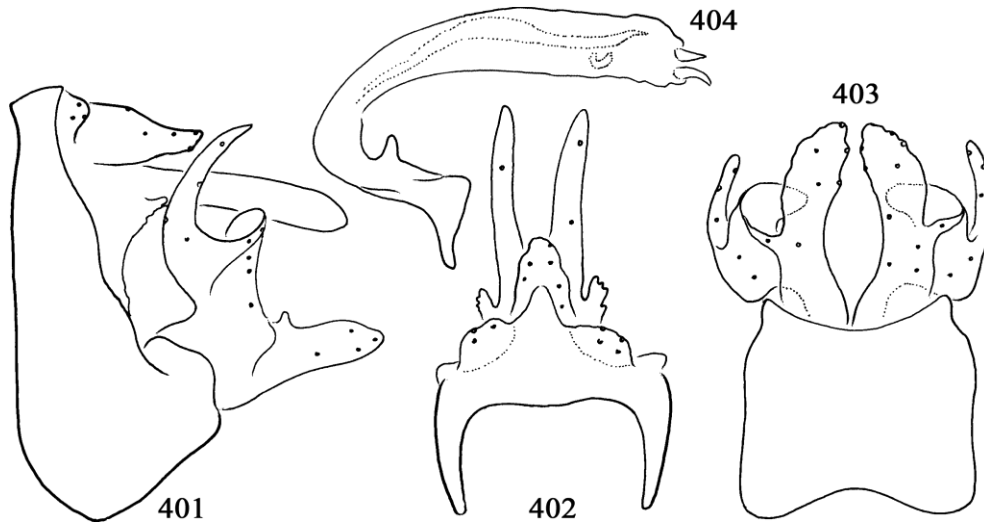
Etymology. Coined from the name of the *locus typicus*, Andobo Forêt d'Antsingy. Treated as a noun in apposition.

Athripsodes batola Oláh, sp. nov.

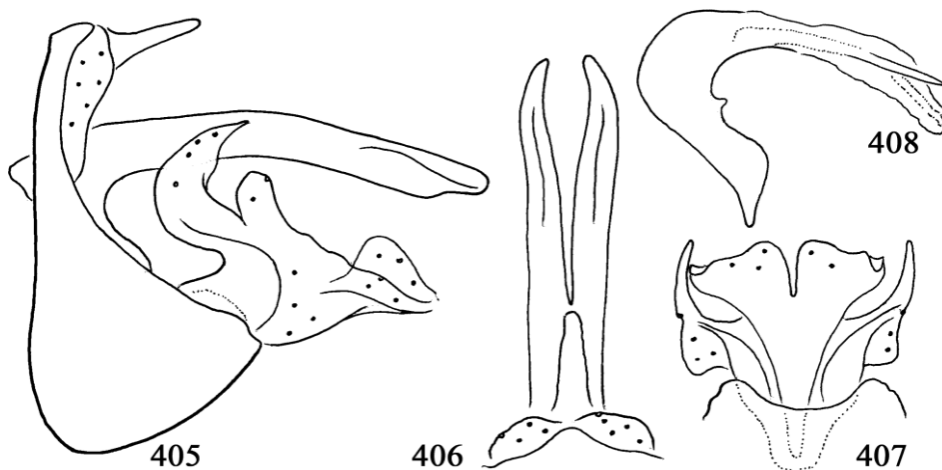
(Figures 405–408)

Material examined. Holotype: **Madagascar**, Ampolomitra, est Belanitra, Distr. Ambatolampy, v.1956, leg. P. Griveaud. (male, OPC). (Ampolomitra, Madagascar Centre: S.-E. d' Ambatolampy, S.-E. de Belanitra, Ampolomitra, 1300 m). [19.81°S, 47.82°E].

Diagnosis. This species of the *Athripsodes andoba* species complex resembles *Athripsodes andoba* sp. nov. but characterized by the dorsad narrow head of segment X; by the lack of finger structure of the unique basolateral finger patterned structure; by the laterad widening apical lobe of the bilobed dorsal process of the gonopod and by



Figures 401–404. *Athripsodes andobea* Oláh, sp. nov. Holotype: 401=genitalia in left lateral view, 402=genitalia in dorsal view, 403=genitalia in ventral view, 404=phallic organ in left lateral view.



Figures 405–408. *Athripsodes batola* Oláh sp. nov. Holotype: 405=genitalia in left lateral view, 406=genitalia in dorsal view, 407=gonopods in ventral view, 408=phallic organ in left lateral view.

the lack of apical pair of small spines on the phallic organ.

Description. Male (in alcohol). Large sized, light brown. Head with median epicranial suture. Maxillary palps lacking.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 11 mm, without visible patterns.

Male genitalia. Segment IX fused annular very short dorsad and gradually elongating ventrad.

Cerci with short and high lateral profile. Segment X forms a pair of simple rod-shaped elongated processes. Gonopods complex without discernible harpago composed of complexes of dorsal and apical system of lobes. Phallic organ represents a curved tube of phallosome and more membranous phallicata with a single pair of short parameres and with a single long spine.

Etymology. Coined from the name of the *locus typicus*, Ambatolampy, as a noun in apposition.

***Athripsodes ivoa* Oláh, sp. nov.**

(Figures 409–410)

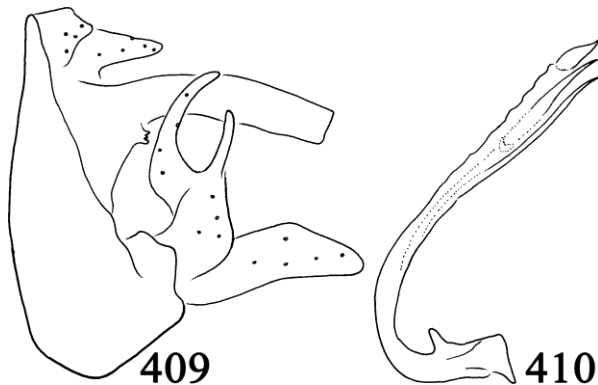
Material examined. Holotype: **Madagascar**, Anivorano-Kely, Prés Rivière d'Ivoay, Del Brickaville, ix.1954, leg. Paulian (male, OPC). (Anivorano. Madagascar Est: 15/20 au N.-O. de Brickaville, Anivorano, 50 m) [= Anivoranokely 18.35°S, 48.88°E].

Diagnosis. This species of the *Athripsodes andoba* species complex resembles *Athripsodes maroana* sp. nov. but characterized by the clearly cut vertically straight head of segment X; by the low finger structure of the unique basolateral finger patterned structure; by the very short and slender apical lobe of the bilobed dorsal process of the gonopod and by the slenderness of the low curving phallic organ having a very stout and short apical spine besides the sclerotized longer apical and very long and slender spines.

Description. Median epicranial suture poorly discernible, not distinct; fourth article of the maxillary palp is not flexible, without any partial desclerotization or; mottled loss of sclerotization.

Forewing M branching after anastomosis resulting in stalked M.

Male genitalia. Fused complex of setose cerci composed of a pair of small lateral surfaces and a



Figures 409–410. *Athripsodes ivoa* Oláh, sp. nov. Holotype: 409=genitalia in left lateral view, 410=phallic organ in left lateral view.

large mesal setose triangular lobe. Segment X deeply subdivided and represented by two elongated parallel-sided setaless lobes with straightly cut apical head in lateral view; armed with a small unique basolateral finger patterned structure of low extension. Gonopods with bilobed dorsal lobe and characterized by a stout apical lobe. Phallic organ characterized by a low curving slender shape and by a stout apical short spine accompanied by a shorter and a longer, slender spine.

Etymology. Coined from the name of the *locus typicus* Rivière d'Ivoay, as a noun in apposition.

***Athripsodes maroana* Oláh, sp. nov.**

(Figures 411–412)

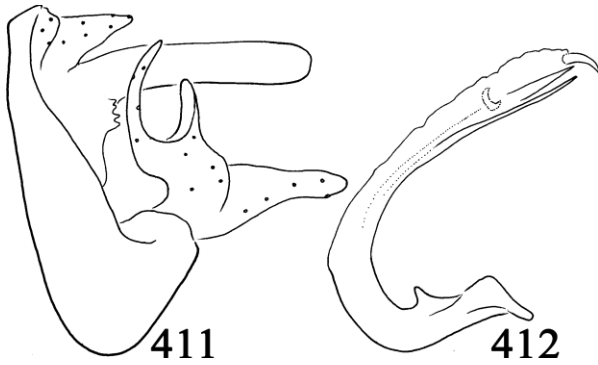
Material examined. Holotype: **Madagascar**, Maroansetra, Ambodivoangy, leg. J. Vadon (male, OPC). (Maroantsetra. Madagascar Est: S.-P. de Maroantsetra, (chasses de J. Vadon) Port-Choiseul sur des cartes anciennes) [15.438°S, 49.758°E].

Diagnosis. This species of the *Athripsodes andoba* species complex resembles *Athripsodes ivoa* sp. nov. but characterized by the rounded head of segment X, not truncated; by the high finger structure of the unique basolateral finger patterned structure; by the longer and broad apical lobe of the bilobed dorsal process of the gonopod and by the stoutness of the low curving phallic organ having a slender curving apical spine besides the sclerotized longer apical and very long and slender spines.

Description. Brown coloured species with forewing length of 7 mm. Median epicranial suture poorly discernible, not distinct; fourth article of the maxillary palp is not flexible, without any partial desclerotization or mottled loss of sclerotization.

Forewing M branching after anastomosis resulting in stalked M.

Male genitalia. Fused complex of setose cerci composed of a pair of small lateral surfaces and a



Figures 411–412. *Athripsodes maroana* Oláh, sp. nov.
Holotype: 411=genitalia in left lateral view,
412=phallic organ in left lateral view.

large mesal setose triangular lobe. Segment X deeply subdivided and represented by two elongated parallel-sided setaless lobes with rounded apical head in lateral view; armed with a small unique basolateral finger patterned structure of high extension. Gonopods with bilobed dorsal lobe characterized by a slender apical lobe. Phallic organ characterized by a low curving stout shape and by a single slender and curving apical short spines accompanied by a shorter and a longer, slender spine.

Etymology. Coined from the name of the *locus typicus*, Maroansetra, and treated as a noun in apposition.

***Athripsodes matava* Oláh, sp. nov.**

(Figures 413–416)

Material examined. Holotype: **Madagascar**, Sa Mandraka, Prov. Tamatave, Oct.1956, (A.R.) leg. Paulian (male, OPC). (Mandraka. Madagascar Centre: S.-S. voir La Mandraka). [18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Tananarive]. Paratype: same as holotype (1 male, MNHN).

Diagnosis. This new species in the *Athripsodes andoba* species complex is characterized by the slightly excised head of segment X in lateral view; the small fingers of the unique basolateral finger patterned structure; the highly modified, anterad fingered apical lobe of the bilobed dorsal

process of the gonopod; the highly elongated posterad directed lobes of the gonopods; and by the phallic organ having two tiny apical spines and one long stout and one short stout spines.

Description. Brown coloured species with forewing length of 11 mm. Median epicranial suture poorly discernible, not distinct on holotype and lacking on paratype; fourth article of the maxillary palp is not flexible, without any partial desclerotization or mottled loss of sclerotization.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 11 mm, without visible patterns.

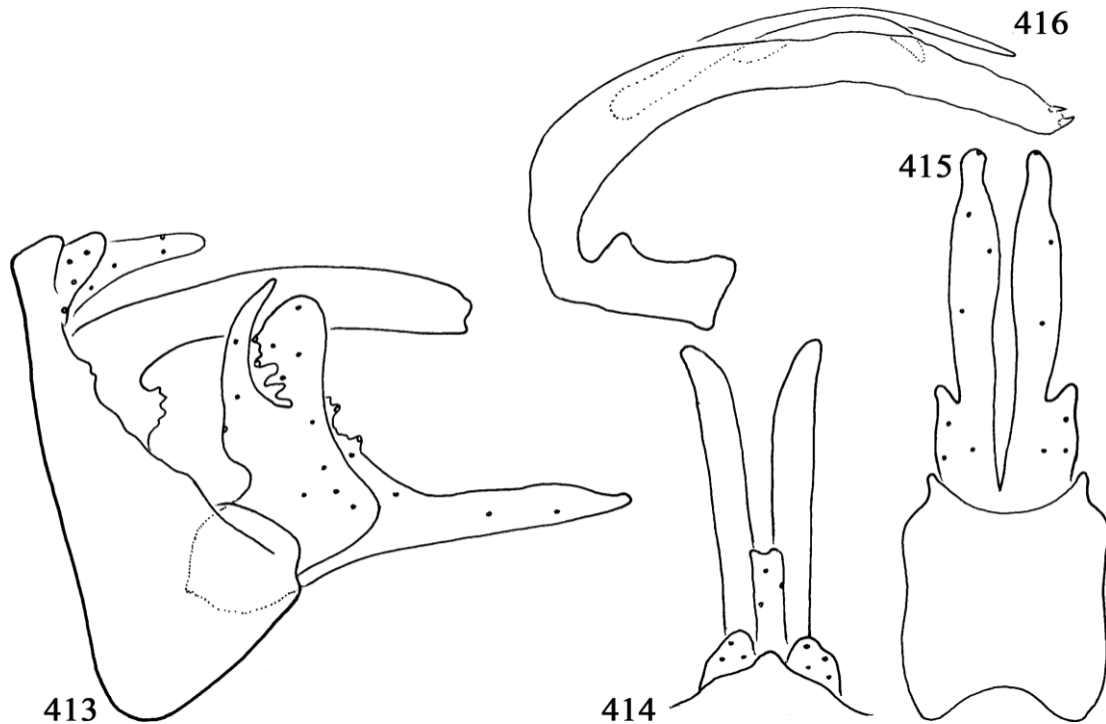
Male genitalia. Fused complex of setose cerci composed of a pair of small rounded lateral lobes and a long parallel-sided setose process. Segment X deeply subdivided and represented by two elongated parallel-sided setaless lobes with slightly excised head in lateral view; armed with a small unique basolateral finger patterned structure. Gonopods with bilobed dorsal lobe and characterized by a long and slender apical lobe fingered basomesad. Phallic organ characterized by two very short tiny, one long stout and one short stout spines.

Etymology. Coined from the name of the *locus typicus*, Tamatave, and treated as a noun in apposition.

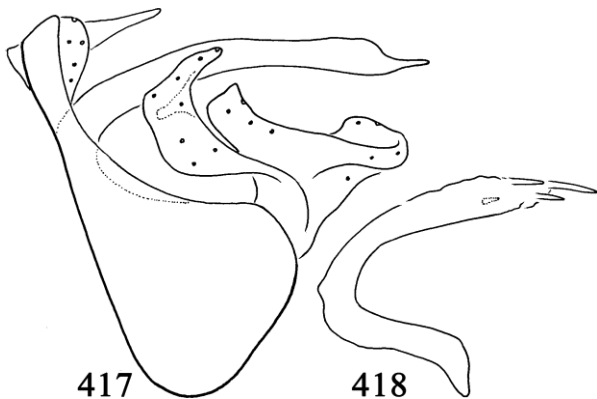
***Athripsodes siranana* Oláh & Johanson, sp. nov.**

(Figures 417–418)

Material examined. Holotype: **Madagascar**, Antsiranana, Montagne d'Ambre NP, 100 m from camping site of Montagne d'Ambre on the bridge, 5.xii.2012, 22W black light trap, 12.52456°S, 49.17255°E, 1032 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: Madagascar, Antsiranana Montagne d'Ambre NP, Petite cascade sacrée, 4.xii.2012, 22W black light, 12.5304°S, 49.16836°E, 1020 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, 1 female, NHRS; 2 males, OPC).



Figures 413–416. *Athripsodes matava* Oláh, sp. nov. Holotype: 413=genitalia in left lateral view, 414=genitalia in dorsal view, 415=genitalia in ventral view, 416=phallic organ in left lateral view.



Figures 417–418. *Athripsodes siranana* Oláh & Johanson, sp. nov. Holotype: 417=genitalia in left lateral view, 418=phallic organ in left lateral view.

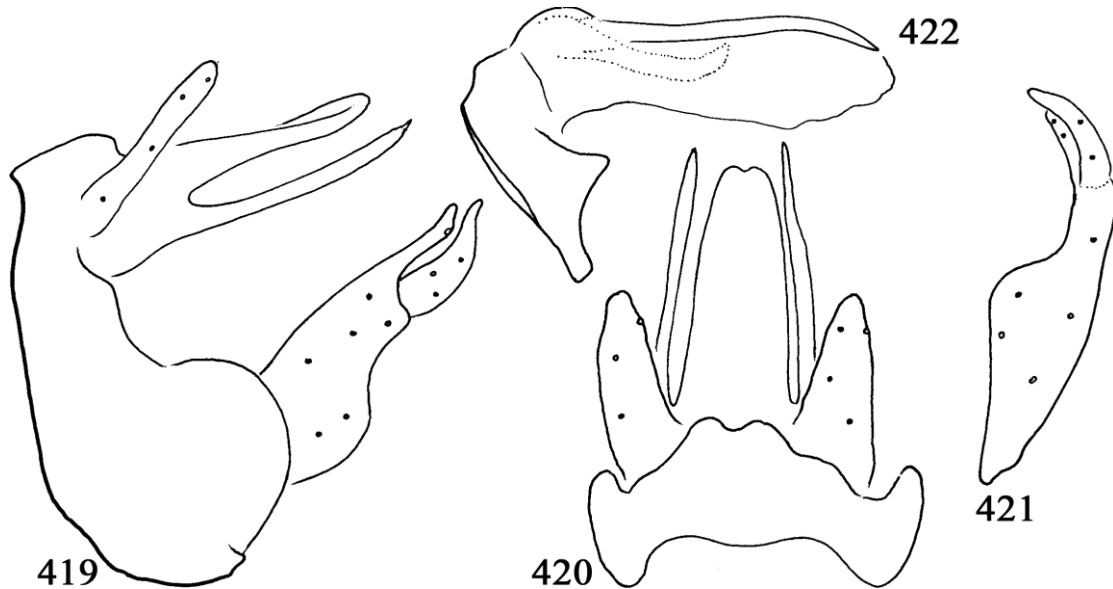
Diagnosis. This species of the *Athripsodes andoba* species complex resembles *Athripsodes batola* sp. nov., from which it differs by the digitate head of segment X; by the lateral profile of the gonopod complex as well as by the spine pattern of the phallic organ.

Description. Male (in alcohol). Medium-sized brown animal. Head with median epicranial suture. Fourth article of the maxillary palp is not flexible, without any partial desclerotization or mottled loss of sclerotization.

Forewing M branching after anastomosis resulting in stalked M; length 9 mm, membrane brown without any pattern.

Male genitalia. Segment IX fused annular very short dorsad and gradually elongating ventrad. Cerci with short and high lateral profile. Segment X forms a pair of simple rod-shaped elongated processes with abruptly narrowing digitate apex. Gonopods complex without discernible harpago composed of complexes of dorsal and apical system of lobes. Phallic organ represents a curved tube of phallosome and more membranous phallicata with a four apical spines.

Etymology. Coined from the name of the *locus typicus*, Antsirana, and treated as a noun in apposition.



Figures 419–422. *Athripsodes fora* Oláh, sp. nov. Holotype: 419=genitalia in left lateral view, 420=genitalia in dorsal view, 421=right gonopod in ventral view, 422=phallic organ in left lateral view.

***Athripsodes fora* Oláh, sp. nov.**

(Figures 419–422)

Material examined. Holotype: **Madagascar**, Vakoana, Forêt Imatso, 1550 m, 22.i.1958, leg. R. Paulian, (male, OPC). (Madagascar Centre: Massif de l'Andringitra, forêt Vakoana (voir Ambalamarovandana) [22.197°S, 46.846°E].

Diagnosis. This medium-sized species of the *Athripsodes amboasa* species group is delineated from all the species in this group by the following character combination: monolobed segment X with long basolateral spine-like process, cerci well produced and elongated, gonopods with well developed harpago and phallic organ with two pairs of large parameres.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture. Maxillary palps are lacking.

Forewing M branching after anastomosis resulting in stalked M;. Forewing length 8 mm, without visible patterns.

