

# Revision of the colourful genus *Parasetodes* McLachlan, 1880 (Trichoptera, Leptoceridae)

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**Abstract.** The rare and beautifully colourful old-world *Parasetodes* is a so-called set-aside genus with unsettled taxonomy. For instance, a recent survey (Malicky 2006) has synonymised all the Palaearctic and Oriental species to the type species *Parasetodes respersellus* (Rambur, 1842). The diverse forewing pattern, as a potential diagnostic character state is liable to disappear rapidly in alcohol or denuded and faded even on dry pinned specimens. In this revision we have delineated species by the ventral, surface-perpendicular profile of the dorsal arm of gonopod, the titillating plate, as well as by the lateral profile of the phallic organ and increased the species number of the genus from 12 to 45 describing 33 new species from the Palaearctic, Oriental, and Afrotropical fauna regions. Palaearctic fauna region: *Parasetodes temirlik* Oláh & Salokannel, sp. nov., Oriental fauna region: *P. bali* Oláh, sp. nov., *P. baoloc* Oláh, sp. nov., *P. borneo* Oláh & Mey, sp. nov., *P. dalat* Oláh, sp. nov., *P. gunung* Oláh & Mey, sp. nov., *P. hoang* Oláh, sp. nov., *P. indicus* Oláh, sp. nov., *P. kambait* Oláh & Johanson, sp. nov., *P. lamdong* Oláh, sp. nov., *P. madacus* Oláh & Johanson, sp. nov., *P. maechaem* Oláh & Mey, sp. nov., *P. maehong* Oláh & Mey, sp. nov., *P. namgen* Oláh & Johanson, sp. nov., *P. nokrek* Oláh & Mey, sp. nov., *P. pahang* Oláh, sp. nov., *P. ratnapur* Oláh, sp. nov., *P. sinicus* Oláh, sp. nov., *P. tumbang* Oláh & Mey, sp. nov., *P. umran* Oláh & Mey, sp. nov. Afrotropical fauna region: *P. amboas* Oláh, sp. nov., *P. ambovom* Oláh, sp. nov., *P. barnardi* Oláh, Johanson, Mey & Salokannel, sp. nov., *P. caprivi* Mey & Oláh, sp. nov., *P. ikeleng* Oláh & Johanson, sp. nov., *P. kindam* Oláh, sp. nov., *P. mahajan* Oláh & Johanson, sp. nov., *P. meyan* Oláh, sp. nov., *P. rwandicus* Oláh & Mey, sp. nov., *P. sikasso* Oláh & Johanson, sp. nov., *P. tinko* Oláh & Johanson, sp. nov., *P. weytus* Mey & Oláh, sp. nov., *P. zambicus* Oláh & Johanson, sp. nov. We have reinstated the species status of *P. aquilonius* Yang & Morse, 1997 stat. restit., *P. ussuriensis* Martynov, 1935 stat. restit., *P. bakeri* (Banks, 1913) stat. restit., *P. kiangsinicus* (Ulmer, 1932) stat. restit., *P. maculatus* (Banks, 1911) stat. restit., raised the taxonomic status from subspecies to species rank of *Parasetodes tanganicanus* Marlier, 1956 stat. nov., and transferred *Triaenodes demoulini* Jacquemart, 1966 to *Parasetodes* as *P. demoulini* (Jacquemart, 1966) comb. nov.

**Keywords.** Caddisflies, *Parasetodes*, revision, Palaearctic, Oriental, Afrotropical, new species.

## INTRODUCTION

The present revision of the genus *Parasetodes* was inspired by our comprehensive study running on the Trichoptera of Madagascar that is based on the historical material of Renaud Paulian (1913–2003), presented to the first author and significantly enriched by collections realised by

Kjell Arne Johanson and Wolfram Mey, the second and third author of this paper. In the rich historical material, there were detected only two *Parasetodes* specimens representing two species. However, it turned out that their exact identification and description were almost impossible due to the unsettled status of this old-world genus. Malicky (2006) has synonymised all the Palaearctic and Oriental species to the type species *Parasetodes respersellus* (Rambur, 1842).

arctic and Oriental species to the oldest species *Parasetodes respersellus* (Rambur, 1842) and accordingly, most of us have set aside specimens for future study under this name.

*Parasetodes* are very rare and beautiful species, not easy to collect. Seldom abundant, but distributed widely in the entire old world, but we are unable to identify them! The two genera of the small tribe Nectopsychni in the family Leptoceridae, the Old World genus *Parasetodes* McLachlan, 1880 and the New World genus *Nectopsyche* Müller, 1879, exhibit beautifully colourful forewing patterns of high diagnostic value, a potentially diverse character state to delineate species. This is a great phenomenological challenge for caddisfly workers who are faced with how to differentiate among species by forewing patterns in these colourful creatures.

This dilemma is comparable to the common practice in the taxonomy of micromoths of microlepidoptera. Unfortunately, both the forewing colour and the pattern are rapidly lost applying the practical and common practice of most trichopterologists. We are putting and keeping the adults of both genera routinely in alcohol. The same problem may arrive during the long storage of pinned dry specimens.

According to Malm and Johanson (2011) the genus *Parasetodes* forms a monophyletic group, and together with *Achoropsyche* and *Leptocerina* they form a unique branch that originate early in the Leptocerinae. We have elaborated and applied the principles and procedures of fine phenomics to search speciation traits in the reproductive organ of genitalia for differentiating and delineating among the species of the *Nectopsyche* genus stored in alcohol or rubbed during long storage of the pinned dry specimens (Oláh & Oláh 2017). In this revision the same procedure was adapted to the old-world genus *Parasetodes*. We have found the lateral profile of the phallic organ as well as the ventral perpendicular profile of the dorsal arm of the gonopod, the putative titillating plate, as the most diverse and most stable character states in this genus revision in order to delineate and

describe new species on the entire distributional area covering Palaearctic, Oriental and Afrotropical fauna regions. Applying the principles, procedures, and practices of our fine phenomics we have described 33 new species and quadrupled the known species number in the *Parasetodes* genus from 11 to 45.

## MATERIAL AND METHODS

### Speciation traits of the forewing pattern

Similarly to the *Nectopsyche* genus (Oláh & Oláh 2017) the striking metallic or iridescent appearance of the forewing of *Parasetodes* is due partially to hairs and scales with colours of pigment or interference origin as well as the forewing is further diversified by more pigmented membrane pattern usually at pterostigma and arculus as well as along the forks and cross veins, where singular veins meet each other. In many species, there is a hyaline window on the stem of longitudinal vein M present in various, usually circular shape. The intact forewing pattern exhibits diversity and functions probably as a speciation trait in mate choice of pre-mating isolation like the striking variation among bird plumage colour and pattern. Unfortunately, this forewing pattern is gradually lost during storage in alcohol and even on dry pinned specimens. Fortunately, the usually brown membrane patterns on the vein meeting area are lasting longer, but not forever, but are unfortunately less diverse. For instance, in the case of the holotype of *Parasetodes amboas* sp. nov. and *Parasetodes ambovom* sp. nov. from Madagascar collected in 1955 and 1952, stored in alcohol the brown membrane patterns were still well detectable and drawable in 1992, but almost completely disappeared for today, 2023. Nevertheless, the brown membrane pattern of the usually small patches if still detectable can be used as an additional character state to identify species. Here we used membrane patterns to associate the newly collected specimens with old species description patterns or males with putative females. However, the variably and unreliably lasting forewing pattern is not a stable diagnostic character state. Moreover, the drawing style could produce variable patterns from the same specimen.

### Speciation traits of the male genitalia

In the genus *Parasetodes* we have found the dorsal arm of the gonopod and the phallic organ as the most diverse character states corresponding to the most important criteria of speciation traits. Diversity is resulted by the speciation of the diverse structures. Examining the limited number of specimens it seems that additionally the dorsal arm and the phallic organ are the most stable, less variable genitalic structures. They are possibly the non-neutral adaptive speciation traits, a result of sexual organisation. However, the diverse and stable therefore, non-neutral adaptive character states must be easily and reliably visible and well discernible to have practical diagnostic value in species delineation. The present revision of the *Parasetodes* genus is based on these two speciation traits. In species delineation we rely mostly on the ventral profile of the dorsal arm of the gonopods and the lateral profile of the phallic organ. Unfortunately the type specimens of the historical species *P. respersellus* (Rambur, 1842), *P. maculatus* (Banks, 1911), *P. kiangsanicus* (Ulmer, 1932) are either lost or unavailable.