Male genitalia. Segment IX fused annular and very short; its ventral part long, elongated by a

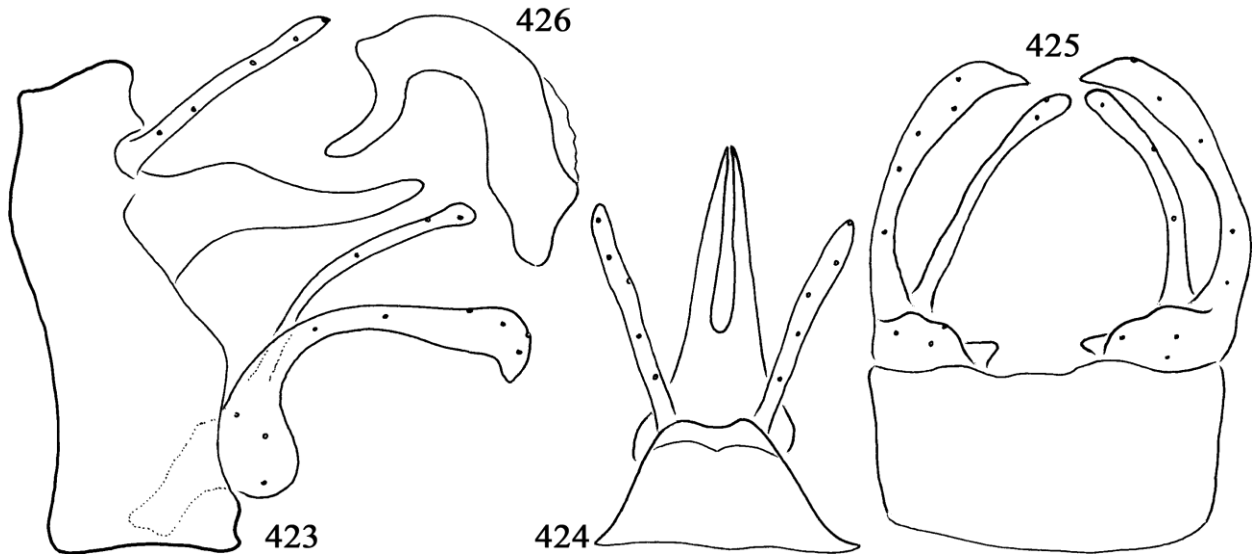
regular semicircular apical lobe. Cerci long, digitate in lateral and broader in dorsal view. Segment X with an undivided, single mesal lobe accompanied by lateral spine-like processes originating from the basal region. Gonopods broad in the basal region with digitiform single apical process; harpago more robust and longer. Phallic organ with highly membranous very high phallicata, phalotheca with produced ventral lobes and with two pairs of strong parameres; one is long and slender, the other short broad and upward curving.

Etymology. The name refers to the forest distribution; a noun in apposition.

***Athripsodes griveaudi* Oláh, sp. nov.**

(Figures 423–426)

Material examined. Holotype: **Madagascar**, Ampolomitra, east Belanitra, Distr. Ambatolampy, May 1956, leg. P. Griveaud. (male, OPC). (Ampolomita, Madagascar Centre: S.-E. d' Ambatolampy, S.-E. de Belanitra, Ampolomita, 1300 m) [19.81°S, 47.82°E]. Paratypes: same as holotype (1 male, 1 female; MNHN).



Figures 423–426. *Athripsodes griveaudi* Oláh, sp. nov. Holotype: 423=genitalia in left lateral view, 424=genitalia in dorsal view, 425=genitalia in ventral view, 426=phallic organ in left lateral view.

Diagnosis. This medium-sized species resembles *Athripsodes pangala* sp. nov. but is easily delineated by the longer digitate cerci; the laterally differently shaped segment X; the gonopods two partite, not tripartite and by the phallic organ with broadening subapical, not parallel-sided.

Description. Male (in alcohol). Medium-sized, light brown. Median epicranial suture on head discernible. Maxillary palps lacking.

Forewing M branching after anastomosis resulting in stalked M; length 10 mm, without visible patterns.

Male genitalia. Segment IX fused annular very short; ventral part little longer. Cerci almost as long as segment X, digitate both in lateral and dorsal views. Segment X subdivided, bilobed from the middle. Gonopods slender elongated with long digitate harpagones. Phallic organ composed of the curving phallicata and phallosome without parameres.

Etymology. Named after the collector, the renowned French entomologist Paul Griveaud.

Athripsodes pangala Oláh, sp. nov.

(Figures 427–430)

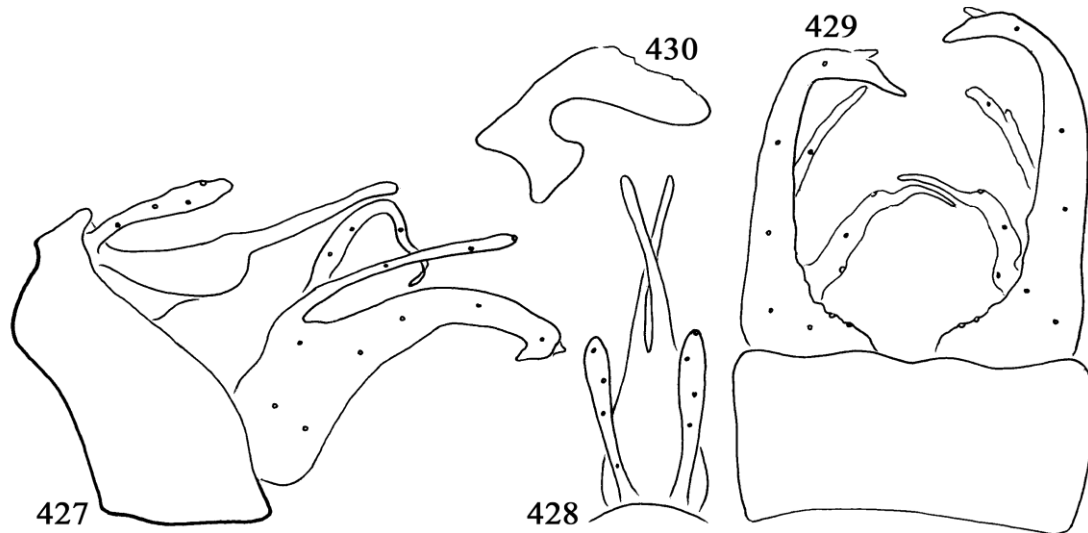
Material examined. Holotype: **Madagascar**, Ampangalambolosy, [17.5°S, 48.715°E], Nord ouest R.N.III. Chasse a la vue, 10.ix.1957, leg. P. Soga. (1 male, OPC).

Diagnosis. This medium-sized species resembles *Athripsodes perineta* sp. nov. but differs by the laterally differently shaped segment X; by the individual arms of the tripartite gonopods and by the low phallic organ.

Description. Male (in alcohol). Medium-sized, light brown. Median epicranial suture on head discernible. Maxillary palps lacking.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 8 mm, without visible patterns.

Male genitalia. Segment IX fused annular very short; its ventral part three times longer than its dorsum. Cerci half as short as segment X, digitate, slightly tapering basad both in lateral and in dorsal views. Segment X subdivided, bilobed



Figures 427–430. *Athripsodes pangala* Oláh, sp. nov. Holotype: 427=genitalia in left lateral view, 428=genitalia in dorsal view, 429=genitalia in ventral view, 430=phallic organ in left lateral view.

from the middle and basal half broad, apical half digitate. Gonopods broad based in lateral view with slender apical half; harpagones slender, irregularly shaped. Phallic organ downward curving composed of the phallicata and phallosome without parameres.

Etymology. Coined from the name of the *locus typicus*, Ampangalambolosy, and treated as a noun in apposition.

***Athripsodes perineta* Oláh, sp. nov.**

(Figures 431–434)

Material examined. Holotype: **Madagascar**, Perinet, xi.1954, leg. Paulian. (male, OPC). (Perinet, Madagascar Este: 30 km à l'E. de Moramanga, Perinet, Station forestière et réserve spéciale d'Analamazaotra-Perinet [18.939°S, 48.434°E]. Paratypes: same as holotype (4 males, MNHN).

Diagnosis. This medium-sized species resembles *Athripsodes pangala* sp. nov. but differs in the laterally differently shaped segment X; in the individual arms of the tripartite gonopods; and in the very high phallic organ.

Description. Male (in alcohol). Medium-sized, light brown. Median epicranial suture on head discernible. Maxillary palps having sclerotized fourth segment.

Forewing M branching after anastomosis resulting in stalked M; Forewing length 9 mm, without visible patterns.

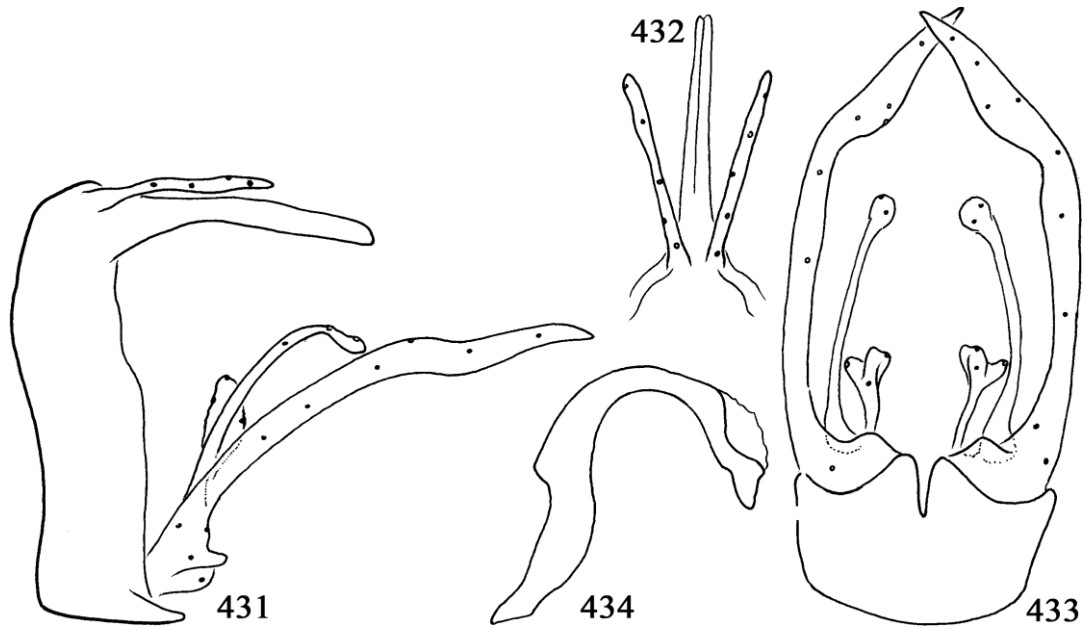
Male genitalia. Segment IX fused annular very short; its ventral part little longer. Cerci shorter than segment X, digitate both in lateral and in dorsal views. Segment X subdivided, bilobed from the middle and low along its entire length. Gonopods slender elongated with long capitate harpagones. Phallic organ very high composed of the curving phallicata and phallosome without parameres.

Etymology. Coined from the name of the *locus typicus*, P, and treated as a noun in apposition.

***Athripsodes rasuil* Malicky, 2015**

Athripsodes rasuil Malicky, 2015: 42.

Material examined. **Madagascar**, Sakaraha, S. F. Zombitse, v.1956, leg. (A. R.) (Paulian) (1 male, OPC). (Madagascar Ouest: S.-P. de Sakaraha, A. R.=Pierre Andria Robinson) [22.906°S,



Figures 431–434. *Athripsodes perineta* Oláh, sp. nov. Holotype: 431=genitalia in left lateral view, 432=genitalia in dorsal view, 433=genitalia in ventral view, 434=phallic organ in left lateral view.

44.624°E]. Madagascar, Ambovombe, Prov. Tulear, vii.1952, leg. R. Paulian (2 males, OPC). (Madagascar Sud: S.-P. d'Ambovombe) [25.165° S, 46.09°E]. Madagascar, Ankazoabo, Tulear Prov., Station Hydrobiologique du Banian, vii. 1957, leg. R. Paulian (3 males, MNHN). (Madagascar Ouest: S.-P. d'Ankazoabo). [22.29°S, 44.5°E]. Madagascar: Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi. 2012, 22W black light trap, 13.64798°S, 48.7368° E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (10 males, NHRS; 3 males, OPC). Madagascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042° S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB). Madagascar, Antsiranana, Galoko mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, NHRS).

Athripsodes mapera species group

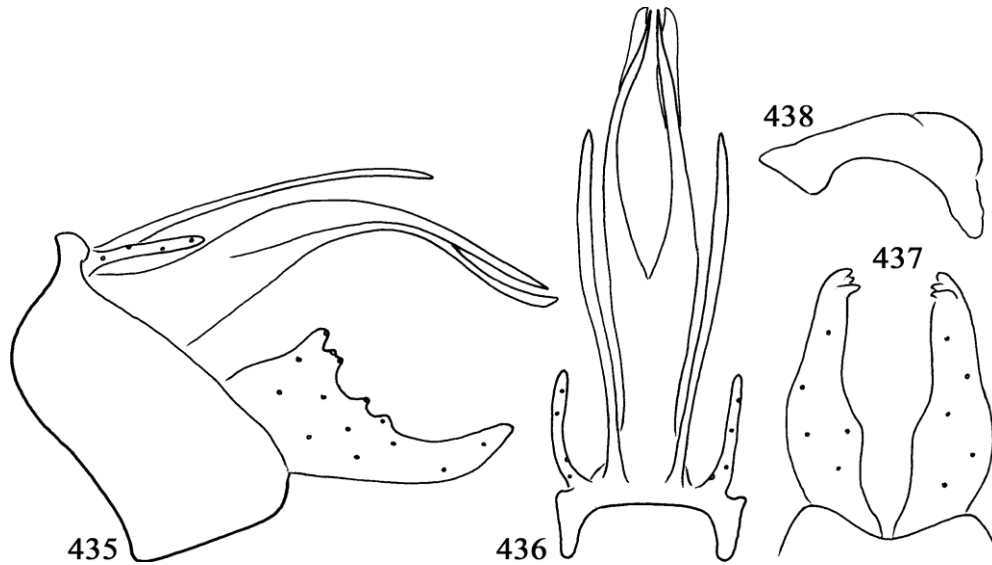
This group is characterised by species that have segment X with a quadrilobed apex. Composed of *A. furcifer* Navás, 1923, *A. ivoloina* Malicky, 2020, *A. madifana* sp. nov., *A. mapera* sp. nov., *A. namoroka* sp. nov., *A. tamata* sp. nov.

Athripsodes furcifer (Navás, 1923)

Leptocerus furcifer Navás, 1923a: 24.

Athripsodes furcifer (Navás, 1923): Kimmins 1949: 202.

Material examined. Madagascar, Ampijoroa, 12 m, Ankarafantsika, ix.1956, leg. P. Griveaud, (1 male, OPC). (Madagascar Ouest: S.-P. de Morovoay, 25 km au N. d'Ambato-Boeni, lac ou station forestière d'Ampijoroa. Dans la forêt de l'Ankarafantsika) [16.23°S, 46.466°E]. Madagascar, Ambovombe, Prov. Tulear, vii.1952, leg. R. Paulian (9 males, OPC). (Madagascar Sud: S.-P. d'Ambovombe) [25.165°S, 46.09°E]. Madagascar, Ankazoabo, Prov. Tulear, Station Hydrologique du Banian, vii.1957, leg. (A.R.) Paulian, (3 males, MNHN). [22.29°S, 44.5°E]. (Madagascar



Figures 435–438. *Athripsodes madifana* Oláh, sp. nov. Holotype: 435=genitalia in left lateral view, 436=genitalia in dorsal view, 437=gonopods in ventral view, 438=phallic organ in left lateral view.

Ouest: S.-P. d'Ankazoabo). Madagascar, Ampalomitra, East Belanitra, Dist. Ambatolampy, v.1956, leg. Paulian (1 male, MNHN). (Madagascar Centre: S.-P. d'Ambatolampy.) [19.81°S, 47.82°E]. Madagascar, Sakaraha, S.F. Zambitsy, v.1956, leg. Paulian, (2 males, MNHN). (Madagascar Ouest: S.-P. de Sakaraha). Madagascar, Forêt Sambohimokantra, S.F. Zambitsy, iii.1956, leg. (A.R.) Paulian (1 male, MNHN). (Madagascar Ouest: S.-P. de Sakaraha) [22.906°S, 44.624°E].

***Athripsodes madifana* Oláh, sp. nov.**

(Figures 435–438)

Material examined. Holotype: **Madagascar**, Ifanadiana [21.26°S, 47.45°E], ii.1953, I. Molet, leg. R. Paulian, (male, OPC). (Ifanadiana. Madagascar Est: S.-P. d'Ifanadiana).

Diagnosis. This medium-sized species differs from all species of the *Athripsodes mapera* group by the presence of an additional pair of long processes originating from the basal part of segment X, in addition to the quadrilobed segment X.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture. Maxillary palps are lacking.

Forewing M branching after anastomosis resulting in stalked M. Forewing length 9 mm, without visible patterns.

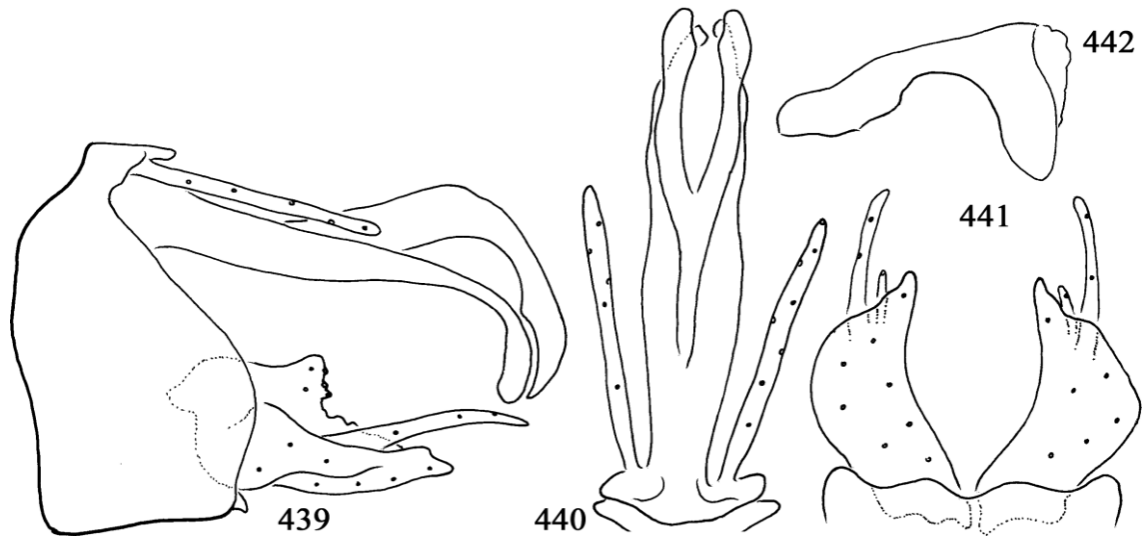
Male genitalia. Segment IX fused annular and rather long; its ventral part long, dorsum very short. Cerci long, digitate only one third of the length of segment X. Segment X subdivided from the middle into a dorsal pair of pointed and a ventral pair of less pointed long processes, additional pair of digitate processes arising from basement of segment X, shorter than segment X. Gonopods broad in basal region, narrowing apex with dorsum of small fingered margin. Phallic organ without discernible parameres.

Etymology. Coined from the name of the *locus typicus*, Madagascar, Ifanadiana, and treated as a noun in apposition.

***Athripsodes mapera* Oláh, sp. nov.**

(Figures 439–442)

Material examined. Holotype: **Madagascar**, Perinet, xii.1954, leg. R. Paulian (male, OPC). (Perinet. Madagascar Est: 30 km à l'E de Moramanga, Perinet. Station forestière et réserve spéciale d'Analamazaitra-Perinet.) [18.939°S, 48.434°E].



Figures 439–442. *Athripsodes mapera* Oláh, sp. nov. Holotype: 439=genitalia in left lateral view, 440=genitalia in dorsal view, 441=gonopods in ventral view, 442=phallic organ in left lateral view.

Diagnosis. This medium-sized species is delineated from all the species in the group by the following character combination: elongated quadrilobed segment X subdivided to halfway with two pairs of lobes arching and downward curving in lateral view; cerci long, digitiform, half as long as segment X; gonopods broad-based, narrowing, pointing apicad and supplied with a short digitate process and a long digitate harpago basomesad; phallic organ arching with clavate head and without any paramere.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture. There is not any loss of sclerotization on segment or article IV of maxillary palp.

Forewing M branching after anastomosis resulting in stalked M; length 9 mm, without visible patterns.

Male genitalia. Segment IX fused annular medium long; dorsum short and ventrum long. Cerci digitiform, half as long as segment X. Segment X very elongated slender, quadrilobed subdivided or cleft from middle forming two pairs of downward curving processes in lateral view. Gonopods long, broad-based, broad and narrowing in ventral view; a small setose lobe and the large harpago basomesad. Phallic organ arching with clavate head and without any parameres.

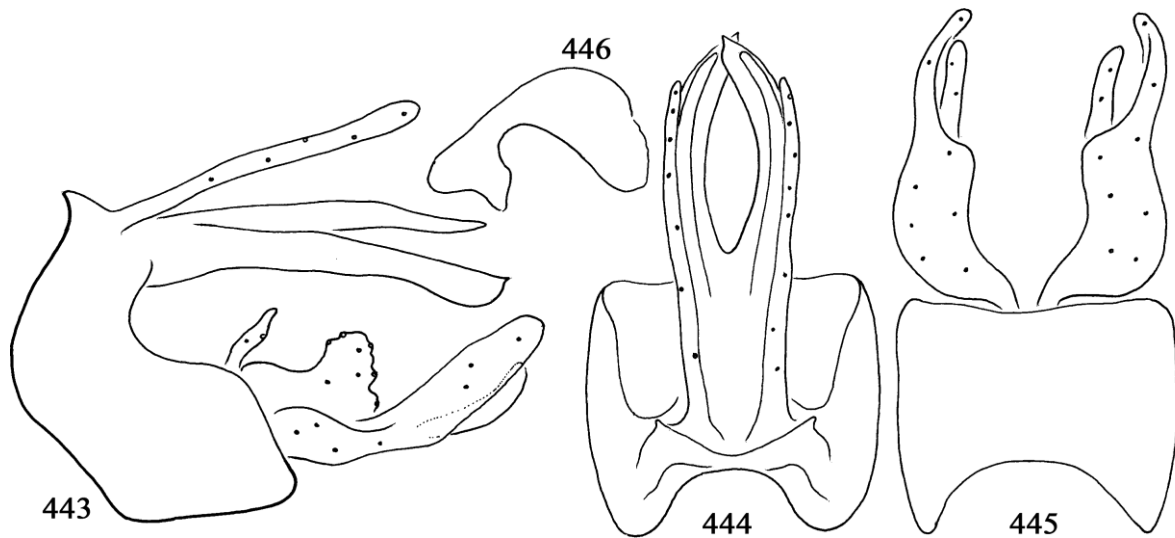
Etymology. Coined from the name of the *locus typicus*, Madagascar and Perinet, treated as a noun in apposition.

***Athripsodes namoroka* Oláh, sp. nov.**

(Figures 443–446)

Material examined. Holotype: **Madagascar**, Namoroka, ix.1952, leg. R. Paulian (male, OPC). (Namoroka. Madagascar Ouest, S.-P. de Soalala, réserve naturelle intégrale n°8, de Namoroka) [16.399°S, 45.283°E]. Paratypes: same as holotype (1 male, MNHN). Madagascar, Nord Dept. Diego Suarez Analamerana, 80 m, 50 km S.E. Diego, I.1959, leg. R. Andria (2 males, MNHN). (Analamerana. Madagascar Nord: 50 km au S.-E. de Diego-Suarez, forêt d'Analamerana, 80 m. Ibidem: forêt d'Analamerana (côté Nord-Ouest). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS).

Diagnosis. This medium-sized species resembles *Athripsodes mapera* sp. nov. but differs by the straight and not curved processes of segment X, by the long, not short cerci as well as



Figures 443–446. *Athripsodes namoroka* Oláh, sp. nov. Holotype: 443=genitalia in left lateral view, 444=genitalia in dorsal view, 445=gonopods in ventral view, 446=phallic organ in left lateral view.

by the different pattern of gonopods both in lateral and dorsal view.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture present, very distinct. There is no any loss of sclerotization on segment or article IV of maxillary palp.

Forewing M branching after anastomosis resulting in stalked M; length 9 mm, without visible patterns.

Male genitalia. Segment IX fused annular medium long; dorsum short and ventrum long. Cerci digitiform, almost as long as segment X. Segment X very elongated slender, quadrilobed subdivided or cleft from middle forming two pairs of straight processes in lateral view, lower pair of processes slightly longer than the upper and armed with very short and distinct apical point. Gonopods particularly patterned especially in lateral view. Phallic organ arching with clavate head and without any parameres.

Etymology. Coined from the name of the *locus typicus* Namoroka, as a noun in apposition.

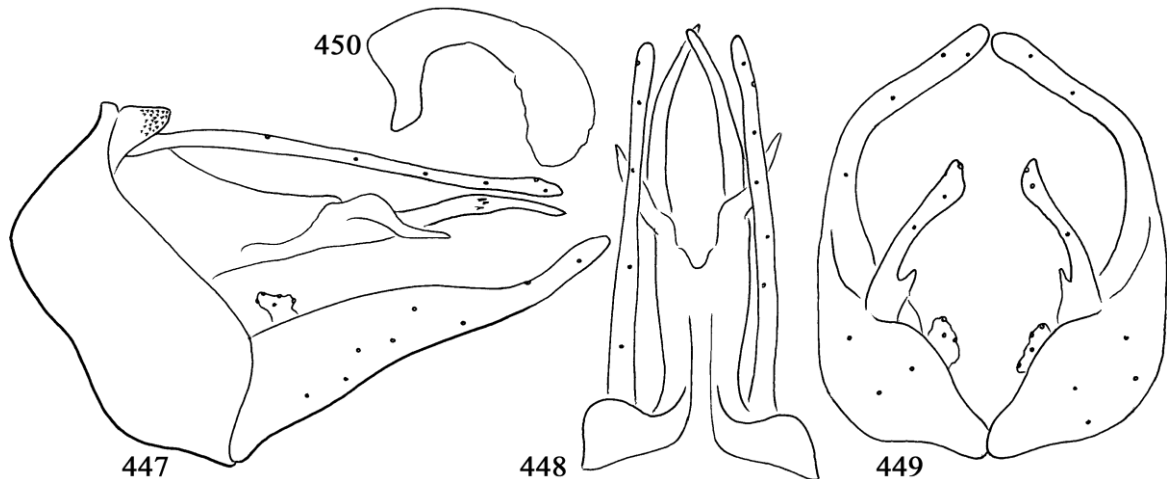
***Athripsodes tamata* Oláh, sp. nov.**

(Figures 447–450)

Material examined. Holotype: **Madagascar**, Sa Mandraka, Prov. Tamatave, x.1956, leg. R. Paulian (male, OPC). (Mandraka. Madagascar Centre: voir La mandraka). 18.912°S, 47.92°E, Mandraka Park is not in Tamatave Province but eastward Tananarive.

Diagnosis. This medium-sized species is delineated from all the species in the group by the following character combination: elongated quadrilobed segment X subdivided to halfway with slender longer apical pair of lobes and a pair of short sigmoid lobes midway; cerci digitiform, as long as segment X; the gonopods long narrowing apically supplied basally by short, setose, lobe and bilobed, large, harpagones; the phallic organ arching with clavate head and without parameres.

Description. Male (in alcohol). Medium-sized, light brown. Head with median epicranial suture. Sclerotization on segment IV of maxillary palps complete.



Figures 447–450. *Athripsodes tamata* Oláh, sp. nov. Holotype: 447=genitalia in left lateral view, 448=genitalia in dorsal view, 449=genitalia in ventral view, 450=phallic organ in left lateral view.

Forewing M branching after anastomosis, resulting in stalked M; length 11 mm, without visible patterns.

Male genitalia. Segment IX fused annularly, medium long; dorsum and ventrum short. Cerci as long as segment X, digitiform. Segment X elongate, slender, quadrilobed subdivided, cleft from middle, forming pair of long digitiform lobes as well as pair of short, sigmoid, lobes. Gonopods long, narrowing; small setose lobe and large harpagones basomesally. Phallic organ arching, with clavate head, without parameres.

Etymology. Coined from the name of the *locus typicus*, the Tamatave Province, and treated as a noun in apposition.

Axiocerina Ross, 1957

The species of the genus *Axiocerina* are characterized by a head without a median epicranial stem. The mesepisternum has a transverse suture, typical in species of the *Athripsodes* group. The spur formula is 2.2.2. The forewings has a short stalk R_{1+2} , and the hind wings are narrow. The cerci are large, ear-like, solidly fused with segment IX. Segment X is simple and protrudes slightly beyond the cerci apex. The phallic organ consisting only of sclerotized tube being sharply angled at the base and gently at the apex. Evidence for close relation to *Leptocerina* includes:

the sessil, not stalked main fork of the median vein and the broad ventral lip on the phallic shield and the phallobase recurved anteriorly resting against the basal plate of gonopods (Morse 1984). The species in the genus was described from the Réunion Island.

Axiocerina reunionis Ross, 1957

Axiocerina reunionis Ross, 1957: 133.

Material examined. Paratype: **Reunion Island**, Bras Sanson, 1800 m, i.1955, leg. R. Paulian (1 male, MNHN).

Ceraclea Stephens, 1829

Ceraclea (Athripsodina) Kimmins, 1963

The species of the subgenus *Athripsodina* are characterized by a male phallobase almost always with longitudinal cleft apicoventrally. In many species the male tergum X has a pair of rod-like lateral processes on the ventrolateral edge of the tergite (not from the surface of the tergite as in many species in the subgenus *Ceraclea*).

Ceraclea (Ceraclea) Stephens, 1829

The species in this subgenus have a head without median epicranial suture (midcranial sulcus).

The fourth article of the maxillary palps is flexible due to partially desclerotization; mottled loss of sclerotization according to Gibon & Randriamasimanana (2021). The forewing M branches after anastomosis and resulting in stalked M. The phallic apparatus is uncleft ventroapically. The sternite IX is unmodified, that is without apicomeseal elongation or articulated elongated sclerite. TRhe segment X is frequently, but not exclusively, with an odd number of projections due to fusion of the two median or main portions. The harpagones are present and forming articulated or partially fused structure. One pair of parameres is present.

Ceraclea (Pseudoleptocerus) Ulmer, 1907

The species in this subgenus have a head without a median epicranial stem. In the forewings M_{3+4} arises beyond anastomosis. In hind wings R_s diverges from R_2 to enclose a wide radial area. The forewings have scaloid setae. The phallic apparatus is uncleft apicoventrally. The sternite IX is modified. The harpagones are absent or fused with the main body of gonopods. Two pairs of parameres are present.

Ceraclea (Ranaivodes) Gibon & Randriamasimanana, 2013

The species in this subgenus have head without a median epicranial stem. The forewing M_{3+4} arises beyond the anastomosis. In the hind wings, the R_s runs more or less in parallel to the R_1 . The forewings lack scaloid setae. The sternite IX is open ventrally, with one additional sclerite inserted and forming a ventral keel. The phallic apparatus is uncleft apicoventrally. The parameres are absent.

***Ceraclea (Ranaivodes) ambadikala*
Oláh, sp. nov.**

(Figures 451–454)

Material examined. Holotype: **Madagascar**, Ambadikala, Près Rivière Ranomena, Del. Brickaville, ix.1954, leg. R. Paulian (male, OPC). (Madagascar Est: S.-P. de Brickaville, rivière

Ranomena, Ambadikala (A. Robinson)). [18.25° S, 48.94°E, found on GeoMondiale.fr].

Diagnosis. This new species resembles *Ceraclea (R.) jonathani* Gibon & Randriamasimanana, 2013, from which it differs in the shape of cerci in dorsal and lateral view, by the number and shape of modified setae on segment X, by the shape of phallobase and phallicata, as well as the forewing without discernible pattern.

Description. Male (in alcohol). Medium-sized, light brown. Mediocranial sulcus or median epicranial stem absent. Sclerotization on maxillary palp segment IV indistinct, poorly visible.

Forewing length 9 mm, distinct pattern on forewings absent.

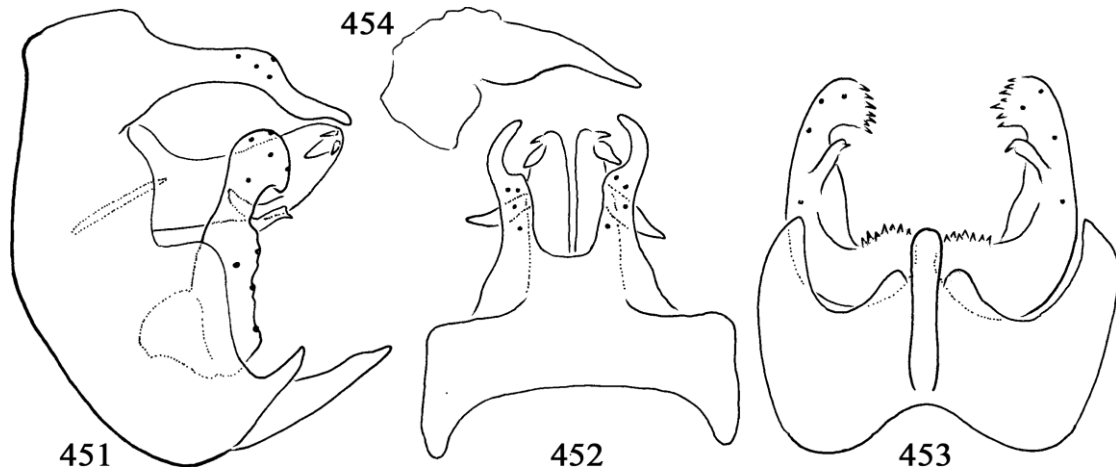
Male genitalia. Segment IX fused annularly, dorsum slightly shorter than ventrum; sternite produced into pair of lateral elongations; ventral keel tapering in lateral view, parallel-sided in ventral view. Cerci fused to segment IX, forming pair of elongate processes fused basally, characterized by terminal hook-formation in dorsal view. Segment X with elongated shape, divided by thin slot in two big juxtaposed lobes, each lobe distally bearing one big and two small setae, at midlength with one large modified seta curving anteriorly. Subanal plate or vestigial paraproct present and heavily sclerotized. Gonopods capitate, each with small harpago. Phallic organ without parameres, phallobase almost rectangular, phallicata partially membranous, basally sclerotized, elongate apically.

Etymology. Coined from the name of the *locus typicus*, Ambadikala, and treated as a noun in apposition.

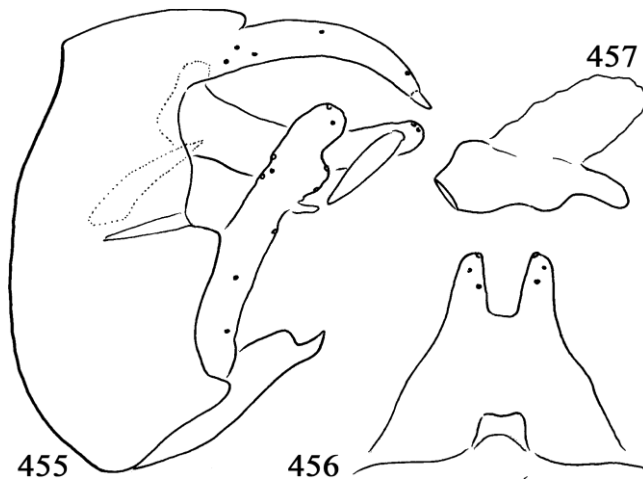
Ceraclea (Ranaivodes) galaka Oláh & Johanson, sp. nov.

(Figures 455–457)

Material examined. Holotype: **Madagascar**, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bu-



Figures 451–454. *Ceraclea (Ranaivodes) ambadikala* Oláh, sp. nov. Holotype: 451=genitalia in left lateral view, 452=genitalia in dorsal view, 453=genitalia in ventral view, 454=phallic organ in left lateral view.



Figures 455–457. *Ceraclea (Ranaivodes) galaka* Oláh & Johanson sp. nov. Holotype: 455=genitalia in left lateral view, 456=genitalia in dorsal view, 457=phallic organ in left lateral view.

kontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS).

Diagnosis. This new species resembles *Ceraclea (R.) manongariva*, sp. nov., from which it differs by the dorsal and lateral shape of cerci, by the apical pattern of the gonopods, by the shape of phallobase and phallicata, as well as by the apical region of the ventral keel.

Description. Male (in alcohol). Small-sized, light brown. Mediocranial sulcus or median epi-

cranial stem absent. Segment or article IV of maxillary palp lacking.

Forewing length 5 mm, distinct pattern on the forewings absent.

Male genitalia. Segment IX fused annularly, dorsum as long as ventrum; sternite produced into pair of lateral elongations; ventral keel tapering in lateral view and hook-headed in ventral view. Cerci fused to tergite IX forming pair of elongated processes with short terminal spike, apicomesal excision U-shaped. Segment X elongate, divided by thin slot in two big juxtaposed lobes, each

bearing large modified anteriorly curving seta. Subanal plate, or vestigial paraproct, present, heavily sclerotized. Gonopods with bilobed apical-subapical ventral margins; harpagones minute. Phallic organ without parameres; phallobase sclerotized, phallicata partially membranous, basally sclerotized, elongate apically.

Etymology. Coined from the name of the *locus typicus*, Galoko Mts., as a noun in apposition.

***Ceraclea (Ranaivodes) grandis* (Mosely, 1932)**

Homilia grandis Mosely, 1932: 128.

Ceraclea grandis (Mosely, 1932); Gibon & Randriamasimanana (2013): 266.

Material examined. **Madagascar**, Ilaka, km 729, Route Sakaraha, iii.1956, leg. A. R. (Paulian). (1 male, OPC). (Ilakaka or Ilaka, Madagascar Ouest: S.-P. d'Ihoso, 26 km au S.-O. de Ranohira, Ilakaka. Point d'eau sur la route nationale 7, entre Ranohira et le col des Tapias méridional, A. R. = Pierre Andria Robinson) [22.695°S, 45.217°E].

***Ceraclea (Ranaivodes) higleri* Gibon & Randriamasimanana, 2013**

Ceraclea higleri Gibon & Randriamasimanana, 2013: 264.

Material examined. **Madagascar**, Ankazoabo, Tulear Prov., Station Hydrobiologique du Banian, vii.1957, leg. A. R. (Paulian) (1 male, OPC). (Madagascar Ouest: S.-P. d'Ankazoabo, A.R. = Pierre Andria Robinson) [22.29°S, 44.5°E]. Madagascar, Ampolomitra, Est Belanitra, Dist. Ambatolampy, v.1956, leg. E. R. (Paulian) (1 male, MNHN). (Madagascar Centre: Ambatolampy, S.-E. de Belanitra, Ampolomitra, 1300 m, E.R. = Edouard Razafimandimby) [19.81°S, 47.82°E].

***Ceraclea (Ranaivodes) joachimi* Gibon & Randriamasimanana, 2017**

Ceraclea joachimi Gibon & Randriamasimanana, 2017: 442.

Material examined. **Madagascar**, Andranomandevy (Didy), 1039 m, Ambatondrazaka, 2.x.1956, leg. P. Griveaud (1 male, OPC). (Madagascar Est: ca. 48 km au S.-E. d'Ambatondrazaka, Andranomandevy (Didy), 1039 m) [18.154°S, 48.615°E]. Madagascar, Andasibe, Reserve Mitsinjo, 920 m, 12.iv.2007, leg. W. Mey (1 male, ZMB).

***Ceraclea (Ranaivodes) jonathani* Gibon & Randriamasimanana, 2013**

Ceraclea jonathani Gibon & Randriamasimanana, 2013: 261.

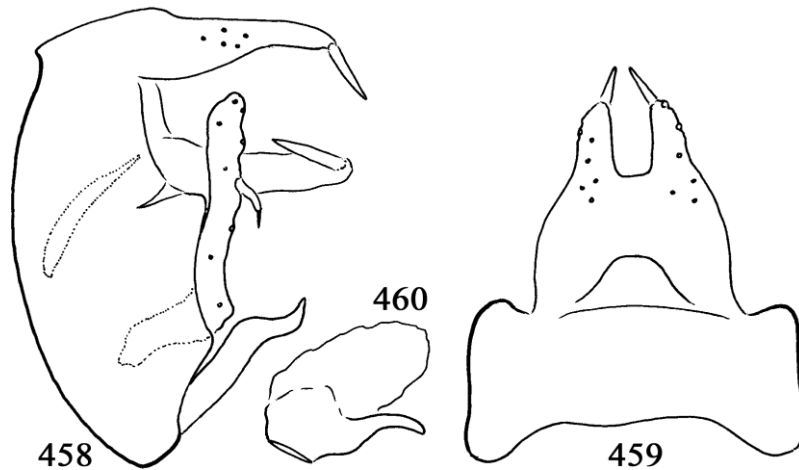
Material examined. Madagascar, Perinet, 23.xi.1954, taken at night, leg. R. Paulian (1 male, OPC). (Madagascar Est: 30 km à l'E de Moramanga, Perinet. Station forestière et réserve spéciale d'Analamazaitra-Perinet) [18.939°S, 48.434°E].

***Ceraclea (Ranaivodes) manongariva* Oláh & Johanson, sp. nov.**

(Figures 458–460)

Material examined. Holotype: **Madagascar**, Mahajanga, Manongarivo NP, N Beraty village, 14.02289°S, 48.25303°E, 600 m, 21.xi.2012, 22W black light trap, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (4 males, 1 female, NHRS; 2 males, OPC). Madagascar, Mahajanga, Manongarivo NP, Beraty, Manongarivo River, 19.xi.2012, 22W light trap, 14.02869°S, 48.24859°E. leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS, 1 male, OPC). Madagascar, Fianarantsoa, Isalo NP, 100 m from entrance of Canyon de Makis, 684 m, 12-14.xi.2012, Malaise trap, 22.48694°S, 45.37534°E, Alt. 684 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana, J.H. Randriamihaja (24 males, NHRS; 14 males, OPC).