### Dorsal arm of gonopod

The dorsal arm of the gonopods has a specially modified titillating mesal surface due to the enlarged alveoli along the mesal margin. This rather rough flat structure is produced mesad in a transverse plane perpendicular to both sagittal and coronal planes and may function as a stimulatory organ in cryptic female choice, an isolation barrier resulting in a prezygotic mechanism of isolation. We call this putative speciation trait a titillating plate being a stimulatory structure in cryptic female choice. The shape of this transversal structure is badly discernible in lateral view, highly sensitive to small modifications of the observational angle. This is the reason why drawings in lateral view are variable on different published drawings. At the same time, the ventral view or more precisely the ventral surface-perpendicular view makes the entire surface of the dorsal arm visible. When we speak about the structural properties of the dorsal arm of the gonopods actually

we speak about the shape of its highly modified apical flat surface with a specific alveolar fringed margin. Unfortunately there is an obstacle; the less diverse ventral arm of gonopods frequently covers the ventral perpendicular view of the dorsal arm disturbing its clear view for drawing.

### Phallic organ

Like in many more caddisfly taxa, the phallic organ of the *Parasetodes* genus also functions as a diverse and stable speciation trait. Here we draw the lateral profile of the phallic organ or at least the stable profile of the phalotheca or phallicata. The exact drawing of the lateral profile is frequently disturbed by lateral and mesal ridges variously developed on the phalotheca. The apical head of the phallic organ in several species is unstable due to varying erection states of the membranous endothelial remnants, phallostremal less sclerotized structures, and membranous lobes of uncertain boundaries. Therefore, the drawn lateral profile of the phallic organ is frequently simplified, but its basal and mesal regions are rather stable with reliable diagnostic value.

### Female genital structure

The female genital structures seem rather distinctive and diverse in the described few known species. The following structures have some diagnostic value: lateral profile of segment IX, dorsal posterior margin of tergum IX, papillae processes between posterodorsum of tergum IX and segment X, setose preanal appendages fused with tergum X, lateral and dorsal profile of segment X, setose lamellae and the spermathecal sclerite complex.

### Drawings

Here we reproduce the original drawings for all the species without available specimens for direct examination and for new drawings. If possible, we redraw the ventral profile of the dorsal arm of gonopods and the lateral profile of the phallic organ from the old drawings or at least we reproduce the entire original available draw-

ings if these structures are not drawn. If we have specimens or if the original drawings permit, we produce (1) a lateral view of the entire genitalia without a phallic organ, (2) the ventral profile of the dorsal arm of the gonopod, and (3) the lateral profile of the phallic organ. We reproduce all the old drawings with our own drawing style concentrating on diagnostically significant structures and omitting insignificant or obscured details like setae on cerci and gonopods or membranous ever-sible structures on the head of the phallic organ.

### Practical difficulties

Preparing, examining, and drawing these tiny and delicate fragile animals we have faced and experienced several practical and routine difficulties. We had a few dry pinned specimens hard to handle. Especially if we delineate species with the speciation trait of the lateral profile of the phallic organ, and of the ventral profile of the dorsal arm of the gonopod as well as if we need to apply the still detectable brown forewing membrane pattern for taxonomical targets. To cut the last four segments of the abdomen of these dry fragile pinned specimens is very risky and unreliable. Moreover, the wings at least the forewings that remained on the pin after the abdomen cutting, are variously folded, not spread flat, and not denuded that is essential to observe, examine, and draw the brown membrane pattern of the tiny patches on the vein meeting area exactly. If we have a specimen in alcohol we cut the right forewing, spread, and denude it properly with cover glass in order to draw exactly its membrane pattern.

The ventral arms of the gonopods are frequently injured, and variously broken due to pre-mating fighting or copulatory actions. This condition has the advantage of exposing the hidden dorsal arm to discern and draw exactly its ventral perpendicular profile. In intact condition, the ventral arm of the gonopod partially covers the ventral perpendicular profile of the dorsal arm. If we have several specimens, that are very rare, we may cut the ventral arm of the left gonopod of one specimen to expose the entire exact view of the

diverse dorsal arm. If we have a single male with an intact ventral arm disturbing the exact view of the dorsal arm the drawing is difficult. A very little change in observation and drawing angles may produce a significant alteration of the drawings.

*Depositories.* Collections de l'Institut royal des Sciences naturelles de Belgique (CIRSNB). Museum of Comparative Zoology, Cambridge, USA (MCZ). Museum for Natural History of the Humbolt University of Berlin, Germany (ZMB). Museum für Naturkunde, Berlin, Germany (MfN). Oláh Private Collection, Debrecen, Hungary, under national protection by the Hungarian Natural History Museum, Budapest (OPC). Swedish Museum of Natural History, Stockholm, Sweden (SMNH) Zoologisches Museum Hamburg, Hamburg, Germany (ZMH).

### Nectopsychini Morse, 1981

#### *Parasetodes* McLachlan, 1880

#### Palaeartic Fauna Region

#### *Parasetodes aquilonius* Yang & Morse, 1997 stat. restit.

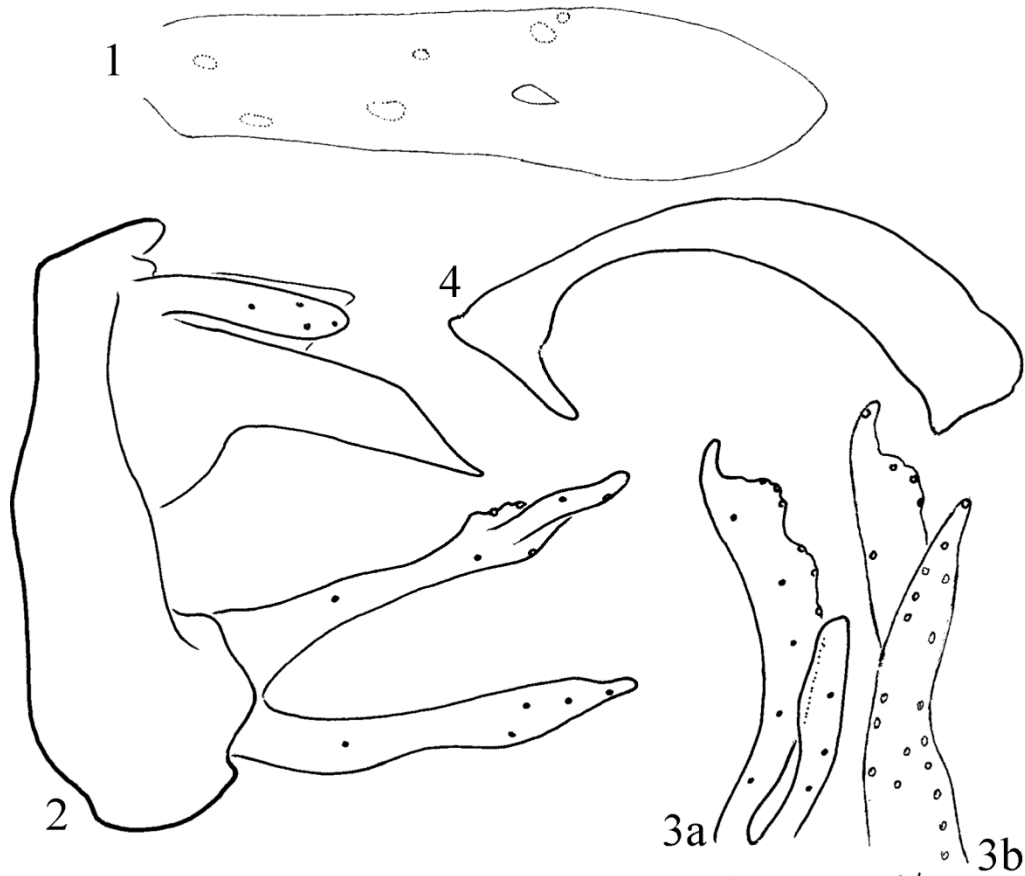
(Figures 1–6, Map 1)

*Parasetodes aquilonius* Yang & Morse, 1977, in Vshivkova, Morse, & Yang 1997: 177, 179, pl. 114 fig. 1.5, pl. 115 fig 1–3." Holotype male: China Shen-yang Shi (N41.50, E123.26).

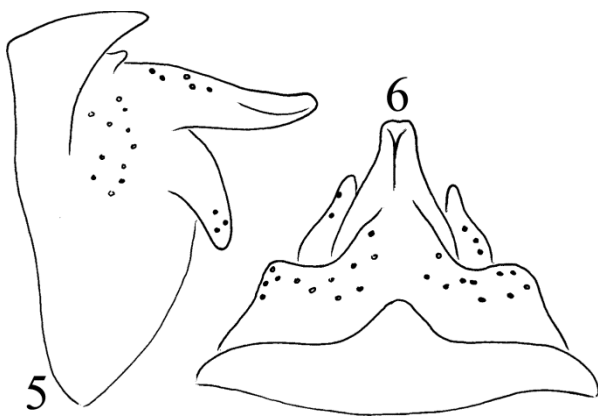
*Parasetodes aquilonius* Yang & Morse, 1997: Yang & Morse 2000:58–59. Holotype male: China Shen-yang Shi (N41.50, E123.26). "Distribution: known from northern China and south eastern Russia.

*Parasetodes respersellus* Yang & Morse, 1997 (part.): Malicky 2006: 1514–1515. Examining hundreds of his own *Parasetodes* specimens of the Palaeartic and Oriental Fauna Regions, from Greece to Bali, has synonymised all the described species from both fauna regions, including *Parasetodes aquilonius* Yang & Morse, 1997 with the oldest name *Parasetodes respersellus* (Rambur, 1842).

*Remarks.* This species has a resemblance to *P. respersellus*, but differs by segment X signifi



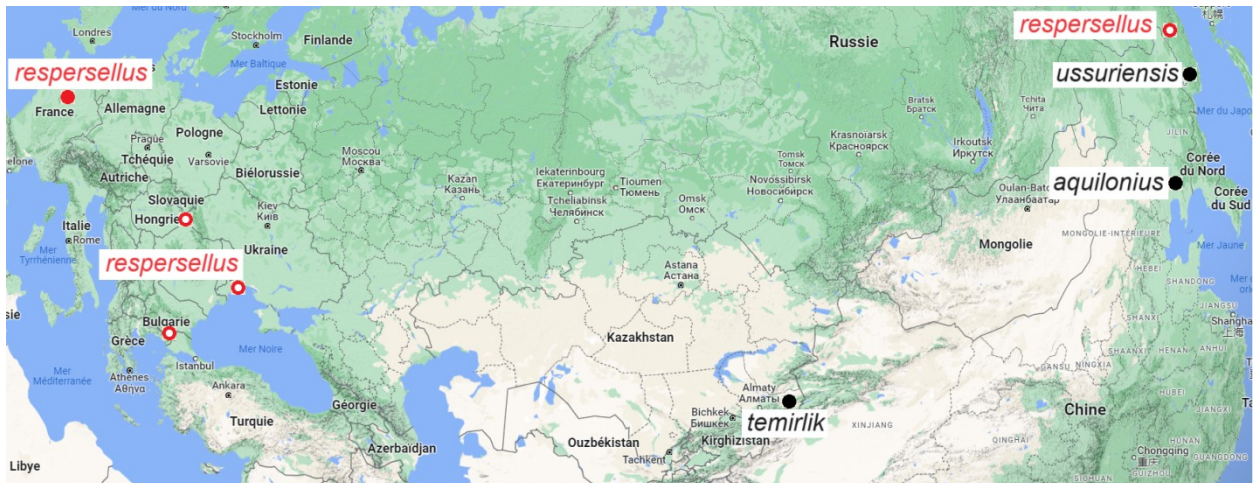
**Figures 1–4.** *Parasetodes aquilonius* Yang & Morse, 1997. Reproduced from original drawings: 1 = forewing brown membrane pattern, 2 = left lateral view of genitalia, 3a = left gonopod with apicomesal lobe and the cercus in dorsal view, 3b = left gonopod with apicomesal lobe in ventral perpendicular view, partially covered by the ventral arm of gonopod, 4 = phallic organ in lateral view.



**Figures 5–6.** *Parasetodes aquilonius* Yang & Morse, 1997. Reproduced from original drawings: 5 = female genitalia in lateral view, 6 = female genitalia in dorsal view.

cantly longer than the cerci; the ventral arm of the gonopods shorter than the dorsal arm; the ventro-perpendicular profile of the dorsal arm of the gonopods with subapical mesal concavity as well as by the lateral profile of the phallic organ with broader apical half of the phallosome with characteristic ventroapical pointed corner.

There are distinct divergences in the female genitalia. The setose area at the basement of segment X is flat, not elevated; segment X is almost horizontal, not downward directed, oblique ventrad, lamellae more developed and discernible, and more protruded in dorsal view. Here we reinstate its species status, **stat. restit.**



Map 1. *Parasetodes* species of the Palearctic Fauna Region

***Parasetodes respersellus* (Rambur, 1842)**

(Figures 7–11, Map 1)

*Setodes respersella* Rambur, 1842: 515: “Pendant l’été dans les environs de Paris, le long des Rivières.”

*Parasetodes respersella* (Rambur, 1842): McLachlan 1880: 66. “The example before me is an exceedingly pretty insect, and, notwithstanding some slight discrepancies in the description, I am convinced it represents Rambur’s species, of which no types exist.” It is one of the most striking European species of Leptoceridae.”

*Parasetodes respersella* (Rambur, 1842): Ulmer 1907: 48. “1. Exemp., Japan, Coll. Pryer, 47.” Das Stück zeigt keine Unterschiede gegen ein französisches Stück, da ich sah (Pariser Museum); die Art muss eine weite Verbreitung haben; ich bemerkte mehrere Stücke auch in der Sammlung des Wiener Museums aus Aegypten! Die Rambur’sche Type fehlt.”

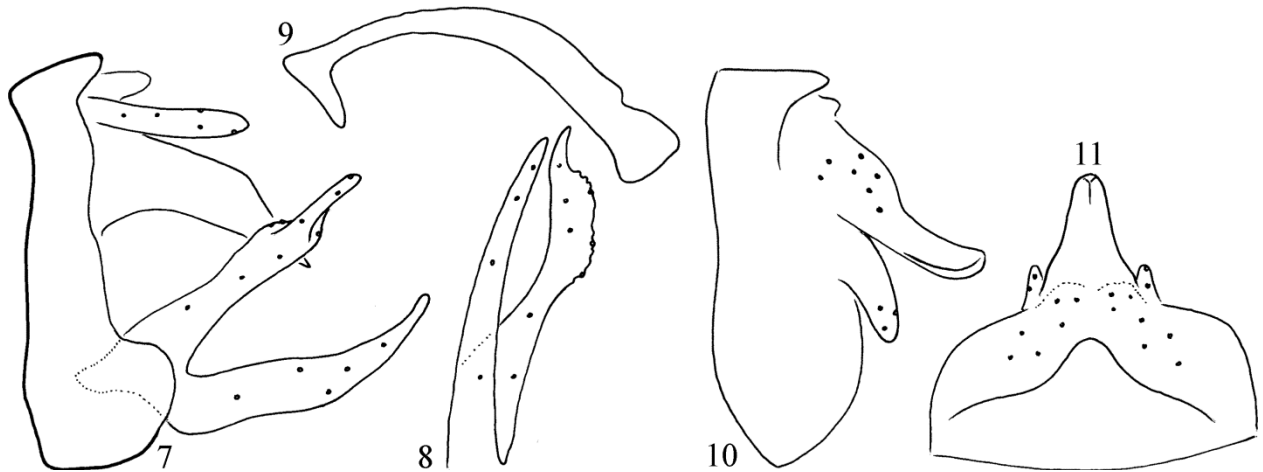
*Parasetodes respersella* (Rambur, 1842): Martynov 1935: 261–262. “*P. respersella* was known from France, Egypt, Turkestan and Japan and here we record it from Russia, Ussuri Region (in Russian).”

*Parasetodes respersellus* (Rambur, 1842): Yang & Morse 2000: 61–63: “holotype = missing (McLachlan, 1880; Ulmer, 1907); type repository = probably was once the Zoological Collection of the Baron Edmund de Selys Longchamps, National Museum of Natural Science in Brussels, Belgium; type locality = France (Paris).”

**Material examined. Bulgaria:** Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near

Meden Buk Village, Ivaylovgrad District, 121m, 41°22’48”N 26°01’40”E, 25.VII.2012, at light, leg. S. Beshkov & M. Beshkova, (1 male, OPC). Bulgaria, Eastern Rhodopi Mts. near Odrintzi Village, 206 m, 41°26’59”N 26°08’28”E, 16.VIII.2014, at light, leg. S. Beshkov (4 males, 2 females, NMNHBAS; 4 males, 2 females; OPC). **Hungary:** Hungarian Lowland, Debrecen, Józsa, Tóció stream, 14. VII. 2010, light, leg. J. Oláh (1 female, OPC). Hungary, Hungarian Lowland, Pocsaj, River Ér, 17. VIII. 2010, light leg. J. Oláh (1 female, OPC). **Romania,** Danube Delta, VIII. 2018, leg. C. Ciubuc ( 1 male, 1 female; OPC). **Russia,** Primorje, Chanka Lake, 4–6.VIII.1994, leg. L. Kühne (3 males, 1 female, MfN; 2 males, 1 female, OPC).

**Remarks.** *Parasetodes respersellus* resembles *Parasetodes aquilonius* Yang & Morse, 1997, but differs by having segment X significantly weakly longer than cerci; the ventral arm of gonopods is subequal to the dorsal arm; the ventro perpendicular profile of the dorsal arm of gonopods without subapical mesal concavity; in lateral profile the phallic organ has less broad apical half of the phallotheca with characteristic ventroapical blunt corner. There are distinct divergences in the female genitalia. The setose area at the basement of segment X is elevated, not flat; segment X is downward-directed, oblique ventrad, not almost horizontal; and the lamellae are



**Figures 7–11.** *Parasetodes respersellus* (Rambur, 1842). Bulgarian male: 7 = left lateral view of genitalia, 8 = left gonopod with apicomeral lobe in ventral perpendicular view, 9 = phallic organ in lateral view. Bulgarian female: 10 = female genitalia in lateral view, 11 = female genitalia in dorsal view.

less developed and less protruded in dorsal view. Martynov (1935) has recorded only the female of *Parasetodes respersellus* from Primorje, Russia. We are fortunate to have both the males and the females from Primorje for a detailed comparative study with specimens from Bulgaria, Hungary, and Romania to confirm its identity.