Diagnosis. This species is similar to *Ceraclea (Ranaivodes) sartorii* Gibon & Randriamasimanana, 2013, from which it differs by having



Figures 458–460. *Ceraclea (Ranaivodes) manongariva* Oláh & Johanson, sp. nov. Holotype: 458=genitalia in left lateral view, 459=genitalia in dorsal view, 460=phallic organ in left lateral view.

only a single megaseta both on the tip of the distally elongated lobes of segment IX and one on the tip of segment X. Moreover the apical excision of segment IX is U-shaped, not V-shaped, and the ventral keel of segment IX has a sigmoid, not straight, head.

Description. Male (in alcohol). Small-sized, light brown. Mediocranial sulcus, or median epicranial stem, absent. Sclerotization on maxillary palp segment IV indistinct.

Forewing length 6 mm, pattern on forewings absent.

Male genitalia. Segment IX fused annularly, dorsum longer than ventrum; sternite produced into pair of lateral elongations; ventral keel with S-shape pointed head in lateral view. Cerci fused to segment IX, forming pair of elongate processes fused basally, characterized with terminal U-shaped deep excision and big modified seta in dorsal view. Segment X elongate, divided by thin slot in two big juxtaposed lobes, each bearing one big distal, modified, seta directed anteriorly. Odd subanal plate or vestigial paraproct present, heavily sclerotized. Gonopods elongate, each with small harpago. Phallic organ without parameres, phallobase with ventroapical lobe, phallicata partially membranous.

Etymology. Coined from the name of the *locus typicus*, Manongarivo National Park, and treated as a noun in apposition.

Homilia McLachlan, 1877

Species in the genus *Homilia* have a head with a median epicranial suture. The fourth article of the maxillary palps is flexible, due to partial desclerotization, similarly to species in the genus *Ceraclea*; mottled loss of sclerotization according to Gibon & Randriamasimanana (2021). The species are distinguished from those in the genus *Athripsodes* by having hind wings with R_s running more or less parallel to R_1 . The apical forks 1 and 5 are present in hind wing. The forelegs lack the apical tibial spurs. The cerci are long and slender, and segment X is basically divided into pairs of processes. Unlike the species in *Athripsodes*, the males and females forewing venation is similar. The genus is endemic to Africa.

Homilia andratina Gibon & Randriamasimanana, 2021

Homilia andratina Gibon & Randriamasimanana, 2021: 211.

Material examined. **Madagascar**, Ilakaka km. 729, Route Sakaraha, iii.1956, leg. Paulian (5 males, 5 females; OPC). (Ilakaka ou Ilaka. Madagascar Ouest: S.-P. d'Ihoso, 26 km au S.-O. de Ranohira, Ilakaka. Point d'eau sur route nationale 7, entre Ranohira et le col des Tapias méridional) [22.695°S, 45.217°E]. Madagascar, Ambohim-

havelona, Tulear District, Onilany River, x.1948, leg. H. H. Hoogstraal (1 male, MNHN). (Ambohimahavelona, Madagascar Sud, 30 km au S.-E. de Tuléar, Ambohimahavelona. Non loin du fleuve Onilahy) [23.45°S, 43.9°E]. Madagascar, Ankazoabo, Tulear Prov. Station Hydrologique du Banian, vii.1957, leg (A.R.) Paulian (4 males, MNHN). (Ankazoabo. Madagascar Ouest: S.-P. Ankazoabo) [22.29°S, 44.5°E]. Madagascar, Ambovombe, Prov. Tulear, vii.1952, leg. R. Paulian (1 male, MNHN). (Ambovombe. Madagascar Sud: S.-P. d'Ambovombe). Madagascar, Ambovombe, iv.1953, leg. Paulian (1 male, MNHN). (Ambovombe. Madagascar Sud: S.-P. d'Ambovombe) [25.165°S, 46.09°E]. Madagascar, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (2 males, NHRS; 1 male, OPC). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS).

***Homilia coppai* Gibon & Randriamasimanana, 2021**

Homilia coppai Gibon & Randriamasimanana, 2021: 212.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, Manongarivo River, 19.xi.2012, 22W black light trap, 14.02869°S, 48.24859°E. leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (1 male, NHRS).

***Homilia electra* Gibon & Randriamasimanana, 2021**

Homilia electra Gibon & Randriamasimanana, 2021: 214.

Material examined. **Madagascar**, Nord de Diego-Suarez, Analamerana 80 m, 50 km S.E.

Diego, i.1959, leg. R. Andria (2 males, MNHN; 1 male, OPC). (Analamerana. Madagascar Nord: 50 km au S.-E. de Diego-Suarez, forêt d'Analamerana, 80 m. Ibidem: forêt d'Analamerana (côté Nord-Ouest) [12.71°S, 49.53°E]. Madagascar, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (3 males, NHRS, 2 males, OPC).

***Leptocerus* Leach, 1815**

In the male forewings of the species of the genus *Leptocerus*, all forks 1 and 5 are present, while in the females all forks 1, 3 and 5 are present. In the forewings, M_{3+4} arises at or before anastomosis. Spur formula 0,2,2. The males have a paraproct (lower process of segment X) that is variously present, produced or lacking, and the setose cerci is, as a rule, fused laterally to the complex or fused to each other forming a setose, variously formed and produced, dorsomesal lobe.

***Leptocerus andranoma* Oláh, sp. nov.**

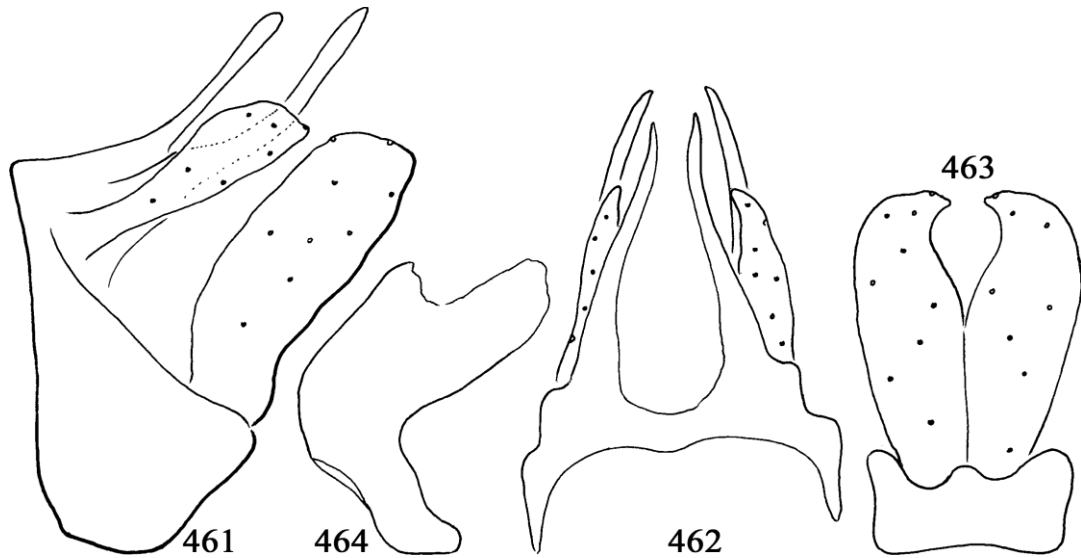
(Figures 461–464)

Material examined. Holotype: **Madagascar**, Tulear, Andranomandevy [18.154°S, 48.615°E], ii.1965, leg. R. Paulian (male, OPC). (Madagascar Est: ca. 48 km au S.-E. d'Ambatondrazaka, Andranomandevy (Didy), 1039 m).

Diagnosis. This species has a pair of strongly produced, elongate, clavate, foliform cerci that is distantly separated from segment X unique in the genus. *Leptocerus andranoma* sp. nov. resembles *Leptocerus matilei* Gibon & Randriamasimanana, 2000, the other known species in the genus with such a pair of elongate and setose cerci but differs by having a paraproct that is lacking in *L. matilei*.

Description. Small species, forewing length 5.5 mm; wing venation is typical of the genus.

Male genitalia. Segment IX triangular in lateral view, short, almost vestigial dorsum, long ventrum. Segment X (upper process of segment X) represented by pair of long, slender, digitate



Figures 461–464. *Leptocerus andranoma* Oláh, sp. nov. Holotype: 461=genitalia in left lateral view, 462=genitalia in dorsal view, 463=genitalia in ventral view, 464=phallic organ in left lateral view.

processes. Cerci dominating dorsal complex, elongate, clavate, foliiform. Paraproct (lower process of segment X) forming pair of slender digitate processes, similarly to upper process of segment X. Gonopods elongate, stout, broad, with slightly mesally turning apex, visible in ventral view. Phallic organ without discernible internal structure, posterodorsally slightly expanded into triangular.

Etymology. Coined from the name of the *locus typicus*, Andranomandevy; a noun in apposition.

***Leptocerus ranomenae* Gibon, 2006**

Leptocerus ranomenae Gibon, 2006: 146.

Material examined. Madagascar: Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (2 males, NHRS; 1 male, OPC).

***Magadacerina* Malm & Johanson, 2013**

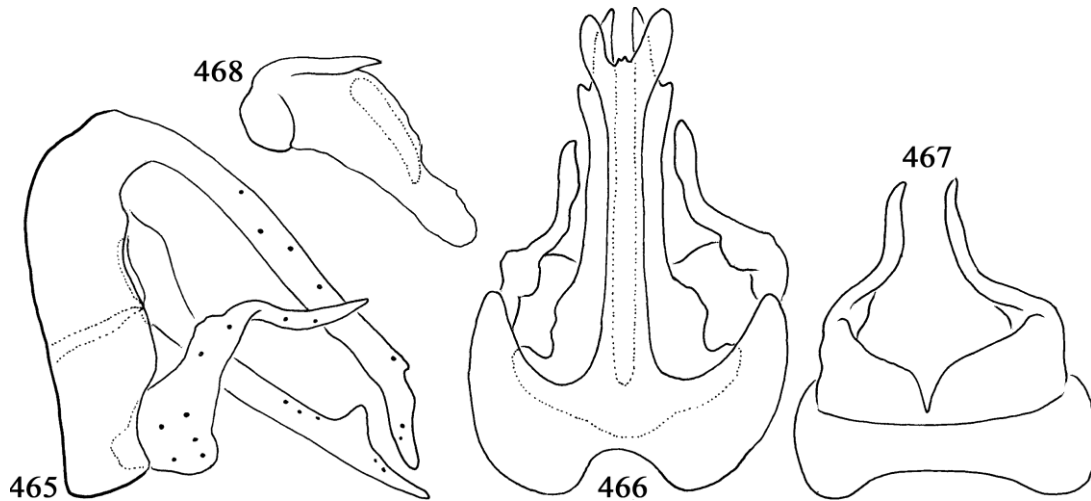
The tibial spur formula is 2,2,2. The forewing M branching point arises at anastomosis leaving a

sessile M, not petiolate or stalked. The head dorsum is characterized by having lateral sulci instead of a medial sulcus. In the genitalia the cerci are completely fused to segment IX, are posteriorly elongate. Segment X shifted ventrally and anteriorly extended and articulated to the dorsally extended spine-like process of the phallic shield. The genus *Magadacerina* was found to be related to *Blysophilus* in the tribe Blysophilini from Ghana based on morphological traits and corroborated by molecular phylogenetic analysis of the type species of this monotypic genus (Malm & Johanson 2013). The examination of existing material, including four new species, we can indicate that based on male genitalic structures the genus appears very similar to species in the genus *Leptorussa* from New South Wales and Tasmania.

***Magadacerina ambila* Oláh, sp. nov.**

(Figures 465–468)

Material examined. Holotype: Madagascar, Ambila-Lemaitso, i.1957, leg. A. R. (Paulian) (male, OPC). (Madagascar Est: ca. 10 km à l’E. de Brickaville, Ambila-Lemaitso, 0-10 m, Localité côtière, A. R.=Pierre Andria Robinson) [18.853°S, 49.145°E].



Figures 465–468. *Magadacerina ambila* Oláh, sp. nov. Holotype: 465=genitalia in left lateral view, 466=genitalia in dorsal view, 467=genitalia in ventral view, 468=phallic organ in left lateral view.

Diagnosis. This new species resembles *Magadacerina ranohira* sp. nov. from which it differs by having less downwardly directed fused cerci with bilobed apex, not trilobed, and by the shape of the gonopods in lateral view.

Description. Male (in alcohol). Medium-sized, light brown. Head with two prominent dorsolateral sulci, mediocranial sulcus or median epicranial stem absent. Maxillary palp formula I-III-V-(II,IV), without loss of sclerotization on segment IV. Tibial spur formula 2,2,2.

Forewing length 7 mm, distinct pattern on forewings absent. M fork long in both forewings and hind wings.

Male genitalia. Segment IX fused annularly, dorsum turning posteriorly in lateral view, as long as ventrum, with long (wide) excision at anterior margin mid-ventrally and short (narrow) and deep mid-dorsally. Cerci setose fused to segment IX forming long, parallel-sided, downwardly directed, single rod-like, process; apex bilobed in dorsal view. Segment X located ventrally, elongate, divided by thin slot along entire length except basal part, bearing triangular, dorsolaterally oriented lobe. Vestigial paraproct represented by two sclerites, one connecting phallobase to segment X, the other connecting segment X to lateral margin of segment IX. Gonopods unbranched, basal half oriented posterodorsally, with ventral, posteriorly

directed lobe; bent mesally at midlength; apical half slender posteriorly. Phallic organ with pair of short, stout parameres, not slender, spine-like, embedded into weakly sclerotized phallicata, phallobase very short.

Etymology. Coined from the name of the *locus typicus*, Ambila-Lemaitso; a noun in apposition.

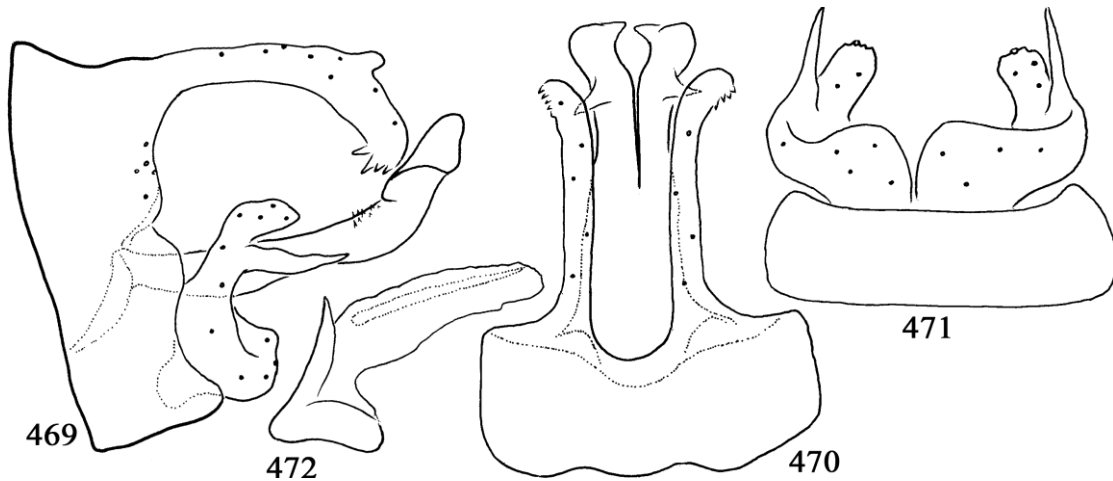
***Magadacerina andria* Oláh, sp. nov.**

(Figures 469–472)

Material examined. Holotype: **Madagascar**, Nord, Montagne d’Ambre, Les Roussettes, 1100 m, xi-xii.1958, leg. Andria Robinson (male, OPC). (Madagascar Nord: S.-P. de Diego-Suarez, montagne d’Ambre. Parc national) [12.542°S, 49.18°E].

Diagnosis. The new species resembles *Magadacerina forcipata* Malm & Johanson, 2013, from which it differs by the cerci having a subapical dorsal hump and a dentate apex; and by the terminal shape of segment X with the presence of apicomeral and dorsolateral subapical triangular processes.

Description. Male (in alcohol). Medium-sized, light brown. Head with two prominent dorso-



Figures 469–472. *Magadacerina andria* Oláh, sp. nov. Holotype: 469=genitalia in left lateral view, 470=genitalia in dorsal view, 471=genitalia in ventral view, 472=phallic organ in left lateral view.

lateral sulci, mediocranial sulcus or median epicranial stem absent. Maxillary palp formula I-III-V-(II,IV), without loss of sclerotization on segment IV. Tibial spur formula 2,2,2.

Forewing length 7 mm, distinct pattern on forewings absent. M fork long in both forewings and hind wings.

Male genitalia. Segment IX fused annularly, dorsum as long as ventrum, without excision at anterior margin mid-ventrally and mid-dorsally. Cerci setose fused to segment IX forming pair of elongate, downwardly directed, processes with dorsal subapical hump and dentate apex. Segment X located ventrally, elongate, divided by thin slot on apical half, each bearing capitate head with mesally directed apical triangular process, and dorsolaterally directed pointed process. Vestigial paraproct represented by two sclerites, one connecting phallobase to segment X, the other connecting segment X to lateral margin of segment IX. Gonopods produced basally and mesally into bulge mesally rounded basement, and bipartite apically comprising lateral, setaless, pointed process and mesally turning, setose, lobe. Phallic organ with pair of long, slender, pointed, spine-like parameres embedded into weakly sclerotized phallicata, phallobase very short.

Etymology. Coined from the name of collector, Andria Robinson, as a noun in apposition.

***Magadacerina antsira* Oláh & Johanson, sp. nov.**

(Figures 473–476)

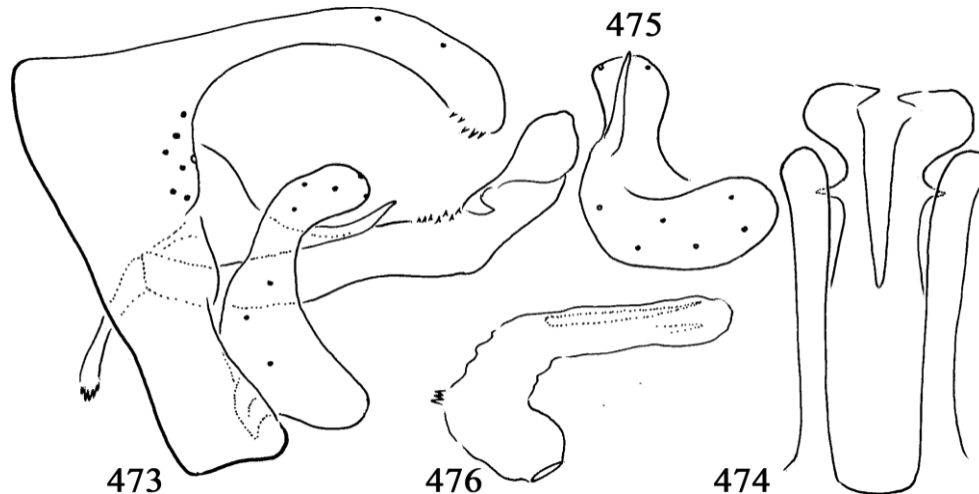
Material examined. Holotype: **Madagascar**, Antsiranana Montagne d'Ambre NP, Petite cascade sacrée, 4.xii.2012, 22W light, 12.5304°S, 49.16836°E, 1020 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. *M. antsira* sp. nov. resembles *M. andria* sp. nov. but differs from it in the cerci that lack subapical dorsal hump; in dorsal view with the more strongly laterally produced head of segment X, segment X with different patterns of the spiny dentate outgrowths; and the gonopods are different in lateral and caudal view.

Description. Male (in alcohol). Medium-sized, light brown. Head with two prominent dorsolateral sulci, mediocranial sulcus or median epicranial stem absent. Maxillary palp formula I-III-V-(II,IV), without loss of sclerotization on segment IV. Tibial spur formula 2,2,2.

Forewing length 7 mm, no pattern on forewings. M fork long in both forewings and hind wings.

Male genitalia. Segment IX fused annularly, dorsum as long as ventrum, without excision at



Figures 473–476. *Magadacerina antsira* Oláh & Johanson sp. nov. Holotype: 473=genitalia in left lateral view, 474=genitalia in dorsal view, 475=left gonopod in ventral view, 476=phallic organ in left lateral view.

anterior margin mid-ventrally and mid-dorsally. Cerci setose fused to segment IX forming pair of elongated downward directed processes with dentate apex. Segment X located ventrally, elongate, divided by thin slot on apical half, each bearing capitate, laterally rounded, almost semi-circular, head with mesally directed apical triangular process and dorsolaterad directed, subapically pointed process. Vestigial paraproct represented by two sclerites, one connecting phallobase to segment X, the other connecting segment X to lateral margin of segment IX. Gonopods produced basally and mesally into mesally rounded bulge, bipartite apically, comprising lateral, setaless, pointed, process and mesally turning, setose, lobe. Phallic organ with pair of long, slender, pointed, spine-like parameres embedded into weakly sclerotized phallicata, phallobase short.