***Parasetodes temirlik* Oláh & Salokannel, sp. nov.**

(Figures 12–17, Map 1)

**Material examined.** Holotype: **Kazakstan**, Almaty, Uygur district, Temirlik Canyon, Temirlik, 43.358681°N, 79.165506°E, 971 m, 2.VII. 2019, leg. Juha Salokannel (1 male, OPC). Allotype: same as holotype (1 female, OPC).

**Diagnosis.** This new species is related to *Parasetodes respersellus*, but differs by the reduced number of brown membrane patches on the forewing, by the short ventral arm of the gonopods as well as by the ventral profile of the dorsal arm of gonopods and the lateral profile of the phallic organ. The new species has no even blunt ventro-apical corner on the phallosome.

**Description.** Medium-sized animal. Forewing length 11 mm. Forewing anastomosis not arranged in a nearly straight line, it is arched due to

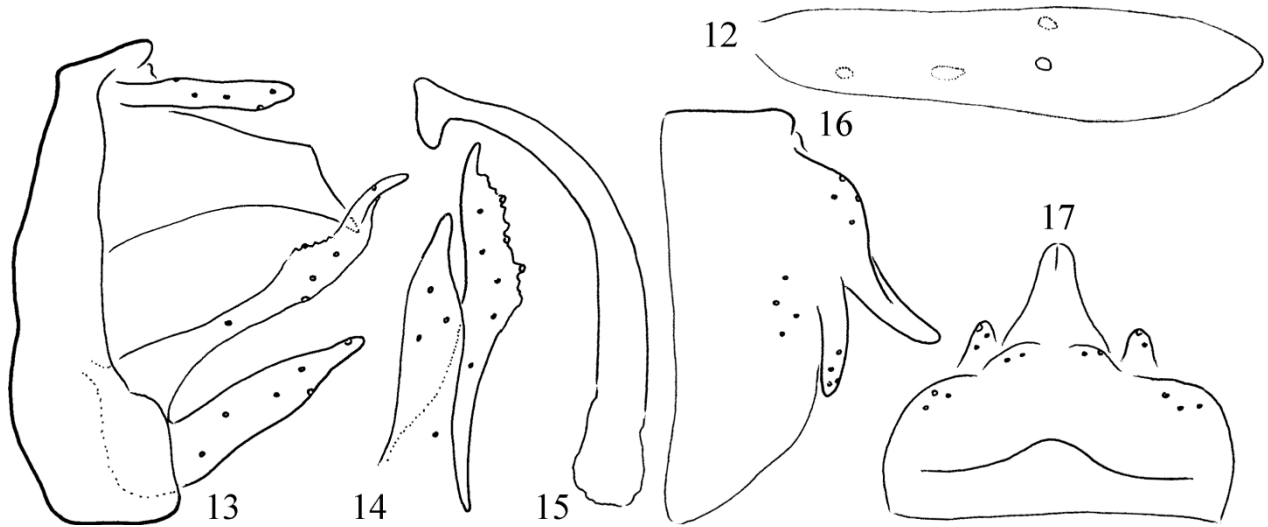
anterad shifted crossvein m-cu. Hyaline window on middle section of M stem present and rounded. Brown membrane pattern characterized by thickened darker vein just on basement of the two apical forks and on anastomosis crossveins as well as by only three real membrane browned patches, one rounded medium-sized before pterostigma, one well-developed and horizontally elongated on M-Cu fork area and one the smallest on the basoanal region where empusal vein meets 1A. Forewing of female allotype has less produced basoanal small brown membrane patch. On male genitalia the lateral profile of segment X trapezoid, its upper part slightly longer than cerci. Ventral arm of gonopods short. Lateral profile of phallic organ gradually broadening apically from basis. On female genitalia segment X and lamellae particularly slender and directed vertically.

**Etymology.** *temirlik* coined from the name of the holotype's locus typicus, as a noun in apposition.

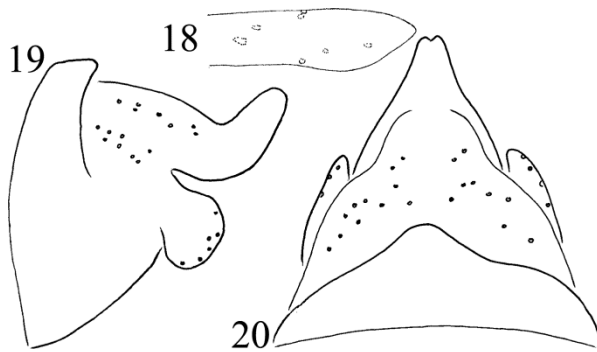
***Parasetodes ussuriensis* Martynov, 1935 stat. restit.**

(Figures 18–20, Map 1)

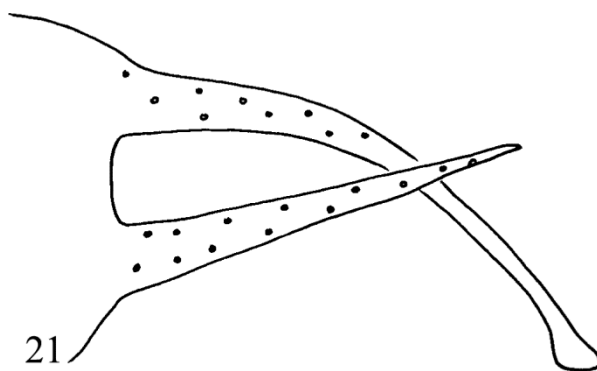
*Parasetodes ussuriensis* Martynov, 1935: 263–264. 3♀. Vicinities of the village Jakovlenka, South Ussuri region. [44°25'42"N 133°28'11"E].



**Figures 12–17.** *Parasetodes temirlik* sp. nov. Holotype: 12 = forewing brown membrane pattern, 13 = left lateral view of genitalia, 14 = left gonopod with apicomeseal lobe in ventral perpendicular view, 15 = phallic organ in lateral view. Allotype: 16 = female genitalia in lateral view, 17 = female genitalia in dorsal view.



**Figures 18–20.** *Parasetodes ussuriensis* Martynov, 1935. Reproduced from original drawings: 18 = forewing brown membrane pattern, 19 = female genitalia in lateral view, 20 = female genitalia in dorsal view.



**Figure 21.** *Parasetodes bakeri* (Banks, 1913). Holotype: 21 = original drawing of Banks.

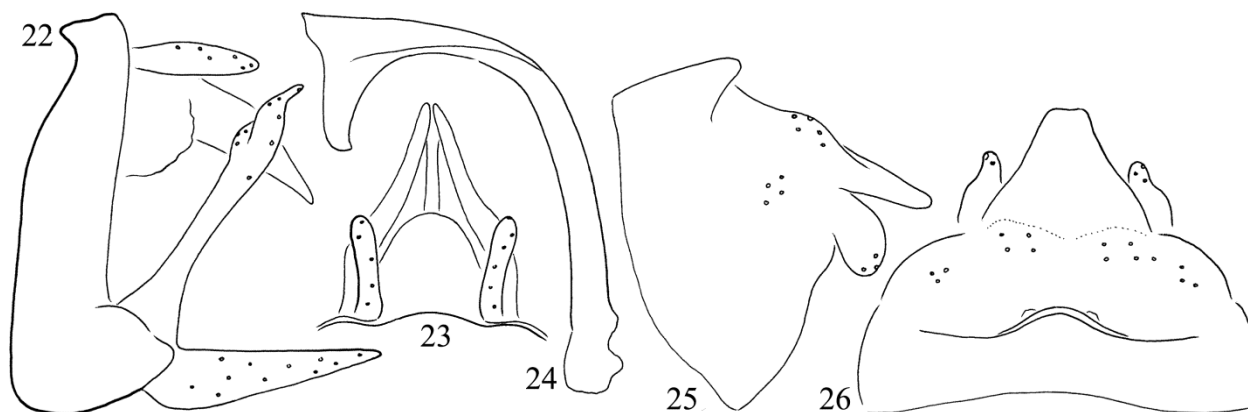
*Parasetodes bakeri* (Banks, 1913) (part.): Schmid 1958: 124–125. “Je suis tenté de croire que *P. bakeri* est synonyme de *ussuriensis* Mart., car les genitalia des ♀♀ sont fort semblables.”

*Parasetodes maculatus* (Banks, 1911) (part.): Yang & Morse 2000: 60. “possible synonym of *Parasetodes bakeri* according to Schmid, 1958, p. 124.”