Etymology. Coined from the name of Antsirana, Montagne d'Ambre National Park, and treated as a noun in apposition.

***Magadacerina forcipata* Malm & Johanson, 2013**

Magadacerina forcipata Malm & Johanson, 2013: 217.

Material examined. **Madagascar**, La Mandraka, Bord du Ruisseau, XI. 1953, leg. A. R. (3

males, OPC; 4 males, MNHN). (Madagascar Centre: voir La Mandraka, A. R. = Pierre Andria Robinson) [18.912°S, 47.92°E]. Madagascar, Toamasina, Alaotra Mangoro, Mantadia NP, Mantadia, above waterfall, 6 km from park entrance, 18.8372°S, 48.44402°E, 1000 m, 12-17.xi.2011, Malaise trap, rainforest stream, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & H. J. Randriamihaja (1 male, NHRS). Madagascar, Andringitra, Tsaranoro Massif, 15-19.iv.2007, leg. W. Mey (1 male, ZMB).

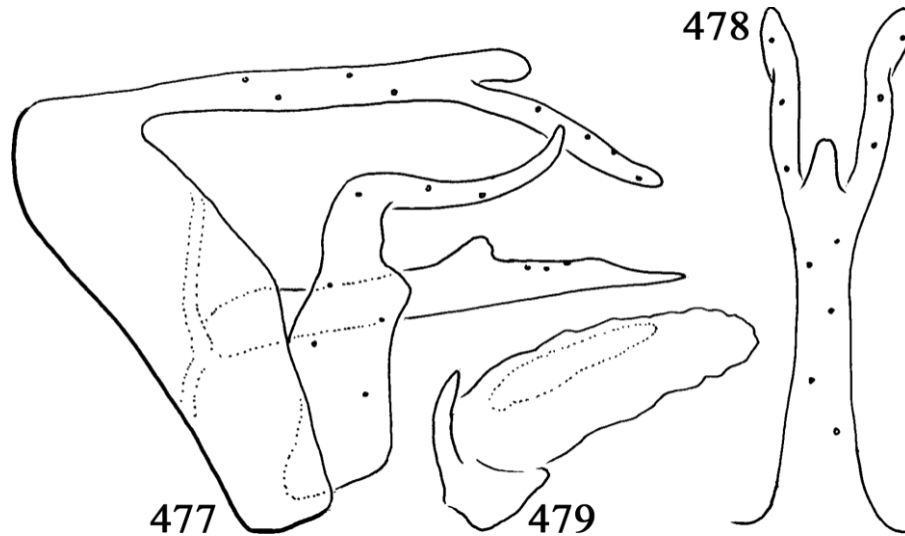
***Magadacerina ranohira* Oláh, sp. nov.**

(Figures 477–479)

Material examined. Holotype: **Madagascar**, Ranohira Isolo, ii.1958, leg. Shuckenberg (male, OPC). (Madagascar Ouest: 91km à l'O. d'Ihosy, Ranohira. Sur la route nationale 7, du Sud) [22.552°S, 45.419°E].

Diagnosis. This new species is similar to *Magadacerina ambila* sp. nov. but differs in that the downward directed fused cerci have a trilobed apex, rather than bilobed, and by the shape of the gonopods in lateral view.

Description. Male (in alcohol). Medium-sized, light brown. Head with two prominent dorso-lateral sulci, mediocranial sulcus or median epi-



Figures 477–479. *Magadacerina ranohira* Oláh sp. nov. Holotype: 477=genitalia in left lateral view, 478=genitalia in dorsal view, 479=phallic organ in left lateral view.

cranial stem absent. Maxillary palp formula I-III-V-(II,IV), without loss of sclerotization on segment IV. Tibial spur formula 2,2,2.

Forewing length 7 mm, distinct pattern on forewings absent. M fork long in both forewings and hind wings.

Male genitalia. Segment IX fused annularly, dorsum produced anteriorly in lateral view, slightly longer than ventrum. Cerci setose, fused to segment IX, forming long parallel-sided, single, rod-like process with trilobed apex visible in dorsal view; middle lobe short. Segment X located ventrally, elongate, divided by thin slot along entire length except basal part, each bearing triangular lobe directed dorsolaterally. Vestigial paraproct represented by two sclerites, one connecting phallobase to segment X, the other connecting segment X to lateral margin of segment IX. Gonopods unbranched, basal half oriented almost dorsally, with ventral, posteriorly directed lobe; bent mesally at midlength; distal half slender posteriorly, slightly up-curving. Phallic organ with pair of short, stout parameres, not slender, not spine-like, embedded into a weakly sclerotized phallicata, phallobase very short.

Etymology. Coined from the name of the *locus typicus*, Ranohira Isolo, and treated as a noun in apposition.

tribus *Oecetini*

Oecetis McLachlan, 1877

Oecetis anjiro Randriamasimanana & Gibon, 2000

Oecetis anjiro Randriamasimanana & Gibon, 2000: 48.

Material examined. **Madagascar**, Perinet, 1955, leg. R. Paulian (1 male, OPC). [18.927°S, 48.414°E].

Oecetis anka Oláh, 2022

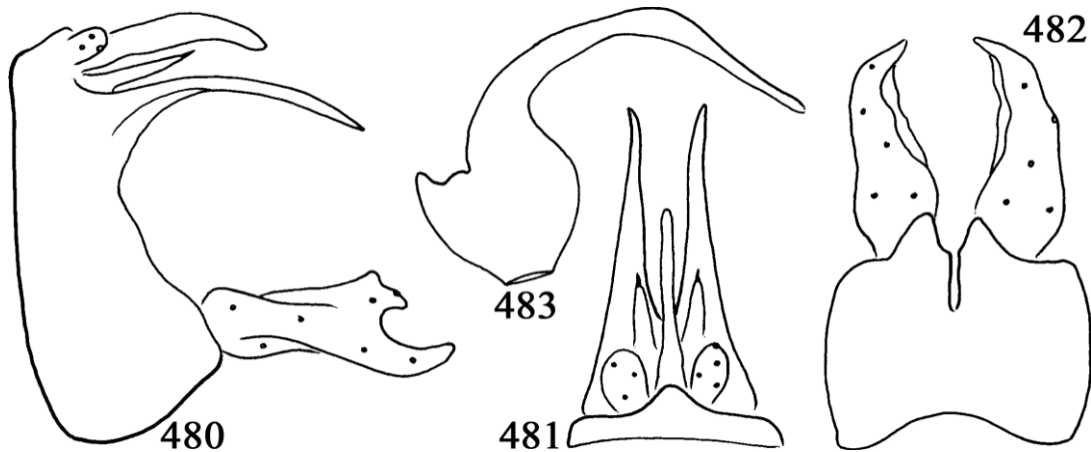
Oecetis anka Oláh, 2022: 19.

Material examined. **Madagascar**, Antsirana-na, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (6 males, NHRS; 6 males, OPC).

Oecetis daga Oláh, sp. nov.

(Figures 480–483)

Material examined. Holotype: **Madagascar**, Perinet, xi.1954, P. Viette, leg. (Paulian) (male, OPC) [18.927°S, 48.414°E].



Figures 480–483. *Oecetis daga* Oláh, sp. nov. Holotype: 480=genitalia in left lateral view, 481=genitalia in dorsal view, 482=genitalia in ventral view, 483=phallic organ in left lateral view.

Diagnosis. With a pronounced, prominent dorsolateral projection of segment IX in the male, this small species is classified in the subgenus *Oecetis* (*Quaria*) established by Milne (1934) and reviewed by Chen (1993) in his PhD Thesis. It is morphologically close to *Oecetis elouardi* Randriamasimanana & Gibon, 1998, but differs particularly by the more strongly produced upper part of segment X, as well as the more complex structure of the gonopods in lateral view.

Description. Male (in alcohol). Body pale yellow, thorax light brown.

Forewing length 5 mm; light brown, without pronounced pattern.

Male genitalia. Segment IX short, almost regularly narrowing dorsally in lateral view, dorsum short, ventrum long; dorsolateral projection on segment IX long, slender, slightly arching ventrally. Segment X (upper part of segment X) digitate, 2x longer than lower part of segment X. Cerci (preanal or superior appendages) setose, short, foliform. Paraproct (lower part of segment X) forming pair of weakly pigmented, almost indiscernible, processes with single apical seta. Gonopod complex particularly patterned in lateral view, with apical excision. Phallic organ forming broad half-circular base and long, slender, downwardly curving, apical part.

Etymology. Coined from the name of Madagascar, and treated as a noun in apposition.

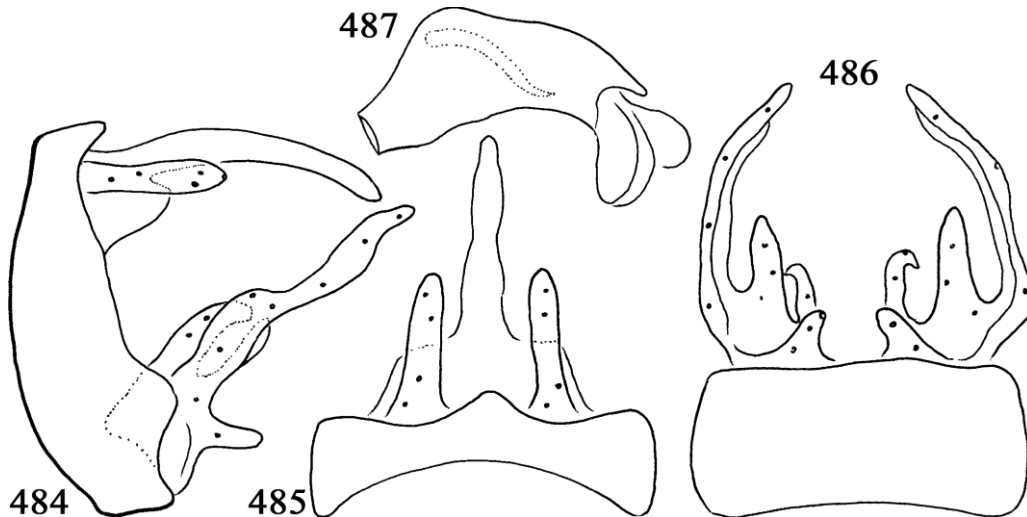
Remarks. Our new species *Oecetis daga* sp. nov. belongs to the well-defined *Oecetis lais* species group of the subgenus *Quaria*, which was first recorded in Madagascar by Randriamasimanana & Gibon with six new species. Their findings were confirmed by Chen in a personal communication to them (Randriamasimanana & Gibon 1998b) and with the information that Schmid (1995) had already described more members of this group from India using the name *Oecetis eburnea* species group, including *Oecetis lais* Hagen, 1859 and *O. sumanasara* Schmid, 1968 from Sri Lanka as well as mentioning his nominate species *O. eburnea* Schmid, 1961 from Pakistan, *O. paula* McLachlan, 1875 from Turkistan, *O. terraesanctae* Botosaneanu & Gasith, 1971 from Palestine, *O. canariensis* Brauer, 1900 from the Canary Islands, *O. hoelzeli* Malicky, 1982 from Cape Verde island as well as *O. sackeni* Milne, 1934 from the Nearctic.

***Oecetis erinea* Oláh, sp. nov.**

(Figures 484–487)

Material examined. Holotype: **Madagascar**, Perinet, 22.xi.1954, leg. Paulian (male, OPC), [18.927°S, 48.414°E].

Diagnosis. Having segment X (upper part of segment X) as a single central elongated and slightly downward arching process with the para-



Figures 484–487. *Oecetis erinea* Oláh, sp. nov. Holotype: 484=genitalia in left lateral view, 485=genitalia in dorsal view, 486=genitalia in ventral view, 487=phallic organ in left lateral view.

proct of blunt lobe, this new species is a member of the *Oecetis oliae* species group established by Randriamasimanana & Gibon in 1999, and most close to *Oecetis stepheni* Randriamasimanana & Gibon, 1999. The new species is distinguished by the less sclerotized and less digitate paraproct, as well as the more complex gonopods.

Description. Male (in alcohol). Body pale yellow, thorax light brown.

Forewing length 6 mm; light brown, without pronounced pattern, except dark area around crossvein Sc and R, and along basal forks of R-SR, SR, and M.

Male genitalia. Segment IX short, slightly narrowing dorsally in lateral view, dorsum and ventrum almost equal. Segment X (upper part of segment X) digitate, 4x longer than lower part of segment X. Cerci (preanal or superior appendages) setose, long, digitate, half as long as segment X. Paraproct (lower part of segment X) forming fused plate visible in dorsal view, and short blunt basoventral lobe in lateral view. Gonopod forming complex cluster of branches in lateral view, with irregularly bending long process supplied by short, basoventral, longer ventromesal, and hooked dorsomesal lobes as seen in ventral view. Phallic organ with multilobulose

apex, poorly visible and with long spine-like paramere.

Etymology. Coined from the name of the *locus typicus*, Perinet. Treated as a noun in apposition.

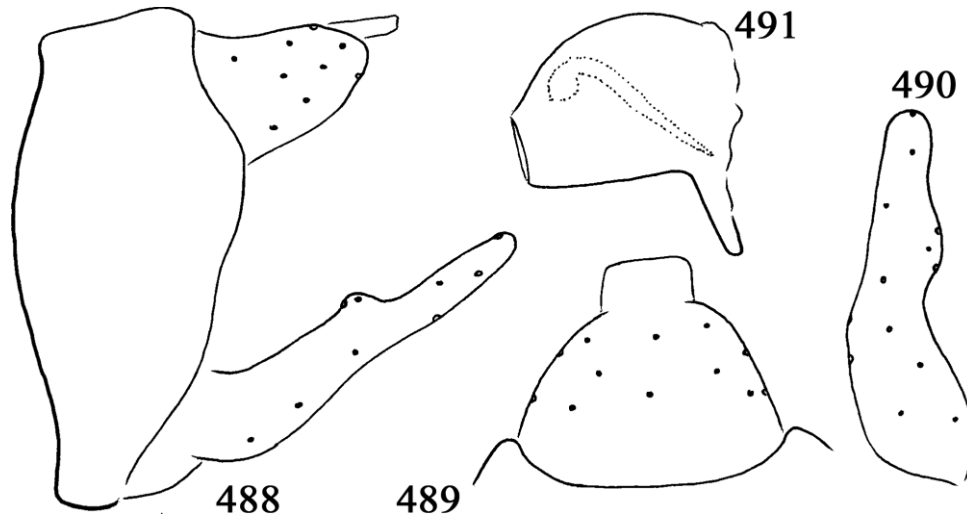
***Oecetis ibita* Oláh & Mey, sp. nov.**

(Figures 488–491)

Material examined. Holotype: **Madagascar**, Ibity Mts., Analamazoatra, Manandona [18.938° S, 48.434°E], LF, 14.iv.2007, leg. W. Mey (male, ZMB).

Diagnosis. *Oecetis ibita* sp. nov. resembles *Oecetis anka* Oláh, 2022, from which it differs in the dorsally completely fused cerci; the dorsal profile of segment X with truncate apex, not excised; in lateral profile, the gonopods lack deep dorsal concavity both basally and apically of the dorsal subapical lobe; in the ventral profile, the gonopods are slender, not robust. The phallic organ has a long digitiform apicoventral lip in almost right-angle to the ventral margin in lateral view, base meeting tip of the phallosome.

Description. Head, thorax, scapes yellowish light brown. Tibial spurs 1,2,2.



Figures 488–491. *Oecetis ibita* Oláh & Mey sp. nov. Holotype: 488=genitalia in left lateral view, 489=genitalia in dorsal view, 490=left gonopod in ventral view, 491=phallic organ in left lateral view.

Forewing length 7 mm, densely covered with recumbent setae in alcohol, membrane brownish. Forewing anastomosis cross-veins arranged stepwise, transverse base of MA distally of transverse base of MP3+4, by more than its length.

Male genitalia. Segment IX short; dorsum longer, ventrum short. Cerci very short, high, entirely fused to segment X, almost semicircular in dorsal view. Segment X almost lost, represented by very short membranous lobe as seen in lateral view, quadrangular in dorsal view. Gonopods with small hump mesally at mid-length, visible in lateral and ventral view. Phallic organ with rounded dorsum; single paramere straight with curved basal region; apicoventral lip long, obtuse angled with slightly tapering apex.

Etymology. Coined from the name of the *locus typicus*, Ibity Mts, and treated as a noun in apposition.

***Oecetis jeannettae* Randriamasimanana & Gibon, 2000**

Oecetis jeannettae Randriamasimanana & Gibon, 2000:46. "1♂ capture le 28-IV-1995 entre Esira et Maroasara, sur la rivière Anatronatra, basin du Mandrare (station 12-35, long. 46:39:04 E, lat. 24:17:37 S [24.292°S, 46.651°E], 325 m)."

Material examined. **Madagascar**, Aochvoangy [unknown locality], x.1955, leg. R. Paulian (1 male, OPC, 1 male, MNHN).

***Oecetis landiae* Randriamasimanana & Gibon, 2000**

Oecetis landiae Randriamasimanana & Gibon, 2000: 48.

Material examined. **Madagascar**, Ankazoabo, Tulear Prov., Station Hydrologique du Banian [22.29°S, 44.5°E], vii.1957, leg. Paulian (3 males, OPC). (Ankazoabo. Madagascar Ouest: S.-P. d'Ankazoabo). Madagascar, Ambovombe, Prov. Tulear, vii.1952, leg. Paulian (1 male, MNHN). (Ambovombe. Madagascar Sud: S.-P. d'Ambovombe) [25.165°S, 46.09°E].

***Oecetis mbeloeae* Randriamasimanana & Gibon, 1998**

Oecetis mbeloeae Randriamasimanana & Gibon, 1998a: 37.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715° S, 48.22945° E, leg. J. Bergsten, R.

Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Antsirana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (1 male, NHRS; 1 male, OPC).

***Oecetis riakae* Randriamasimanana & Gibon, 2000**

Oecetis riakae Randriamasimanana & Gibon, 2000: 51.

Material examined. **Madagascar**, Nosivola, 18.xi.1954, leg. Paulian (1 male, OPC). (Nosivola ou Anosivola [17.715°S, 48.653°E]. Madagascar Est: N.-E. d'Ambatondrazaka, route de Manakambahiny Est, pourtour de la réserve naturelle intégrale n°3, Nosivola, 1000 m) [17.767°S, 48.659°E].

***Oecetis rivieri* Randriamasimanana & Gibon, 2000**

Oecetis rivieri Randriamasimanana & Gibon, 2000: 44.

Material examined. **Madagascar**, Ampangalambolosy, Nord ouest R.N.III. Chasse à la vue, 10.ix.1957, leg. P. Soga. (2 males, OPC). Madagascar, Perinet, xi.1954, leg. P. Viette (Paulian) (1 male, MNHN). [18.927°S, 48.414°E]. Madagascar, Perinet, 23.xi.1954, leg. (Paulian) taken at night (1 male, MNHN). [18.927°S, 48.414°E].

***Oecetis sambara* Oláh & Johanson, sp. nov.**

(Figures 492–495)

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. Most of the known Malagasy *Oecetis* species belong to the subgenus *Quaria* Milne, 1934 with variously produced lateroapical pro-

cesses on tergite IX. *Oecetis sambara* sp. nov. is a genuine representative of the subgenus *Oecetis* in Madagascar and distinguishes from all the known species by the extremely enlarged circular phallic organ and the very slender and semicircular gonopods.

Description. Male (in alcohol). Body pale yellow.

Forewing length 7 mm; light brown without pronounced pattern.

Male genitalia. Segment IX short along its length; dorsum and ventrum almost equally long. Segment X forming short plate with slightly excised apical margin in dorsal view. Cerci elongate, partially fused to segment X, almost as long as segment X. Gonopods elongate, slender, digitiform, with small basodorsal lobe in lateral view; turning mesally, forming semicircular in ventral view. Phallic organ forming large circular asymmetric body with apicoventral lip; single, slightly sigmoid, curving paramere present inside.

Etymology. Coined from the name of the *locus typicus*, Antsambarahy River, and treated as a noun in apposition.