*Parasetodes respersellus* (Rambur, 1842) (part.): Malicky 2006:1514–1515. Examining hundreds of his own *Parasetodes* specimens of the Palearctic and Oriental Fauna Regions, from Greece to Bali, has synonymised all the described species from both fauna regions, including *Parasetodes ussuriensis* Martynov, 1935 with the oldest name *Parasetodes respersellus* (Rambur, 1842).

**Remarks.** This species is described from females with very characteristic genital structures significantly differing from all the known *Parasetodes* females of the Palearctic fauna region. Its genital structure has some resemblance to *Parasetodes ratnapur* sp. nov. described here as a new species from Sri Lanka that was misidentified by Ulmer (1915) and Schmid (1958) as *Parasetodes bakeri* (Banks, 1913) the species known from a single male holotype collected in the Philippines. Here we have collected and described its female and its genital structures are different from the females of *Parasetodes ussuriensis* Martynov, 1935 and *P. ratnapur* sp. nov.





**Figures 22–26.** *Parasetodes bakeri* (Banks, 1913). Holotype: 22 = left lateral view of genitalia, 23 = genitalia in dorsal view, 24 = phallic organ in lateral view, 25 = female genitalia in lateral view, 26 = female genitalia in dorsal view.

Moreover, there are several distinct *Parasetodes* species on the huge area between the type localities of *Parasetodes ussuriensis* and *P. ratnapur* sp. nov. Here we reinstate its species status, **stat. restit.**

#### Oriental Fauna Region

##### *Parasetodes bakeri* (Banks, 1913) **stat. restit.**

(Figures 21–26, Map 2, 4)

*Leptocella bakeri* Banks, 1913: p. 177, pl. 9 fig. 15.

“From Los Banos, Philippine Islands (Baker).”

*Parasetodes maculata* (Banks, 1911) (part.): Kimmins 1963: 288. Synonymised with *Parasetodes maculatus* (Banks, 1911).

*Parasetodes maculatus* (Banks, 1911) (part.): Yang & Morse 2000: 60. “Holotype sex unknown; type repository unknown, possibly US National Museum of Natural History.”

*Parasetodes respersellus* (Banks, 1913) (part.): Malicky 2006: 1514–1515. Examining hundreds of his own *Parasetodes* specimens of the Palaearctic and Oriental Fauna Regions, from Greece to Bali, (Malicky 2006) has synonymised all the described species from both fauna regions, including *Parasetodes bakeri* (Banks, 1913) with the oldest name *Parasetodes respersellus* (Rambur, 1842).

**Material examined.** Holotype: **Philippine**, the label data are: “Los Banos, P. I. Baker”, “Type MCZ 11733” (1 male, MCZ). Philippine, Luzon, Dinalupihan, Roosevelt National Park, 9.V.1999, light, leg. Mey & Ebert (1 female, ZMB, 1 female, OPC).

**Remarks.** In the original species description (Banks 1913) the sex of the holotype was not reported, but according to type specimen and also the drawing of figure 15 on plate 9 it is a male. As usual, Banks’s drawing is inferior compared to the contemporary level of knowledge on genital structure. It is difficult to understand and interpret properly what exactly the original drawing represents. What we actually knew about this species described from Los Banos, Luzon Island of the Philippine Islands is from a brief description of the pattern of dark brown patches on the forewing and of the wing venation characters as well as the published drawing that represents only part of the genitalia. According to the examination of the holotype, this is a distinct valid species. Here we reinstate its species status, **stat. restit.** The reports from Sri Lanka (Ulmer 1915, 1951, Schmid 1958), as well as from India and Myanmar (Martynov 1936) are misidentifications.

**Re-diagnosis of male.** The examination of the holotype makes it possible to homologize what represents Banks’s original incomplete and partly incorrect drawing. The upper process is the phallic organ erroneously setose on its proximal half and the lower process is the ventral arm of the gonopod crossing each other. As visible on the redrawn holotype this unique phallic organ with very elongated phallosome is the most important diagnostic character of this species together with the short ventral arm of the gonopods compared to the dorsal arm of the gonopod. Unfortunately, the ventral profile of the dorsal arm is not drawn.

*Female.* The forewing brown membrane patches of the female are identical to the spotted pattern presented in the original species description. On the genitalia segment X is subtriangular in dorsal view with a clearly truncated apex, straight in lateral view slightly downward directed. Lamellae with broadened lateral basal half in dorsal view, short downward hanging in lateral view.

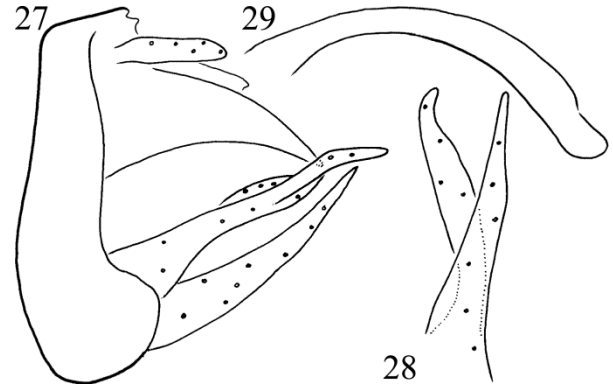
***Parasetodes bali* Oláh, sp. nov.**

(Figures 27–29, Map 2)

*Parasetodes respersellus* (Rambur, 1842) (part.): Malicky 2006: 1514–1515. “Mir liegen einige hundert Exemplare aus Nepal, Myanmar, Sri Lanka, Thailand, Laos, Vietnam, Sumatra und Bali vor. Es ist mir nicht gelungen, irgendwelche brauchbaren spezifischen Unterschiede zwischen diesen zu finden.” “Ich habe aber jetzt Stücke aus Griechenland bekommen, die wohl echte *P. respersellus* sind (die Art ist von Rambur aus Frankreich beschrieben worden) und die ich hier (Tafel 7) abbilde; sie unterscheiden sich nicht von asiatischen Stücken. Ich meine also, daß wir es überall mit *P. respersellus* zu tun haben, die dann also eine sehr weit verbreitete Art (von Westeuropa bis Bali: Taf. 7) wäre, fast so weit verbreitet wie *Oecetis tripunctata*, die von den britischen Inseln bis Bali (Malicky 2005) bekannt ist.”

*Material examined.* Malicky, 2006: 1514–1515, figures on Table 7. Specimen from Bali, deposited in Malicky’s private collection.

*Description and Diagnosis.* According to the drawings *Parasetodes bali* sp. nov. resembles *Parasetodes respersellus* (Rambur, 1842), but is clearly distinguished by the lateral shape of segment X tapering, not trapezoid; by the lateral and ventral profile of the dorsal arm of the gonopods and most clearly by the lateral shape of the phallic organ. *Parasetodes respersellus* has a characteristic head of the phallosome with dorsal produced lateral profile and with blunt ventroapical corner. While the head of the phallic organ of *Parasetodes bali* sp. nov. is not produced, but reduced subapically and without any ventroapical corners.



**Figures 27–29.** *Parasetodes bali* sp. nov. Holotype: 27 = left lateral view of genitalia, 28 = left gonopod with apicomeresal lobe in ventral perpendicular view, 29 = phallic organ in lateral view.

*Etymology.* *bali* coined from the name of the holotype’s *locus typicus*, as a noun in apposition.

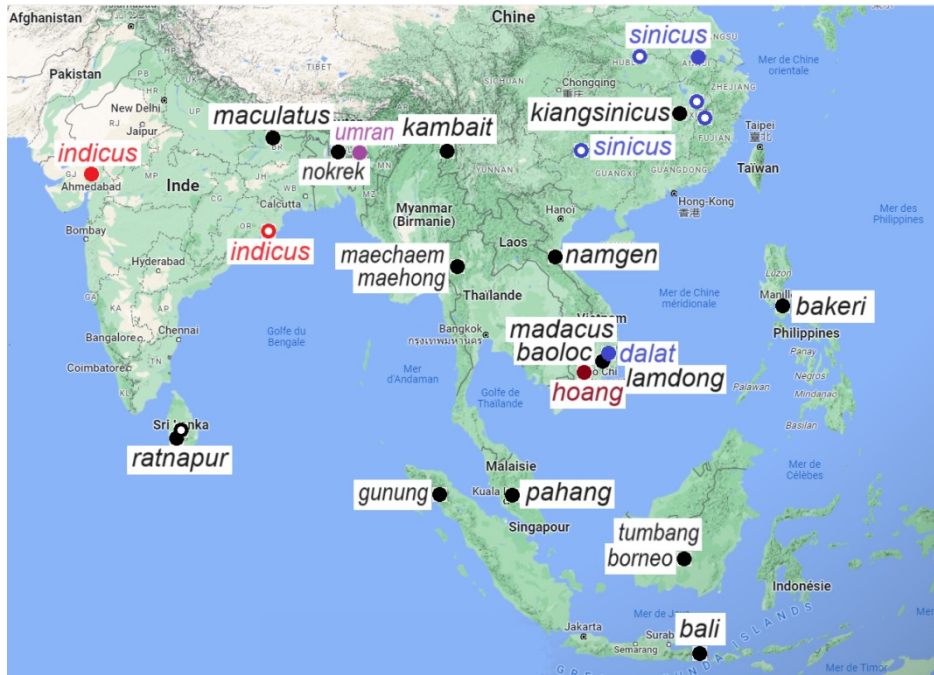
*Remarks.* The delineation and description of this new species are based on Malicky’s drawings. However, in this drawing the ventral pattern of the dorsal arm of the gonopod, this titillating structure seems to be the speciation trait in the *Parasetodes* genus, is not detailed or drawn properly. It would be useful to re-examine and redraw the type specimen in order to confirm the ventral profile of this structure so diverse in genus *Parasetodes*, covering the speciation trait criteria.

***Parasetodes baoloc* Oláh, sp. nov.**

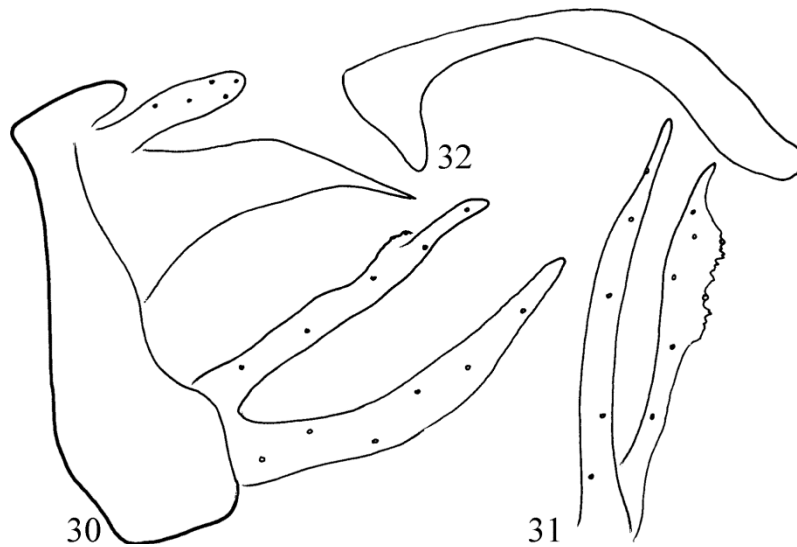
(Figures 30–32, Map 2, 3)

*Material examined.* Holotype: **Vietnam**, Lamdong, Baoloc, [Bảo Lộc, Lâm Đồng] Dai Binh River, 22.X.1988, light leg. J. Oláh (1 male, OPC). Paratype: Vietnam, Lamdong, Baoloc, River Da Nga, 21.X.1988, light, leg. J. Oláh (1 male, OPC).

*Diagnosis.* According to the genital structure *P. baoloc* sp. nov. is close to *Parasetodes madaucus* sp. nov. but differs by the less developed brown membrane patch pattern with only four patches compared to over ten patches of *P. madaucus*. There are distinct divergences also in the genital structures. In *P. baoloc* sp. nov. the lateral



Map 2. *Parasetodes* species of the Oriental Faunal Region



Figures 30–32. *Parasetodes baoloc* sp. nov. Holotype: 30 = left lateral view of genitalia, 31 = left gonopod with apicomasal lobe in ventral perpendicular view, 32 = phallic organ in lateral view.

profile of segment X is trapezoid, not simply tapering; the ventral profile of the dorsal arm of the gonopod is less broad and without distinct middle excision on its mesal margin; the lateral curvature and the basal region of the phallic organ is diverged.

*Description.* Small-sized animal. Forewing length 8 mm. Forewing anastomosis arranged not in a nearly straight line, it is arched due to the anterad shifted m-cu crossvein. The hyaline window on middle section of M stem present and rounded. Brown membrane pattern characterized

by thickened darker vein just on the very base-ment of the two apical forks and on anastomosis crossveins as well as by four real membrane browned patches, two rounded medium sized be-fore pterostigma, one the most developed and ho-rizontally elongated on the M-Cu fork area and one the smallest on the basoanal region where the empusal vein meets 1A. On male genitalia the la-teral profile of segment X trapezoid, its upper part is slightly longer than cerci. Ventral arm of gono-pod is slightly longer than the dorsal arm. Lateral profile of the phallic organ with very slim smaller basal half and slightly broader larger apical half.

*Etymology.* *baoloc* coined from the name of the holotype's *locus typicus*, as a noun in appo-sition.

***Parasetodes borneo* Oláh & Mey, sp. nov.**

(Figures 33–35, Map 2)

*Material examined:* Holotype: **Indonesia**, Borneo, Kalimantan, Kewah, Tumbang Korik, 28. I.1996, leg. A. Kallies (1 male, MfN). Paratype: same as holotype (1 male, OPC).

*Diagnosis.* This species resembles *P. tumbang* sp. nov., collected and described here from the same habitat, but differs by the abbreviated apical finger and straight without constricted titillating plate on the dorsal arm of the gonopod; by the longer and more slender ventral arm of the go-nopod as well as by the lateral profile of the phal-lic organ with rounded ventroapical corner of the head of the phallotheca.

*Description.* Medium-sized. Forewing length 8 mm. Forewing anastomosis not arranged in a straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern in-distinct. In male genitalia lateral profile of seg-ment X tapering and abruptly narrowing before the pointed apex, double long than cerci, slightly curving downward. Cerci short. Ventral profile of dorsal arm of gonopods with short, even tiny apical finger, the titillating plate with straight dentate mesal stimulating surface without con-striction on middle; ventral arm of gonopods as

long as dorsal arm, slightly upward curving. Lateral profile of phallic organ arching and broad-ening from middle, apex monolobed, ventroapical corner rounded; dorsal and ventral margin undu-lating on the apical third of the phallotheca.

*Etymology.* *borneo* coined from the name of the holotype's *locus typicus*, as a noun in ap-position.

***Parasetodes dalat* Oláh, sp. nov.**

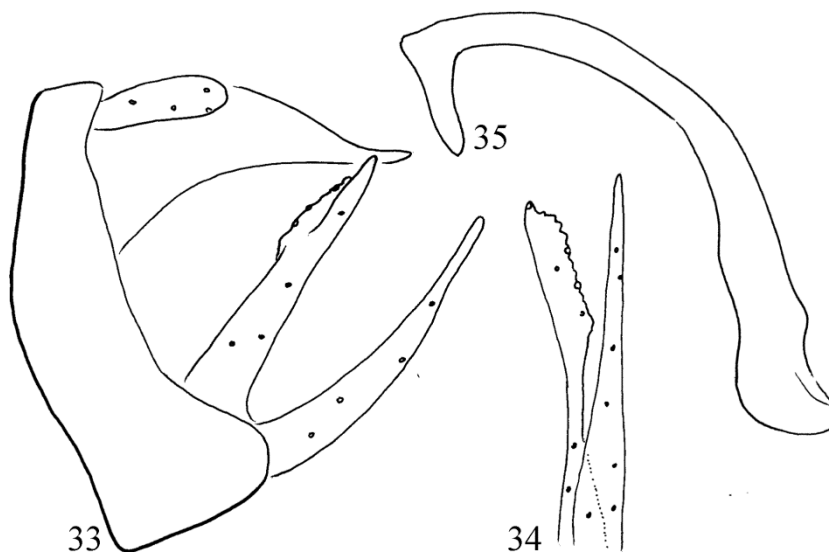
(Figure 36–38, Map 2, 3)

*Material examined.* Holotype: **Vietnam**, Lam-dong, Dalat, [Đà Lạt, Lâm Đông], Monastery bal-cony, 19.X.1988, light, leg. J. Oláh (1 male, OPC).

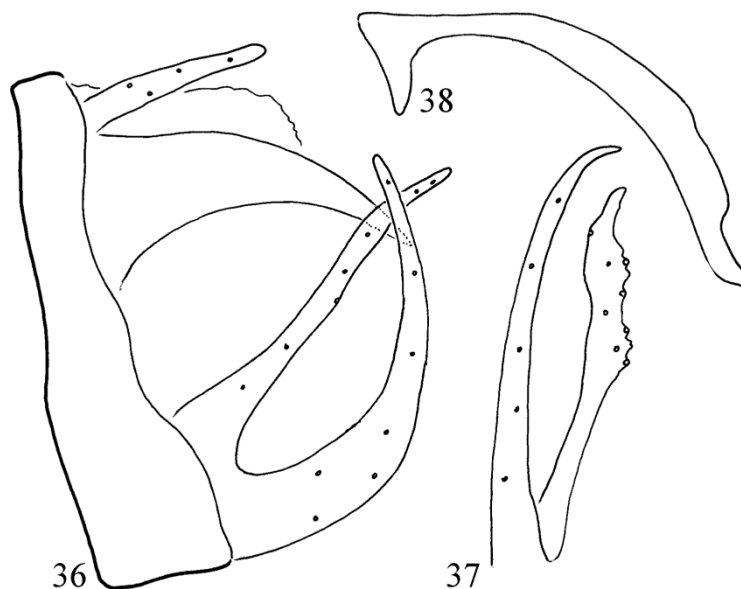
*Diagnosis.* According to the genital structure *Parasetodes dalat* sp. nov. is close to *P. madacus* sp. nov. but differs by the less developed brown membrane patch pattern with only about 9 patches compared to 15 patches of *P. madacus* sp. nov. There are distinct divergences also in the genital structures. *Parasetodes dalat* sp. nov. have slender cerci, not broad; the ventral profile of the dor-sal arm of the gonopod narrow and with elongate-d, shallow middle excision on its mesal margin; the lateral curvature and the basal region of the phallic organ are also diverged; the head of the phallic organ half as high.