***Oecetis stepheni* Randriamasimanana & Gibon, 1999**

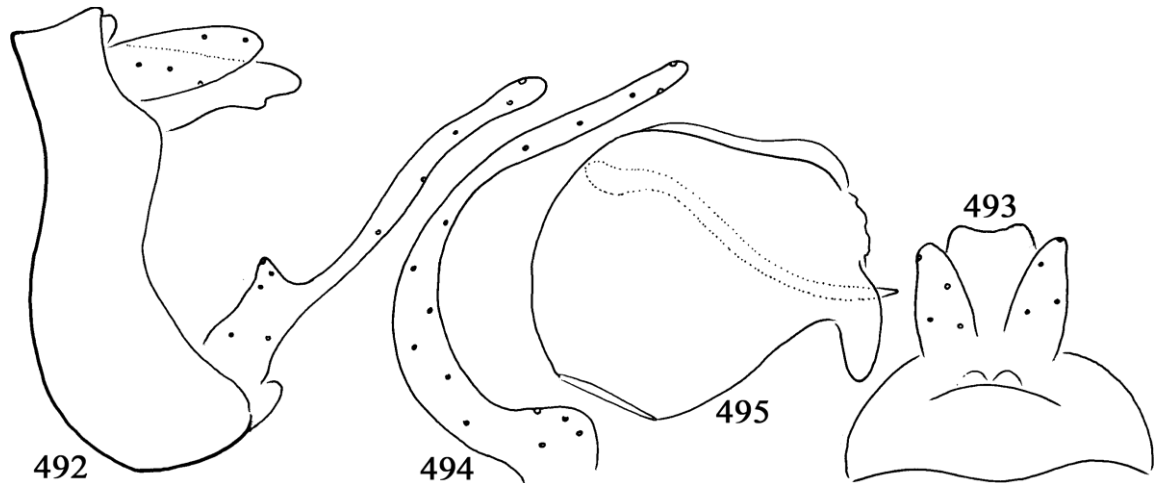
Oecetis stepheni Randriamasimanana & Gibon, 1999: 20.

Material examined. **Madagascar**, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (58 males, 1 female, NHRS; 24 males, 1 female, OPC).

***Oecetis zoa* Oláh, 2022**

Oecetis zoa Oláh, 2022: 27.

Material examined. **Madagascar**, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (2 males, ZMB; 1 male, OPC).



Figures 492–495. *Oecetis sambara* Oláh & Johanson sp. nov. Holotype: 492=genitalia in left lateral view, 493=genitalia in dorsal view, 494=left gonopod in ventral view, 495=phallic organ in left lateral view.

tribus Setodini Morse, 1981

Setodes Rambur, 1842

Setodes heryae Randriamasimanana & Gibon, 2001

Setodes heryae Randriamasimanana & Gibon, 2001: 130.

Material examined. **Madagascar**, Ankazoabo, Tuléar Province, St. Hydrobiol. du Banian [22.29° S, 44.5°E], vii.1957, leg. A. R. Paulian (2 males, MNHN; 1 male, OPC). (Ankazoabo. Madagascar Ouest: S.-P. d'Ankazoabo). Madagascar, Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, top of Petit Tsingy, light trap, 19°08'3.16"S, 44°48'47.1"E, 59 m, 14.xii.2009, leg. J. Bergsten & N. Jönsson (1 male, NHRS).

Setodes madagasca Randriamasimanana & Gibon, 2001

Setodes madagasca Randriamasimanana & Gibon, 2001: 127.

Material examined. **Madagascar**, Perinet, xi.1954, leg. P. Viette (Paulian) (1 male, OPC). (Madagascar Est: 30 km à l'E. de Moramanga, Perinet, Station forestière et réserve spéciale d'Analamazaotra-Perinet) [18.939°S, 48.434°E].

Madagascar, Ankadinhetumba, 10.v.1991, leg. Eluard (2 males, OPC). Madagascar, Ankadinhetumba, 3.v.1991, leg. Eluard (4 males, OPC). Madagascar, Antelomita [19.011S, 47.704E], 10.v.1991, leg. Eluard (5 males, 1 female; OPC). Madagascar, Toamasina, Alaotra Mangoro, Mantadia National Park, Mantadia, River Sahanody, 9 km from entrance of park, 18,81345°S, 48,43007°E, 960 m, 22W UV lamp, forest stream in mid-altitude rainforest, MAD11-38, 11.xi.2011, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J.H. Randriamihaja (1 male, 1 female; NHRS). Madagascar: Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (1 male, NHRS). Madagascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB). Madagascar, Ibity Mts. Analamazotra, Manandona, LF, 14.iv.2007, leg. W. Mey (1 male, ZMB). Madagascar, Andasibe, Reserve Mitsinjo [18.25°S, 48.94°E, found on GeoMondiale.fr], 920 m, 12. iv.2007, leg. W. Mey (36 males, ZMB).

***Setodes mahajanga* Oláh & Johanson, sp. nov.**

(Figures 496–499)

Material examined. Holotype: **Madagascar**, Mahajanga, Manongarivo NP, N Beraty village, 14.02289°S, 48.25303°E, 600 m, 21.xi.2012, 22W black light trap, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. This slender new species resembles *Setodes fabienneae* Randriamasimanana & Gibon, 2001 which is a widely distributed species in the southern and middle regions of Madagascar. The new species was collected in the northern tip of Madagascar and has the same reduced and simplified dorsal complex of segment X, the cerci and paraproct, as well as the same gonopod complex. However, the cerci are more simple, reduced to a small circular setal surface, not short digitate; the gonopods have bifid, not trifid apex; and the mesal process is more strongly produced.

Description. Male (in alcohol). Body small-sized, narrow-winged, pale.

Forewing length 5 mm.

Male genitalia. Segment IX as long as high, dorsum reduced, ventrum elongated. Complex of segment X, cerci and paraproct simple; cerci forming pair of small rounded setose surfaces located basolaterally on segment X; entire complex fused into pair of long, spine-like, deeply subdivided, parallel-sided processes. Complex of gonopods and basal plate of gonopods sophisticated; gonopods elongate, forming dorsobasal, setose, curving, digitate process, apex bifid; large spine-like process present mesally. Basal plate of gonopods possibly forming phallic guide by pair of vertical plates along lower part of phallic organ; gonopod complex with pair of basal band-like strips connecting to ventrobasal region of phallic organ. Phallic organ representing curving body with mesal, wing-like, broadenings and sclerotized, paramere-like, internal adhered elongation.

Etymology. Coined from the name of the *locus typicus*, Mahajanga, as a noun in apposition.

***Setodes nongariva* Oláh & Johanson, sp. nov.**

(Figures 500–501)

Material examined. Holotype: **Madagascar**, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS). Paratypes: same as holotype (2 males, NHRS, 2 males, OPC).

Diagnosis. This species resembles *Setodes orientalis* Randriamasimanana & Gibon, 2001, from which it differs by the presence of an asymmetric and subdivided head of the fused and elongated complex of segment X, by the paraproct as well as by having different lateral profile of both the gonopods and the phallic organ.

Description. Male (in alcohol). Body small-sized, narrow-winged, pale.

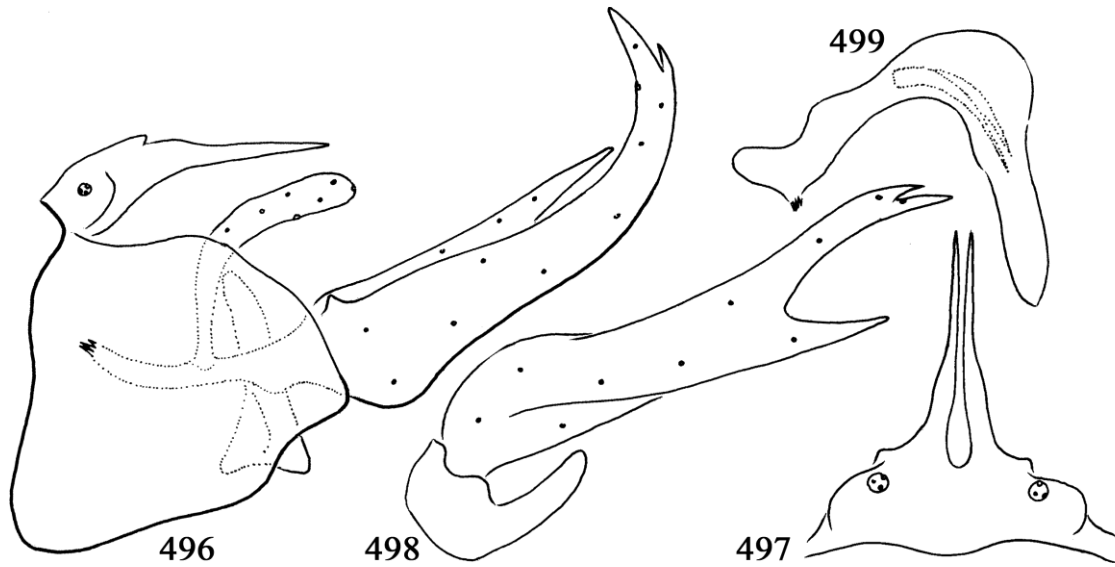
Forewing length 5 mm.

Male genitalia. Segment IX about as long as high, dorsum reduced, ventrum long. Segment X, cerci and paraproct forming simple complex; cerci discernible a pair of small, rounded, setose, basolateral surfaces; entire complex fused into pair of long, spine-like, parallel-sided, processes; sharply curving ventrally at mid-length, with asymmetric apex of spines. Complex of gonopods and basal plate of gonopods elaborated; basis of gonopods with long, straight, dorsally directed arm with apex by small lobes; gonopods bent dorsally at mid-length, narrowing distally. Phallic organ representing produced body curving ventrally turning on middle with a pair of wing-like lateral rims along the ventrally directed region.

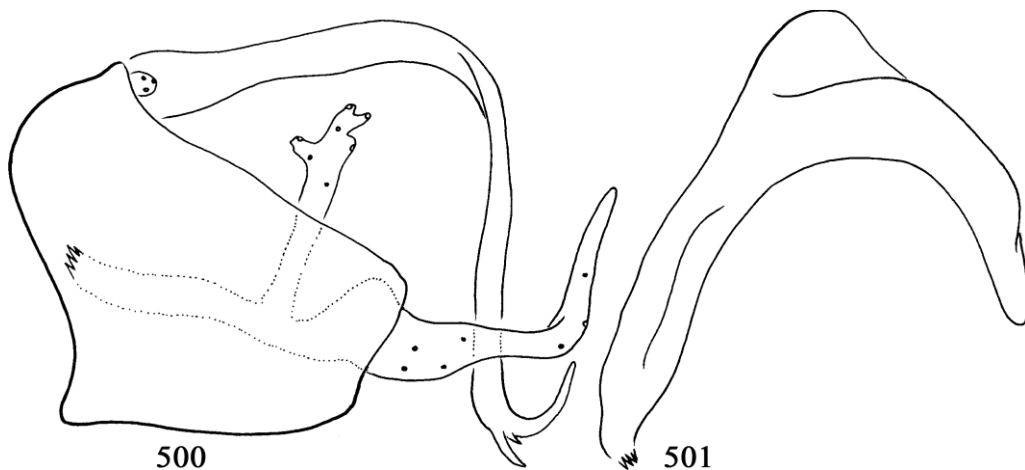
Etymology. Coined from the name of the *locus typicus*, Manongarivo National Park, and treated as a noun in apposition.

***Setodes reynae* Randriamasimanana & Gibon, 2001**

Setodes reynae Randriamasimanana & Gibon, 2001: 125–127.



Figures 496–499. *Setodes mahajanga* Oláh & Johanson sp. nov. Holotype: 496=genitalia in left lateral view, 497=genitalia in dorsal view, 498=left gonopod in ventral view, 499=phallic organ in left lateral view.



Figures 500–501. *Setodes nongariva* Oláh & Johanson sp. nov. Holotype: 500=genitalia in left lateral view, 501=phallic organ in left lateral view.

Material examined. **Madagascar**, Ankazoabo, Tulear Province, St. Hydrobiol. du Banian, vii.1957, leg. A. R. Paulian (2 males, MNHN; 1 male, OPC). (Ankazoabo. Madagascar Ouest: S.-P. d'Ankazoabo). Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (5 males, NHRS; 4 males, OPC).

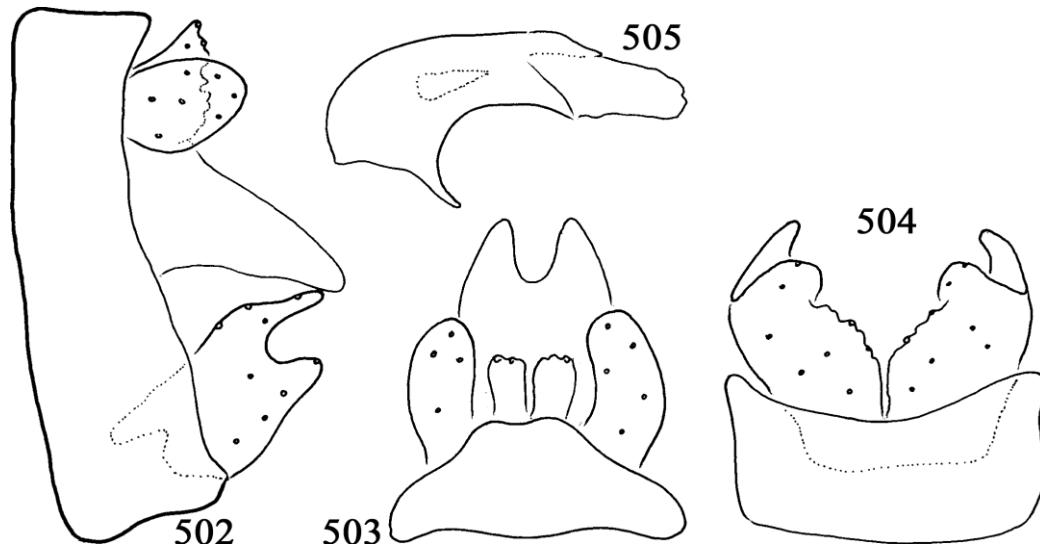
tribus Triaenodini Morse, 1981

Adicella McLachlan, 1877

Adicella ambra Oláh, sp. nov.

(Figures 502–505)

Material examined. Holotype: **Madagascar**, Nord Montagne d'Ambre, Les Roussettes [12.542°S, 49.18°E], 1100 m, xi-xii.1958, leg. A.



Figures 502–505. *Adicella ambra* Oláh sp. nov. Holotype: 502=genitalia in left lateral view, 503=genitalia in dorsal view, 504=genitalia in ventral view, 505=phallic organ in left lateral view.

Robinson (male, OPC). (Ambre Montagne, Madagascar Nord: S.-P. de Diego-Suarez, Montagne d’Ambre. Parc National). Paratypes: Madagascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (2 males, ZMB; 1 male, OPC). Madagascar, Andringitra, Tsaranoro Massif, Forêt Sacrée, LF Bach 1 und 2, 950 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB). Madagascar, Andringitra, Tsaranoro Massif, LF Bach 1 und 2, 950 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB). Madagascar, Ibity Mts. Analama-zoatra, Manandona [18.938°S, 48.434°E], LF, 14.iv.2007, leg. W. Mey (1 male, ZMB).

Diagnosis. This is the first record of the genus *Adicella* from Madagascar. The new species has all the character states distinguishing *Adicella* from *Triaenodes*: (1) the stem of the median vein is present in the forewings, (2) the forewing fork 2 is rectangular, (3) the hind wing has only fork 1 present, and (4) the segment X (upper part of segment X) is short. *Adicella ambra* sp. nov. differs from all the known Afrotropical *Adicella* species by having bilobed gonopods.

Description. Male (in alcohol). Body small, pale. Forewing length 6 mm.

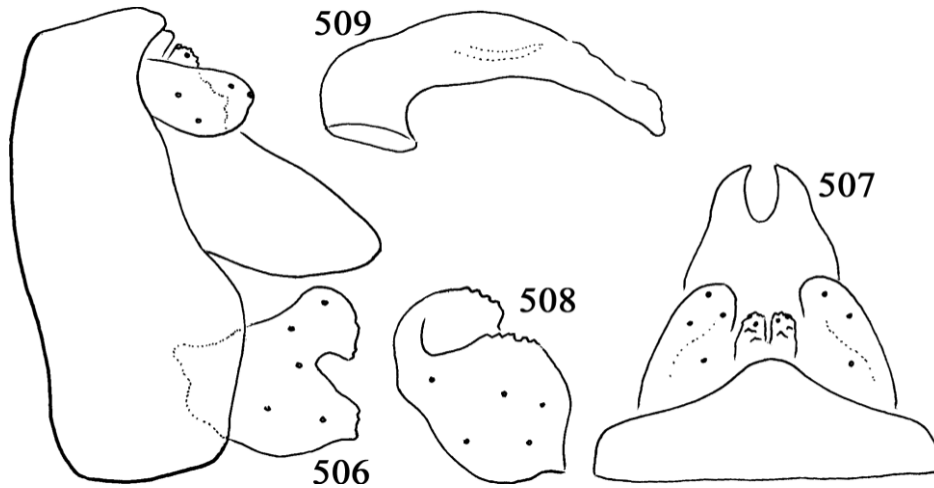
Male genitalia. Segment IX short, dorsum and ventrum almost equally long. Cerci rounded in lateral view, elongate in dorsal view. Upper part of segment X with two short structures covered with setae with enlarged alveoli; quadrangular in dorsal view, triangular in lateral view. Lower part of segment X forming large hood over phallic organ, deeply excised apically, visible in dorsal view. Gonopods bilobed, with long, slender dorsal arm and short, blunt ventral arms. Phallic organ with curving more sclerotized phallosome and membranous apical part; short triangular phallosomal sclerite visible at mid-length in lateral view.

Etymology. Coined from the name of the *locus typicus*, Montagne d’Ambre, and treated as a noun in apposition.

***Adicella antsira* Oláh & Johanson, sp. nov.**

(Figures 506–509)

Material examined. Holotype: **Madagascar**, Antsiranana, Montagne d’Ambre NP, 100 m from camping site of Montagne d’Ambre on the bridge, 5.xii.2012, 22W black light trap, 12.52456°S, 49.17255°E, 1032 m, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (male, NHRS).



Figures 506–509. *Adicella antsira* Oláh & Johanson sp. nov. Holotype: 506=genitalia in left lateral view, 507=genitalia in dorsal view, 508=left gonopod in ventral view, 509=phallic organ in left lateral view.

Diagnosis. Having a bilobed apex of gonopods, *Adicella antsira* sp. nov. is similar to *Adicella ambra* sp. nov., from which it differs by the very robust and downward directed, not slender and backward directed dorsal lobe of gonopod.

Description. Male (in alcohol). Body small and brownish.

Forewing length 6 mm.

Male genitalia. Segment IX short, dorsum and ventrum almost equally long. Cerci elongate, apex rounded in lateral and dorsal view. Upper part of segment X with pair of short structures covered with setae from enlarged alveoli; lower part of segment X forming large hood above phallic organ and deeply excised apically as visible in dorsal view. Gonopods bilobed, distantly with short, differently shaped lobes of almost equal length. Phallic organ with curving, sclerotized phallosome, and membranous distal part; spine-like structure poorly visible on middle.

Etymology. Coined from the name of the *locus typicus*, Antsiranana, as a noun in apposition.

***Adicella ringitra* Oláh & Mey, sp. nov.**

(Figures 510–513)

Material examined. Holotype: **Madagascar**, Andringitra, Tsaranoro Massif, Forêt Sacrée, LF

Bach 1 und 2 [22.086°S, 46.771°E], 950 m, 15-19.iv.2007, leg. W. Mey (male, ZMB). Paratype: same as holotype (1 male, OPC).

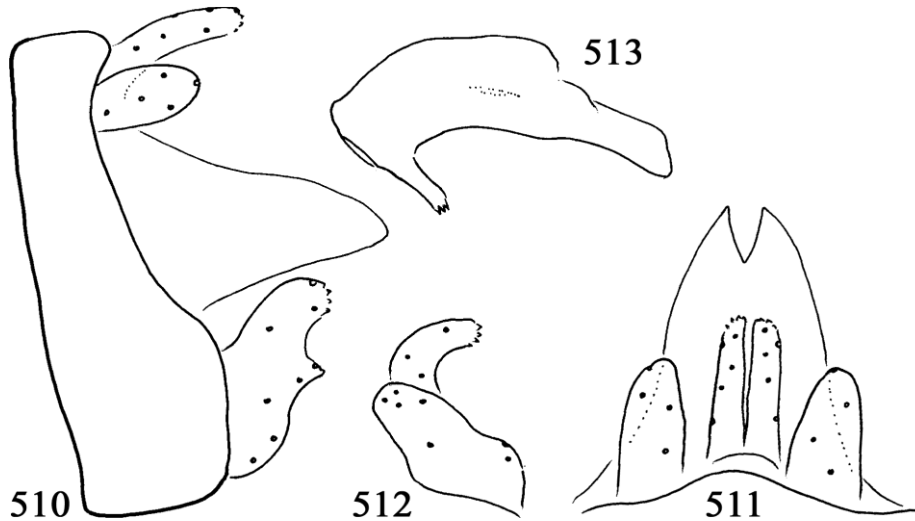
Diagnosis. *Adicella ringitra* sp. nov. has bilobed gonopods as in *Adicella ambra* sp. nov. and *A. antsira* sp. nov. *Adicella ringitra* differs from the other two species by having setose segment X very elongate, slender, digitiform, and the lobes on the gonopods are differently shaped both in lateral and dorsal view.

Description. Male (in alcohol). Body small and brownish.

Forewing length 6 mm.

Male genitalia. Segment IX short, dorsum slightly longer than ventrum. Cerci elongate, ovoid, with rounded apical margin in lateral and dorsal view. Upper part of segment X with pair of long, slender, digitiform, structures covered with setae on large alveoli; lower part of segment X forms large hood above phallic organ, deeply excised apically as visible in dorsal view. Gonopods bilobed, ventral lobe reduced to small triangle. Phallic organ with curving, sclerotized phallosome and membranous apical part; spine-like structures poorly visible in middle of phallic organ.

Etymology. Coined from the name of the *locus typicus*, Andringitra, as a noun in apposition.



Figures 510–513. *Adicella ringitra* Oláh & Mey sp. nov. Holotype: 510=genitalia in left lateral view, 511=genitalia in dorsal view, 512=left gonopod in ventral view, 513=phallic organ in left lateral view.

***Triaenodes* McLachlan, 1865**

***Triaenodes antsirasira* Malicky, 2020**

Triaenodes antsirasira Malicky, 2020: 521.

Material examined. **Madagascar**, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (1 male, OPC).

***Triaenodes erina* Oláh, sp. nov.**

(Figures 514–517)

Material examined. Holotype: **Madagascar**, Perinet, xi.1954. P. Viette, leg. (Paulian) (male, OPC) [18.927°S, 48.414°E].

Diagnosis. *Triaenodes erina* sp. nov. resembles *Triaenodes antsirasira* Malicky, 2020, from which it is distinguished by having a longer, knife-like, headed upper part of segment X, by the tapering triangular paraproct, and the differently shaped gonopods in ventral view.

Description. Male (in alcohol). Brown, scapes enlarged, without discernible scent organs; pedicel short, first flagellomere long. Maxillary palps lacking. Spur formula 1,2,2.

Forewings membrane pale yellowish, without pattern and scent setae; length 8 mm.

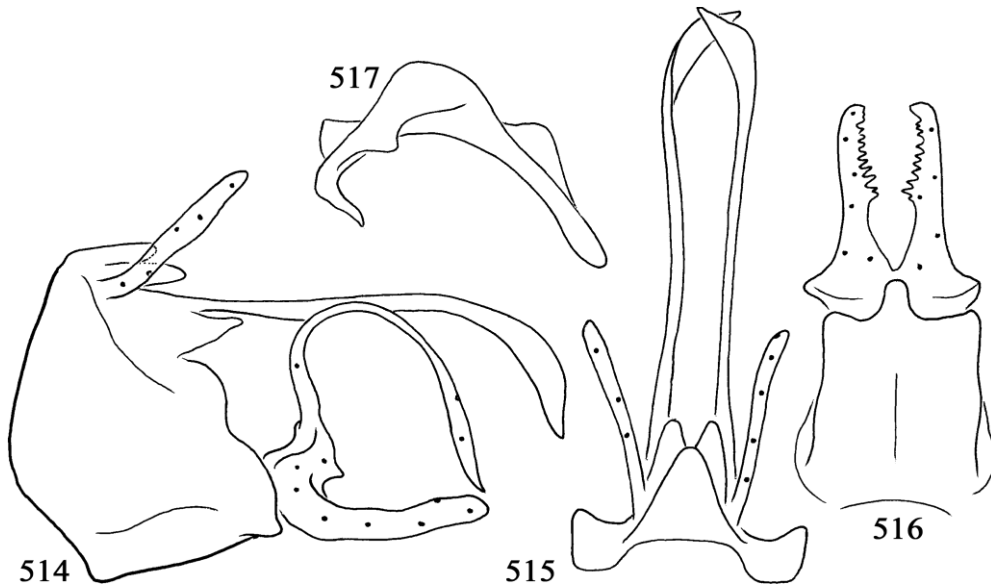
Male genitalia. Segment IX synsclerotized, long, almost quadrangular in lateral view; anterior margin rounded, undulating posterior margin. Segment X (upper process of segment X) forming basal bilobed structure and long pair of processes with apically broadening, knife-like, portion. Cerci setose, filiform, 2x longer than segment X. Paraproct (lower process of segment X) forming less sclerotized, tapering, triangular pair of lobes. Gonopods short, very low in lateral view, basolateral filiform process broadly based, curving. Phallic organ with narrow membranous apical portion of aedeagus, with two asymmetrical dorsal lobes; discernible paramere absent.

Etymology. Coined from the name of the *locus typicus*, Perinet. Treated as a noun in apposition.

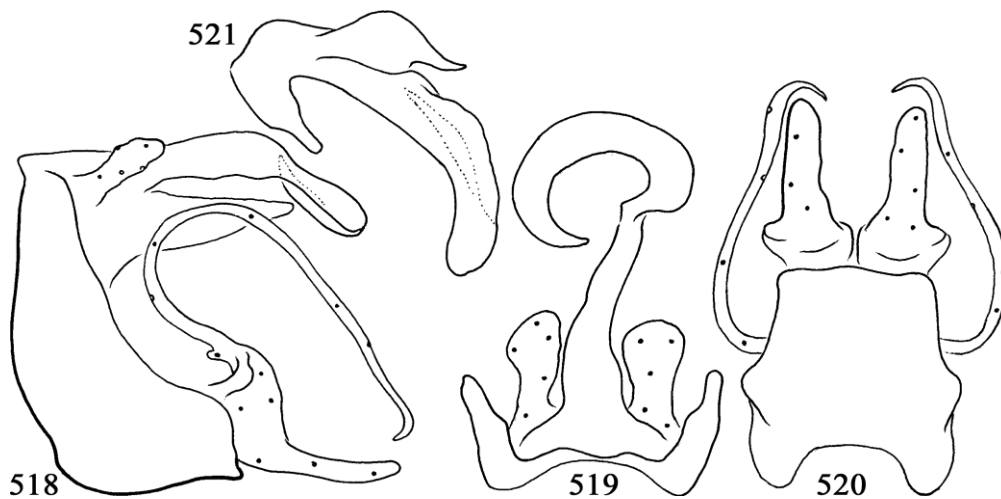
***Triaenodes fanovana* Oláh, sp. nov.**

(Figures 518–521)

Material examined. Holotype: **Madagascar**, Italavina, 6 km N. Fanovana [18.923°S, 48.508°E], 730 m, vi.1956, leg. P.G. (Paulian) (male, OPC). (Italaviana. Madagascar Est: S.-E. de Moramanga, au N.-O. de Fanovana, chemin de fer Tananarive-Tamatave, Italavina (Forêt de la Com-



Figures 514–517. *Triaenodes erina* Oláh, sp. nov. Holotype: 514=genitalia in left lateral view, 515=genitalia in dorsal view, 516=genitalia in ventral view, 517=phallic organ in left lateral view.



Figures 518–521. *Triaenodes fanovana* Oláh, sp. nov. Holotype: 518=genitalia in left lateral view, 519=genitalia in dorsal view, 520=genitalia in ventral view, 521=phallic organ in left lateral view.

pagnie coloniale), 730 m (P. Griveaud). Paratype: Madagascar, Amdranomadevy (Didy), Ambatondrazaka [18.154°S, 48.615°E], 1039 m, 2.x. 1956, leg. P. Griveaud (1 male, MNHN). (Andranamandevy, Madagascar Est: ca. 48 km au S.-E. d’Ambatondrazaka, Andranomandevy (Didy), 1039 m).

Diagnosis. This new species differs from all the known Malagasy *Triaenodes* species by hav-

ing segment X with a single, mesal, strongly produced structure; its apical half forms an almost complete circular structure, circling sinistrally from right to left. Similar segment X, but with semicircular, not full circular circling is present in mainland African species of *T. serratus* Ulmer, 1912 described from Sudan, *T. bifidus* Jacquemart, 1966 described from Congo and *T. siculus* Barnard, 1934 described from Namibia. However,

all the three mainland African species has differently shaped cerci, gonopod and phallic organ.

Description. Male (in alcohol). Brown, scapes enlarged, with discernible scent organ of long setal tuft; both pedicels short, third segment of flagell long. Maxillary palps unknown (broken). Spur formula 1,2,2.

Forewing membrane pale yellowish, without pattern and scent setae; length 8 mm.

Male genitalia. Segment IX synsclerotized, long ventrally, short dorsally. Segment X (upper process of segment X) forming single, mesal, strongly produced structure; apical half forming almost complete circular structure, circling sinistrally. Cerci short, setose, foliform. Paraproct (lower process of segment X) forming pair of less sclerotized, long, triangular, processes. Gonopods short, low in lateral view, basolateral filiform process with broad base, very long, thin, filiform, semicircular, downwardly turning. Phallic organ with dilated membranous apical portion of aedeagus, with pair of basodorsal, tapering, lobes and pair of fused internal sclerotized structures; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Fanovan, and treated as a noun in apposition.

***Triaenodes joroa* Oláh, sp. nov.**

(Figures 522–525)

Material examined. Holotype: **Madagascar**, Ampijoroa, Ankarafantsika [16.224°S, 46.94°E], 120 m, 30.viii.1956, leg. P. Griveaud (male, OPC). (Ampijoroa. Madagascar Ouest: S.-P. de Marovoay, 25 km au N. d’Ambato-Boeni, lac ou station forestière d’Ampijoroa. Dans la forêt de l’Ankarafantsika). Paratypes: same as holotype (2 males, MNHN; 1 male, OPC).

Diagnosis. This new species resembles *Triaenodes antsirasira* Malicky, 2020, from which it is distinguished by the presence of a longer, knife-like headed, upper part of segment X, by the tapering triangular paraproct, and the differently shaped gonopods in ventral view.

Description. Male (in alcohol). Brown animal, scape enlarged, without discernible scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-I-II-III-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, without pattern and scent setae; length 6 mm.

Male genitalia. Segment IX synsclerotized, long, almost quadrangular in lateral view; rounded anterior margin, concave posterior margin. Segment X reduced to single, elongate, plate, integrating upper and lower processes. Cerci setose, foliform, half as long as segment X. Paraproct (lower process of segment X) fused with elongate plate. Gonopods short, low in lateral view, with tapering apex in ventral view; basolateral filiform process broad-based, curving, with bifid apex. Phallic organ narrow, curving; discernible paramere absent.

Etymology. Coined from the name of the *locus typicus*, Ampijoroa, and treated as a noun in apposition.

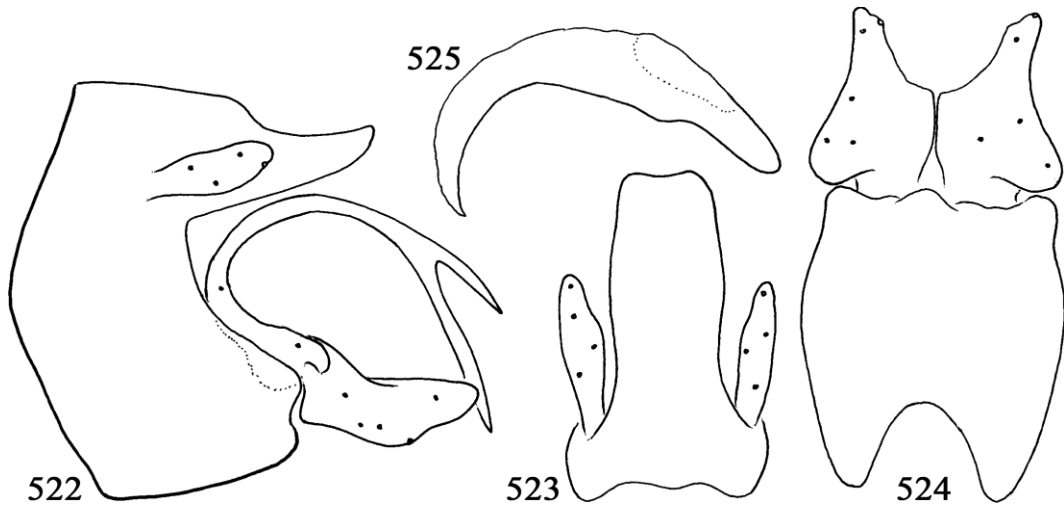
***Triaenodes malaza* Oláh, sp. nov.**

(Figures 526–529)

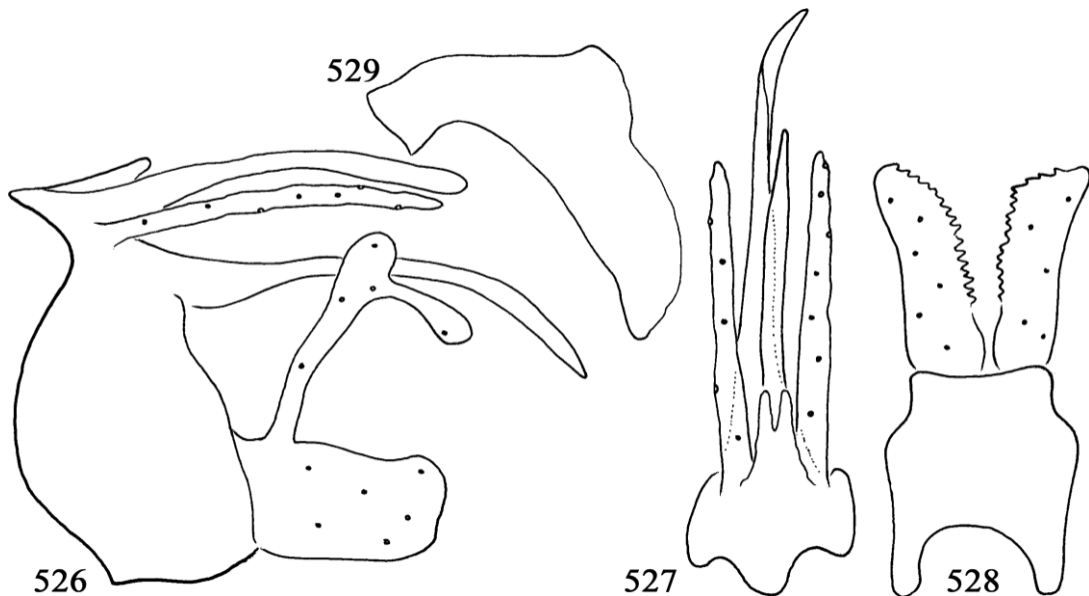
Material examined. Holotype: **Madagascar**, Andranomalaza, Manakambahiny-Est, 3.xii.1956, leg. P. Soga (male, OPC) [17.767°S, 48.659°E]. Paratypes: Madagascar, Andingitra, 2000 m (1 male, MNHN) [22.2°S, 46.87°E]. Madagascar, NE Andasibe, 950 m, Vakona lodge, LF, 11-13.iv.2007, leg. W. Mey (3 males, ZMB; 3 males, OPC) [18.931°S, 48.42°E]. Madagascar, Andringitra, Tsaranoro Massif, 15-19.iv.2007, leg. W. Mey (1 male, ZMB) [22.08°S, 46.775°E].

Diagnosis. The basic architecture of the genitalia, and particularly the basodorsal filiform process of the gonopods is similar to *Triaenodes mandeva* sp. nov. However, segment X (upper process of segment X) is present in *T. malaza* sp. nov., but lacking in *T. mandeva*, and the paramere is lacking in *T. malaza* sp. nov. but present in *T. mandeva* sp. nov.

Description. Male (in alcohol). Brown. Scapes enlarged, without scent organs; pedicel short, first



Figures 522–525. *Triaenodes joroa* Oláh, sp. nov. Holotype: 522=genitalia in left lateral view, 523=genitalia in dorsal view, 524=genitalia in ventral view, 525=phallic organ in left lateral view.



Figures 526–529. *Triaenodes malaza* Oláh, sp. nov. Holotype: 526=genitalia in left lateral view, 527=genitalia in dorsal view, 528=genitalia in ventral view, 529=phallic organ in left lateral view.

flagellomere long. Maxillary palps absent (broken). Spur formula 1,2,2.

Forewings membrane pale yellowish, without pattern and scent setae; length 8 mm.

Male genitalia. Segment IX synsclerotized, almost quadrangular in lateral view; anterior margin rounded, posterior margin almost straight. Segment X (upper process of segment X) forming

single, long, mesally digitiform, process superposed by short, bilobed plate. Cerci setose, filiform, as long as segment X. Paraproct (lower process of segment X) forming sclerotized, long, tapering, mesal process, longer than segment X and cerci; apical third flattened, turning leftward. Gonopods short, half as long as paraproct, basodorsal filiform process with hammer-like head in

lateral view. Phallic organ with dilated membranous apex of aedeagus, asymmetrical dorsal lobes; parameres absent.

Etymology. Coined from the name of the *locus typicus*, Andranomalaza, and treated as a noun in apposition.

***Triaenodes mandeva* Oláh, sp. nov.**

(Figures 530–533)

Material examined. Holotype: **Madagascar**, Andranomandevy (Didy), Ambatondrazaka, 1039 m, ix.1956. leg. P. Griveaud (male, OPC). (Andranomandevy. Madagascar Est: ca. 48 km au S.-E. d'Ambatondrazaka, Andranomandevy (Didy), 1039 m). Paratype: same as holotype (1 male, MNHN) [18.154°S, 48.615°E].

Diagnosis. The basic architecture of the genitalia, and particularly the basodorsal filiform process of the gonopods, is similar to *Triaenodes malaza* sp. nov. The segment X (upper process of segment X) is lacking in *T. mandeva* sp. nov. and present in *T. malaza*, and the paramere is present in *T. mandeva* but lacking in *T. malaza*.

Description. Male (in alcohol). Brown, scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palps lacking both on the holotype and on the paratype. Spur formula 1,2,2.

Forewings membrane pale yellowish, without pattern and scent setae; length 8 mm.

Male genitalia. Segment IX synsclerotized, almost rectangular in lateral view; anterior margin rounded, and straight on the posterior margin. Segment X lacking (upper process of segment X). Cerci setose, filiform, slightly shorter than the fused paraproct. Paraproct (lower process of segment X) forming a sclerotized long tapering mesal process. Gonopods short and high in lateral view and its basodorsal filiform process with hammer-like heading. Phallic organ with dilated membranous apical portion of the aedeagus with two asymmetrical dorsal lobes; single spine-like internal paramere.

Etymology. Coined from the name of the *locus typicus*, and treated as a noun in apposition.

***Triaenodes tsaranora* Oláh & Mey, sp. nov.**

(Figures 534–536)

Material examined. Holotype: **Madagascar**, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (male, ZMB). Paratypes: Madagascar, Andringitra, Tsaranoro Massif, Forêt Sacrée, LF Bach 1 und 2, 950 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB; 1 male, OPC) [22.08°S, 46.775°E].

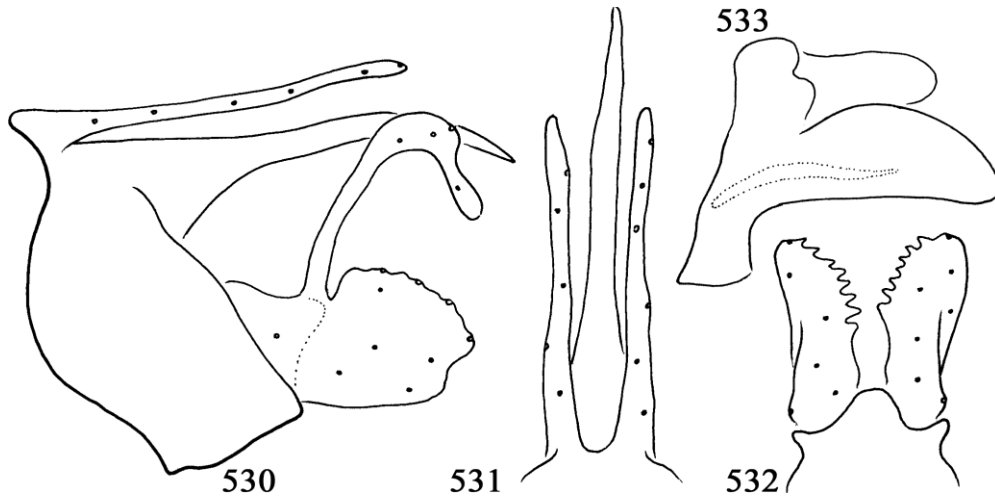
Diagnosis. The basic architecture of the genitalia, and particularly the basodorsal filiform process of the gonopods is similar to *Triaenodes betampona* Malicky, 2020. However, the segment X (upper process of segment X) shorter and the ventral arm of gonopod straight digitate in lateral view, not bulky and curving and tapering in ventral view, and not blunt.