*Description.* Medium sized animal. Forewing length 9 mm. Forewing anastomosis not arranged in a nearly straight line, it is arched due to the anterad shifted m-cu crossvein. The hyaline win-dow on middle section of M stem present and rounded. Brown membrane pattern is present with about 9 patches, but indistinct. On male genitalia the lateral profile of segment X tapering, about double longer than cerci. Cerci slender. Ventral arm of gonopod is almost equal with the dorsal arm, but curving upward, almost semicircular. Lateral profile of the phallic organ gradually broadening apically from middle to apicad, ex-cised dorsoapicad.

*Etymology.* *dalat* coined from the name of the holotype's *locus typicus*, as a noun in apposition.



**Figures 33–35.** *Parasetodes borneo* sp. nov. Holotype: 33 = left lateral view of genitalia, 34 = left gonopod with apicomesal lobe in ventral perpendicular view, 35 = phallic organ in lateral view.



**Figures 36–38.** *Parasetodes dalat* sp. nov. Holotype: 36 = left lateral view of genitalia, 37 = left gonopod with apicomesal lobe in ventral perpendicular view, 38 = phallic organ in lateral view.

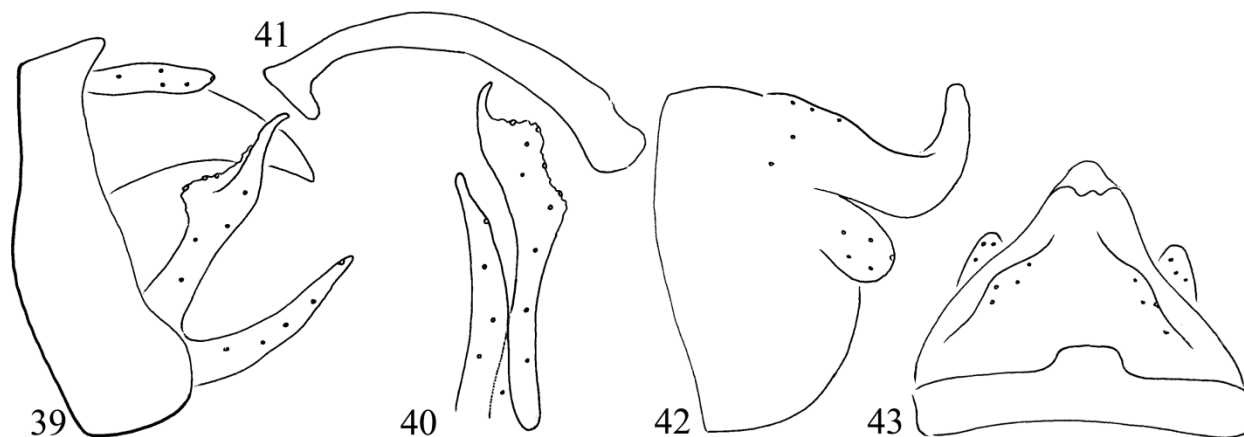
***Parasetodes gunung* Oláh & Mey, sp. nov.**

(Figures 39–43, Map 2)

*Material examined:* Holotype: Indonesia, Sumatra, Ketambe, 200 m, 30k m NNW Kutacane, Gunung Leuser National Park, 22-24.1.1995, leg. A. Kallies (1 male, MfN). Allotype: same as

holotype (1 female, MfN). Paratype: same as holotype (1 female, OPC).

*Diagnosis.* This species has some resemblance to *P. pahang* sp. nov., collected and described from Malaysia, but differs by the more slender and mesad curving apical finger and more produced broader titillating plate on the dorsal arm of



Figures 39–43. *Parasetodes gunung* sp. nov. Holotype: 39 = left lateral view of genitalia, 40 = left gonopod with apicomesal lobe in ventral perpendicular view, 41 = phallic organ in lateral view. Allotype: 42 = female genitalia in lateral view 43 = female genitalia in dorsal view.

the gonopod; by the shorter ventral arm of the gonopod as well as by the lateral profile of the phallic organ without produced ventroapical corner on the head of the phallosome.

*Description.* Medium-sized species; forewing length 8 mm. Forewing anastomosis not arranged in a straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern indistinct. In male genitalia lateral profile of segment X tapering with less pointed apex, double long than cerci, slightly curving downward. Cerci short. Ventral profile of dorsal arm of gonopods with long, mesad curving apical finger, the titillating plate rather enlarged with slightly middle constricted mesal stimulating surface; ventral arm of gonopods shorter than dorsal arm, stout and slightly upward curving. Lateral profile of phallic organ arching and gradually broadening; apex monolobed, ventroapical corner rounded; slight dorsoapical excision present.

On the female genitalia segment X is subtriangular in dorsal view with a small apical excision, upward curving in lateral view. Lamellae short and rounded broad, obliquely downward hanging in lateral view.

*Etymology.* *gunung* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

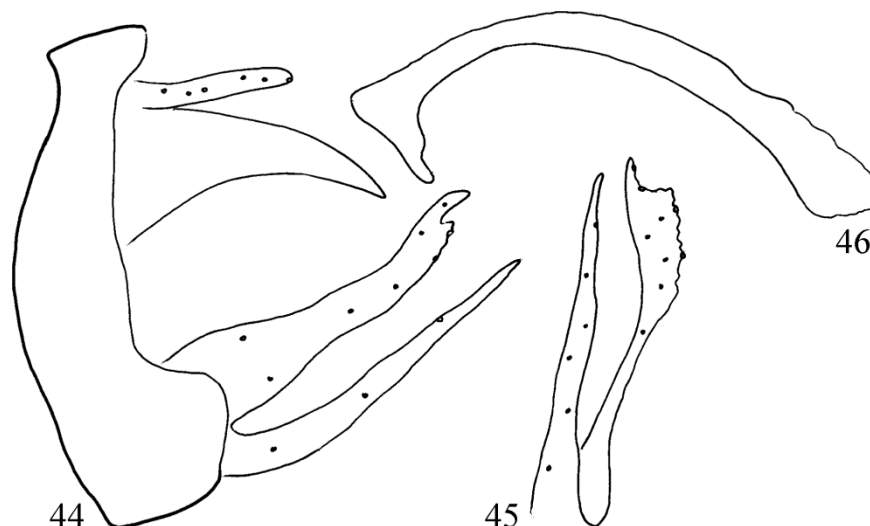
### *Parasetodes hoang* Oláh, sp. nov.

(Figures 44–46, Map 2, 3)

*Material examined.* Holotype: **Vietnam**, Ho Chi Minh (Saigon), Than Loc [Thanh Lộc] fishpond, 12.X.1988, light, leg. J. Oláh (1 male, OPC).

*Diagnosis.* According to the genital structure *P. hoang* sp. nov. is close to *P. madacus* sp. nov. but differs by the less developed brown membrane patch pattern with only about 9 patches compared to 15 patches of *P. madacus* sp. nov.; moreover the patch pattern is confluent with the more extensive lighter brown basic pattern. There are distinct divergences also in the genital structures. In *P. hoang* sp. nov. the cerci are slender, not broad; the ventral profile of the dorsal arm of the gonopod with a right-angled apicomesal corner, and without any middle excision on its mesal margin; the lateral curvature and the basal region of the phallic organ have also diverged; the head of the phallic organ is clavate.

*Description.* Medium sized animal. Forewing length 9 mm. Forewing anastomosis not arranged in a nearly straight line, it is arranged in step-wise due to the significantly anterad shifted m-cu crossvein. The hyaline window on middle section of M stem present and rounded. Brown membrane



Figures 44–46. *Parasetodes hoang* sp. nov. Holotype: 44 = left lateral view of genitalia, 45 = left gonopod with apicomesal lobe in ventral perpendicular view, 46 = phallic organ in lateral view.

pattern is present with about 6 patches, but indistinct and confluent with the more extensive less pigmented brown pattern. On male genitalia the lateral profile of segment X tapering, half longer than cerci. Cerci slender. Ventral profile of the dorsal arm of the gonopod broad, with right-angled apicomesal corner and without middle excision mesad; ventral arm of gonopod is equal to the dorsal arm, almost straight. Lateral profile of the phallic organ gradually broadening from basad to apicad, with clavate head.