Description. Male (in alcohol). Brown, scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

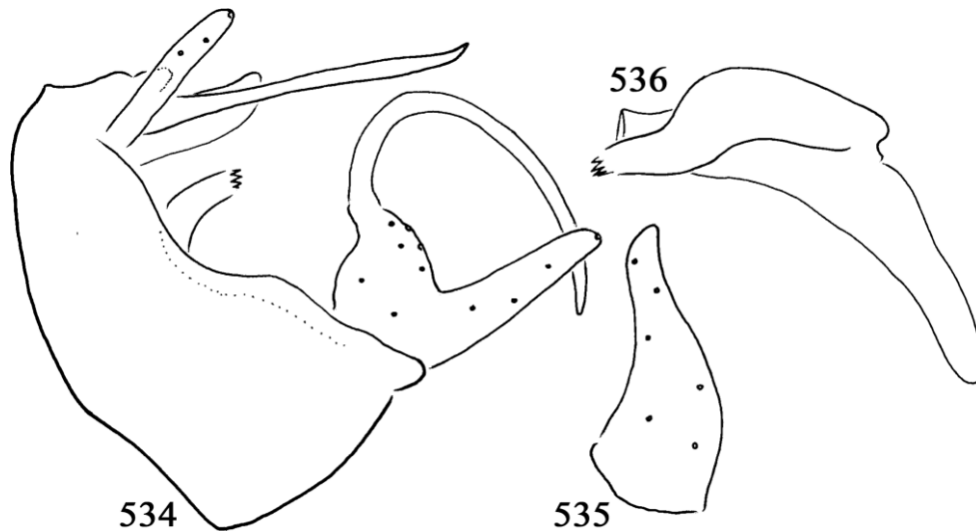
Forewings membrane pale yellowish, without pattern and scent setae; densely covered with recumbent setae; length 7 mm.

Male genitalia. Segment IX synsclerotized, almost rectangular in lateral view; anterior margin rounded, posterior margin straight. Segment X (upper process of segment X) reduced to pair of spine-like process. Cerci setose, filiform, slightly longer than paraproct. Paraproct (lower process of segment X) forming short mesal fused less sclerotized lobe. Gonopods composed of ventral arm, digitate in lateral, tapering in ventral view, as well as of basodorsal elongate, curving, filiform arm. Phallic organ with dorsal elaborated wing-like structure; no paramere discernible.

Etymology. Coined from the name of the *locus typicus*, the Tsaranoro Massif, and treated as a noun in apposition.



Figures 530–533. *Triaenodes mandeva* Oláh, sp. nov. Holotype: 530=genitalia in left lateral view, 531=genitalia in dorsal view, 532=genitalia in ventral view, 533=phallic organ in left lateral view.



Figures 534–536. *Triaenodes tsaranora* Oláh & Mey, sp. nov. Holotype: 534=genitalia in left lateral view, 535=left gonopod in ventral view, 536=phallic organ in left lateral view.

Triaenodes wieseri species complex

The main character state of this new species complex is the particularly developed segment X, represented by a pair of unusually elongate, filiform process having a variously produced spiny basoventral region. The segment IX is short; the sternum is enlarged posteriorly into curving rectangular in lateral view, giving support to the phallobase by its sclerotized strips; this modified

sternum is present, although not illustrated, on the original drawing of the nominate species *Triaenodes wieseri* Malicky, 2020. The paraprocts represent a pair of elongate, filiform, processes that are thinner than segment X. The phallic organ exhibits no discernible sclerotic divergences. The gonopods are composed of elongate, ventral, and arching, thin, filiform, basodorsal arms. The best diagnostic character state is the ventral view of the gonopods. The nominate species *T. wieseri* has

the shortest and broadest ventral arm of the gonopods. All the other species have variously elongate and patterned ventral arm. The arching basodorsal filiform arm is characterized by a variously deep curvature in ventral view. This new species complex comprises six species: *Triaenodes antsaba* sp. nov., *T. bemaraha* sp. nov., *T. galoka* sp. nov., *T. ikopa* sp. nov., *T. sahanamba* sp. nov. and *T. wieseri* Malicky, 2020.

***Triaenodes antsaba* Oláh & Johanson, sp. nov.**

(Figures 537–539)

Material examined. Holotype: **Madagascar**, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (male, NHRS). Paratype: Madagascar, Mahajanga, Manongarivo NP, Beraty, river Antsambaraha on bridge, 21.xi.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalâtiana & J. H. Randriamihaja (1 male, OPC).

Diagnosis. This new species differs from the other species in the *Triaenodes wieseri* species complex by the unique shape of the ventral arm of the gonopods, involving pronounced apicomesal and basolateral excisions in ventral view.

Description. Male (in alcohol). Small, yellowish to light brown. Scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, with indistinct pattern and without scent setae; length 7 mm.

Male genitalia. Segment IX synsclerotized, short; anterior and posterior margins slightly convex; sternum enlarged posteriorly, slightly curving rectangular-shaped in lateral view, giving support to phallobase by sclerotized strips. Segment X (upper process of segment X) present as pair of long, digitiform, spine-like, processes with basal, spiny lobe reduced to few single spines.

Cerci setose, filiform, long. Paraproct (lower process of segment X) forming pair of less sclerotized, long, filiform, processes, shorter than segment X. Ventral arm of gonopods elongate, low in lateral view, particularly shaped apicomesal and basolateral excisions in ventral view; basolateral filiform process turning apically and slightly mesally from base; curvature shallow in ventral view. Phallic organ with dilated membranous mesal portion with short sclerite inside; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Antsaba. Treated as a noun in apposition.

***Triaenodes bemaraha* Oláh & Johanson, sp. nov.**

(Figures 540–542)

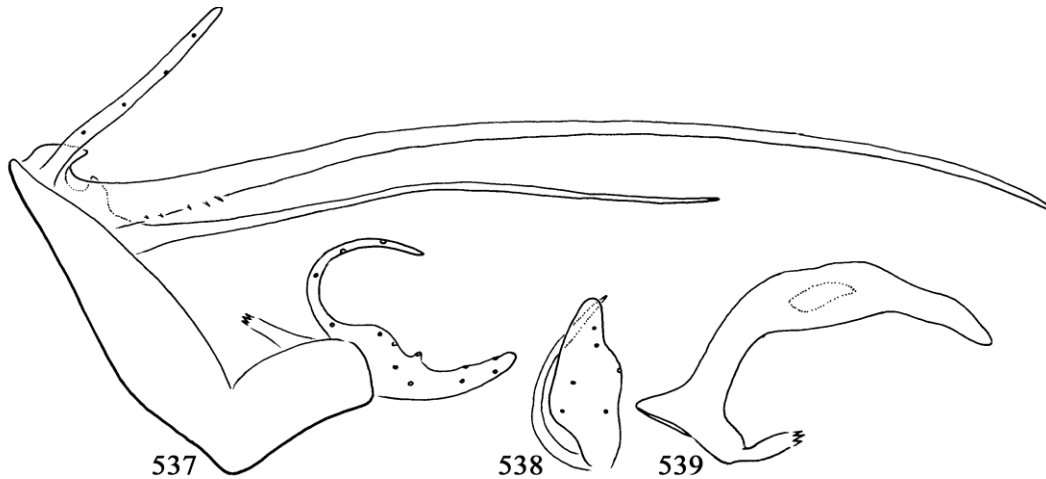
Material examined. Holotype: **Madagascar**, Mahajanga Prov., Melaky Dist., Tsingy de Bemaraha NP, Antsora, Cirque Berano, light trap at small creek, 18.7548°S, 44.7077°E, 81 m, 17.xii.2009, leg. J. Bergsten & N. Jönsson (male, NHRS). Paratype: Madagascar, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (1 male, ZMB)

Diagnosis. This new species differs from the other species in the *Triaenodes wieseri* species complex by the equally long segment X and paraproct; as well as by the character combination of strongly produced ventrobasal spiny lobe of segment X, and the deep curvature of the basodorsal filiform arm of the gonopods in ventral view.

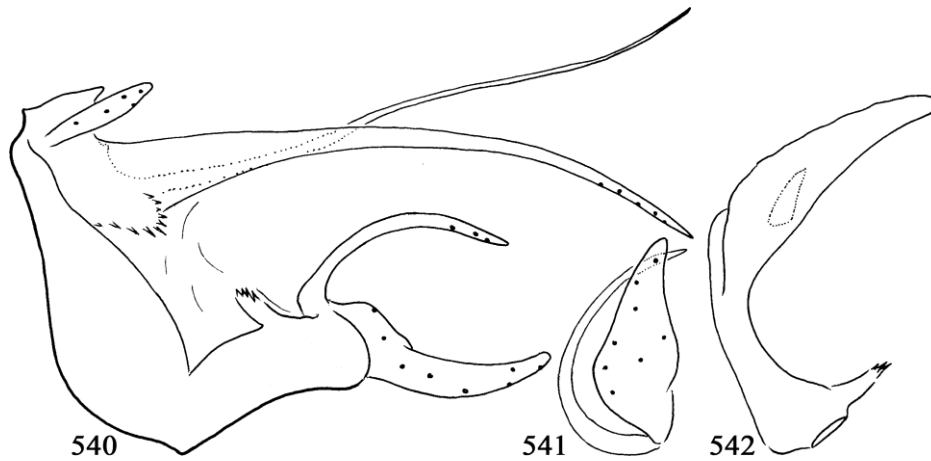
Description. Male (in alcohol). Small, yellowish, light brown. Scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, with indistinct pattern and without scent setae; length 6 mm.

Male genitalia. Segment IX synsclerotized, short; anterior and posterior margins slightly convex; sternum enlarged posteriorly, slightly curv-



Figures 537–539. *Triaenodes antsaba* Oláh & Johanson, sp. nov. Holotype: 537=genitalia in left lateral view, 538=left gonopod in ventral view, 539=phallic organ in left lateral view.



Figures 540–542. *Triaenodes bemaraha* Oláh & Johanson, sp. nov. Holotype: 540=genitalia in left lateral view, 541=left gonopod in ventral view, 542=phallic organ in left lateral view.

ing rectangular-shaped in lateral view, supporting phallobase by sclerotized strips. Segment X (upper process of segment X) forming pair of long, digitiform, spine-like, processes with basal, spiny, lobe. Cerci setose, digitiform, short. Paraproct (lower process of segment X) forming pair of less sclerotized, long, filiform, processes, as long as segment X. Ventral arm of gonopods elongate, low in lateral view, tapering from base in ventral view; basolateral filiform process turning apically and slightly mesally from base; curvature deep in ventral view. Phallic organ with dilated mem-

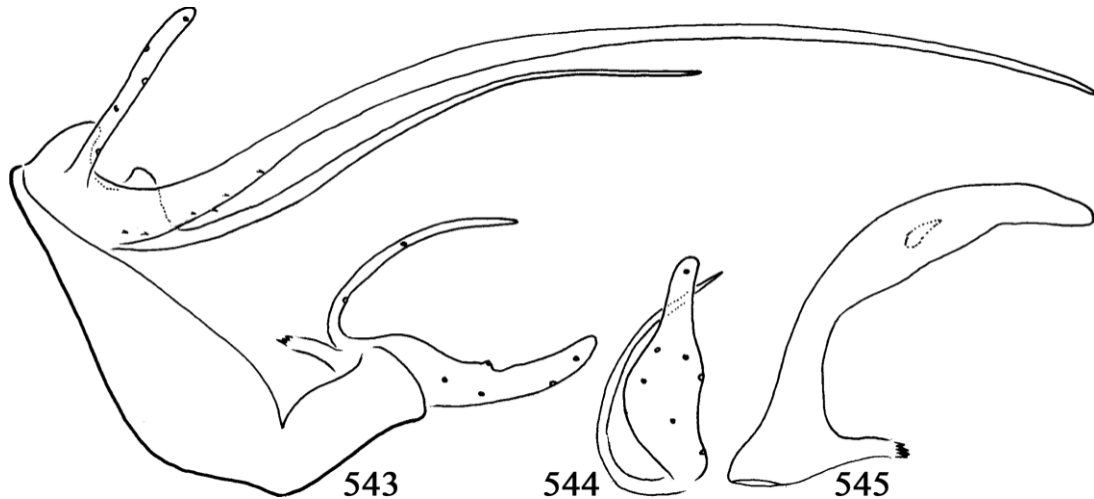
branous mesal portion with short sclerite inside; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Tsingy de Bemaraha National Park, and treated as a noun in apposition.

***Triaenodes galoka* Oláh & Johanson, sp. nov.**

(Figures 543–545)

Material examined. Holotype: **Madagascar**, Antsiranana, Galoko Mountains, Antsaba, river in



Figures 543–545. *Triaenodes galoka* Oláh & Johanson, sp. nov. Holotype: 543=genitalia in left lateral view, 544=left gonopod in ventral view, 545=phallic organ in left lateral view.

Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalantiana & J. H. Randriamihaja (male, NHRS).

Diagnosis. This new species differs from the other species in the *Triaenodes wieseri* species complex by the particularly shaped ventral arm of gonopods with slender, almost digitate apical half in ventral view.

Description. Male (in alcohol). Small, yellowish, light brown. Scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, with indistinct pattern and without scent setae; length 7 mm.

Male genitalia. Segment IX synsclerotized, short; anterior and posterior margins slightly convex; sternum enlarged posteriorly, slightly curving rectangular-shaped in lateral view, supporting phallobase by sclerotized strips. Segment X (upper process of segment X) forming pair of long, digitiform, spine-like, processes with basal, spiny, lobe reduced to few, single, spines. Cerci setose, filiform, long. Paraproct (lower process of segment X) forming pair of less sclerotized, long, filiform, processes, shorter than segment X. Ven-

tral arm of gonopods elongate, low in lateral view with slender almost digitate apical half in ventral view; basolateral filiform process turning apically and slightly mesally from base; curvature deep in ventral view. Phallic organ with dilated membranous mesal portion with short sclerite inside; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Galoko Mountains, and treated as a noun in apposition.

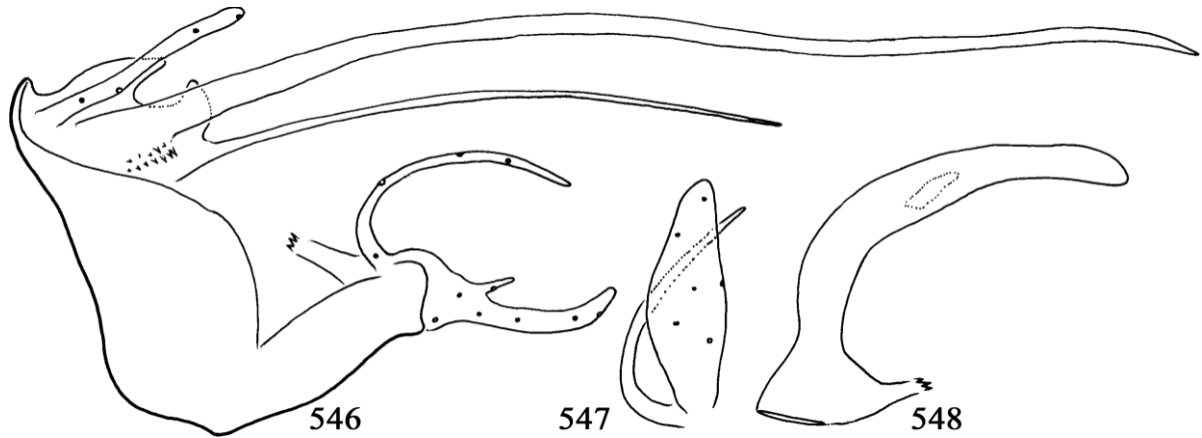
***Triaenodes ikopa* Oláh, sp. nov.**

(Figures 546–548)

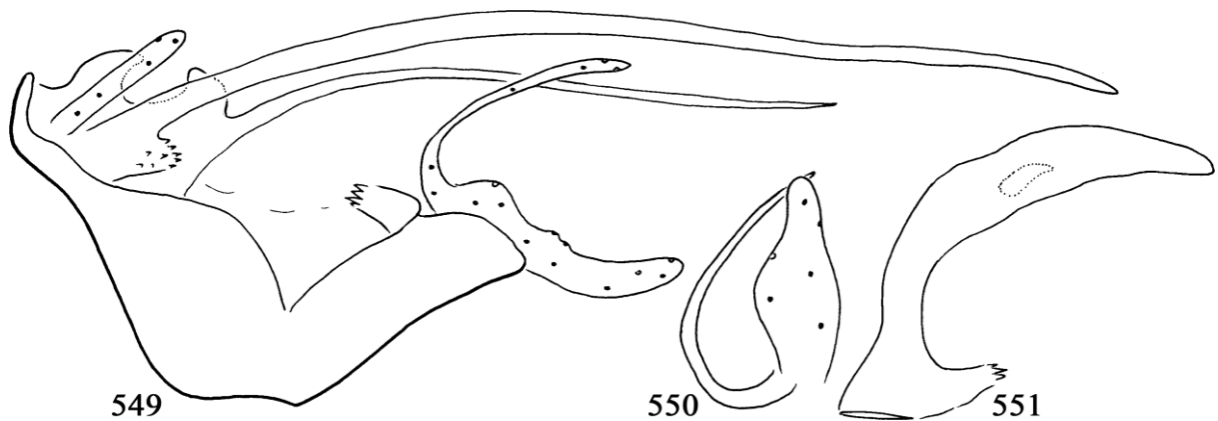
Material examined. Holotype: **Madagascar**, Mahitsy, 28.ii.1991, leg. Elouard (male, OPC). (Mahitsy, Madagascar Centre 2 km au S.-E. de Tananarive, Mahitsy, Village situé sur la rive gauche de la rivière Ikopa) [18.9380°S, 47.5943°E].

Diagnosis. This new species differs from the other species in the *Triaenodes wieseri* species complex by the particularly shaped ventral arm of gonopods with its simplified tongue-like shape in ventral view.

Description. Male (in alcohol). Small, yellowish, light brown. Scapes enlarged, without



Figures 546–548. *Triaenodes ikopa* Oláh sp. nov. Holotype: 546=genitalia in left lateral view, 547=left gonopod in ventral view, 548=phallic organ in left lateral view.



Figures 549–551. *Triaenodes sahanamba* Oláh & Mey sp. nov. Holotype: 549=genitalia in left lateral view, 550=left gonopod in ventral view, 551=phallic organ in left lateral view.

scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, with indistinct pattern, without scent setae; length 7 mm.

Male genitalia. Segment IX synsclerotized, short; anterior and posterior margins slightly convex; sternum enlarged posteriorly, slightly curving rectangular-shaped in lateral view, supporting phallobase by sclerotized strips. Segment X (upper process of segment X) forming pair of long digitiform spine-like processes with distinct basal spiny lobe. Cerci setose, filiform, long. Paraproct

(lower process of segment X) forming pair of less sclerotized, long, filiform, processes, shorter than segment X. Ventral arm of gonopods elongate, low, with slender digitiform process at mid-length in lateral view, tongue-shaped in ventral view; basolateral filiform process turning apically and slightly mesally from base; curvature shallow in ventral view. Phallic organ with dilated, membranous, mesal portion with short sclerite inside; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Ikopa River, and treated as a noun in apposition.

***Triaenodes sahanamba* Oláh & Mey, sp. nov.**

(Figures 549–551)

Material examined. Holotype: **Madagascar**, Andringitra, Tsaranoro Massif, Sahanambo River, LF Cascades [22.042°S, 46.756°E], 800 m, 15-19.iv.2007, leg. W. Mey (male, ZMB).

Diagnosis. This new species, belonging to the *Triaenodes wieseri* species complex, has basoventral spiny lobe on the elongated spine-like segment X similarly to that in *T. bemaraha* sp. nov. and *T. ikopa* sp. nov. It differs from *T. bemaraha* sp. nov. by having long segment X, and from *T. ikopa* sp. nov. by the presence of a shorter segment X, by the shape of the gonopods in lateral and ventral view, and by the narrowing ventral arm and deep curvature of the dorsal arm of the gonopods in ventral view.

Description. Male (in alcohol). Small, yellowish, light brown. Scapes enlarged, without scent organs; pedicel short, first flagellomere long. Maxillary palp formula IV-II-III-I-V. Spur formula 1,2,2.

Forewings membrane pale yellowish, densely covered with recumbent setae, without pattern and scent setae; length 7 mm.

Male genitalia. Segment IX synsclerotized, short; anterior and posterior margins slightly convex; sternum enlarged posteriorly, slightly curving rectangular-shaped in lateral view, supporting phallobase by sclerotized strips. Segment X (upper process of segment X) forming pair of long digitiform spine-like processes with distinct basal, spiny, lobe. Cerci setose, filiform, short. Paraproct (lower process of segment X) forming a pair of less sclerotized, long, filiform processes, shorter than segment X. Ventral arm of gonopods elongate, low, with doubled small hump midway in lateral view and particularly shaped tapering from middle in ventral view; basolateral filiform process turning apically and slightly mesally from base; curvature deep in ventral view. Phallic organ with dilated membranous mesal portion with short sclerite inside; paramere indiscernible.

Etymology. Coined from the name of the *locus typicus*, Sahanambo River, and treated as a noun in apposition.

***Triaenodes wieseri* Malicky, 2020**

Triaenodes wieseri Malicky, 2020: 520.

Material examined. Madagascar, Antsiranana, Galoko Mountains, Antsaba, river in Antsaba village, 26.xi.2012, 22W black light trap, 13.64798°S, 48.7368°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalaitiana & J. H. Randriamihaja (4 males, NHRS; 2 males, OPC).

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