*Etymology.* *hoang*, “*trang hoang*” means colourful, decorate in Vietnamese language referring to the collector’s striking primary experience when first recognised the splendid, colourful intact *Parasetodes* specimen sitting on the brightly illuminated white sheet. Unfortunately the important character state of the forewing colour pattern was immediately lost in alcohol.

***Parasetodes indicus* Oláh, sp. nov.**

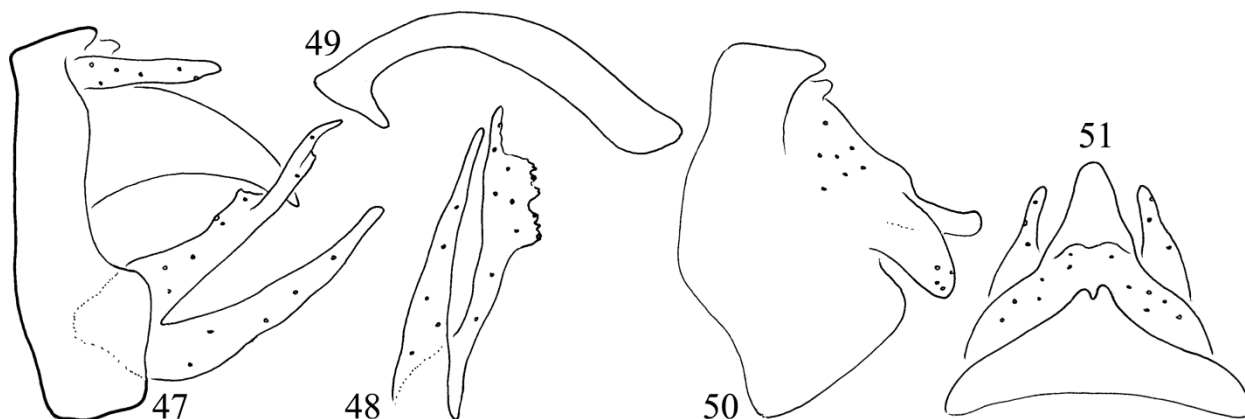
(Figures 47–51, Map 2)

*Material examined.* Holotype: **India**, Gujarat, Ghandinagar, River Sabarmati, 22.IV.1992, light, leg. J. Oláh (1 male, OPC). Allotype: same as holotype (1 female, OPC). Paratypes: same as holotype (5 males, OPC). India, Orissa State

[Odisha State], Bhubaneswar, Daya River, 20. II.1985, light, leg. J. Oláh (1 male, 1 female; OPC). India, Orissa State, Bhubaneswar, Daya River, 21.II.1985, light, leg. J. Oláh (1 male, 2 females; OPC).

*Diagnosis.* According to the genital structure *P. indicus* sp. nov. resembles *P. respersellus* (Rambur, 1842) but differs by the less developed (or disappeared) brown membrane patch pattern. There are distinct divergences in the genital structures as well. In *P. indicus* sp. nov. the lateral profile of segment X downward curving and tapering, not trapezoid; the ventral profile of the dorsal arm of the gonopod is broader with right-angled apicomesal corner, and with some middle excision on its mesal margin. The lateral curvature and the basal region of the phallic organ have also diverged; the head of the phallic organ is without a blunt ventroapical corner. The female genital structure differs from all the known *Parasetodes* females with its less developed segment X and more developed lamellae in lateral view.

*Description.* Medium sized animal. Forewing length 9 mm. Forewing anastomosis arranged not in a nearly straight line, arranged step-wise due to the significantly anterad shifted m-cu crossvein. Hyaline window on middle section of M stem



**Figures 47–51.** *Parasetodes indicus* sp. nov. Holotype: 47 = left lateral view of genitalia, 48 = left gonopod with apicomesal lobe in ventral perpendicular view, 49 = phallic organ in lateral view. Allotype: 50 = female genitalia in lateral view, 51 = female genitalia in dorsal view.

present and rounded. Brown membrane pattern indistinct. In male genitalia lateral profile of segment X tapering, double longer than cerci. Cerci slender. Ventral profile of dorsal arm of the gonopod extremely broad, almost quadrangular with right angled apicomesal corner and with small indistinct middle excision mesad; ventral arm of gonopod equal with dorsal arm, almost straight. Lateral profile of the phallic organ gradually broadening from basad to apicad, with obliquely cut head. Female genital structure characterized by bilobed apicodorsal mesal apex in dorsal view; by less developed segment X and more developed lamellae.

*Etymology.* *indicus* coined from the country name of the holotype's *locus typicus*.

***Parasetodes kambait* Oláh & Johanson, sp. nov.**

(Figures 52–54, Map 2)

*Material examined.* Holotype: **Myanmar**, N.E Myanmar, Kambaiti [Kan Paik Ti], 2000 m, 21.V.1934, leg. R. Malaise (1 male, SMNH).

*Diagnosis.* The genital structure, particularly the straight segment X and straight phallic organ distinguishes this species from all the other species of the genus.

*Description.* Medium-sized animal. Forewing length 9 mm. Forewing anastomosis not arranged in straight line, but arranged step-wise due to anterad-shifted m-cu crossvein. Hyaline window on middle section of M stem and brown membrane pattern indistinct. Male genitalia in lateral profile of segment X tapers with pointed apex; double as long as cerci, straight, not curving downward. Cerci broad. Ventral profile of dorsal arm of the gonopod broad, without right angled apicomesal corner and with small indistinct middle excision mesad; ventral arm of gonopods longer than dorsal arm, slightly arching upward. Phallic organ particularly organised; almost straight, not curving with broad apical half and narrow head, a particularly developed erected row of long fragile filament, attached together, is present ventrad.

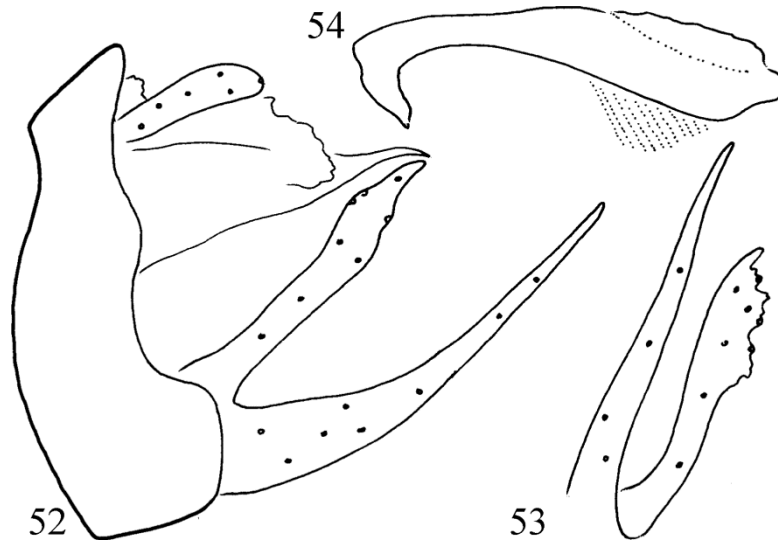
*Etymology.* *kambait* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

***Parasetodes kiangsini* (Ulmer, 1932) stat. restit.**

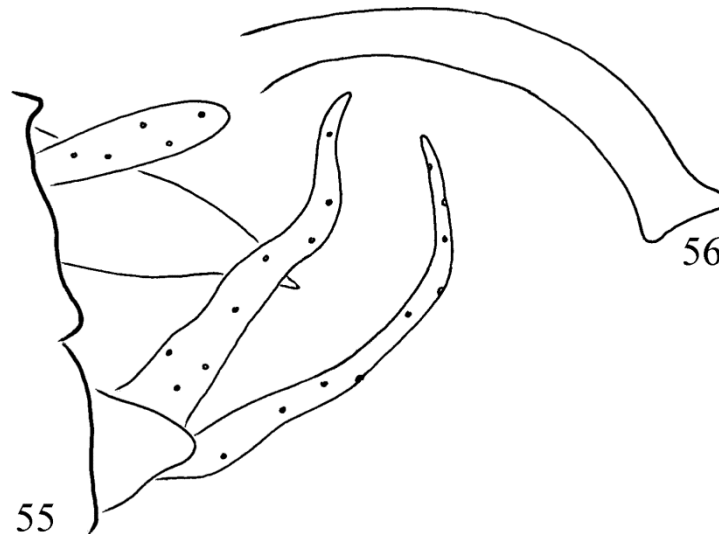
(Figures 55–56, Map 2)

*Leptocella kiangsini* Ulmer, 1932: 59–60: **China**: “Material: 1 ♂, C 28, Kiangsi [Jiangxi], C. F. Wu





**Figures 52–54.** *Parasetodes kambait* sp. nov. Holotype: 52 = left lateral view of genitalia, 53 = left gonopod with apicomasal lobe in ventral perpendicular view, 54 = phallic organ in lateral view.



**Figures 55–56.** *Parasetodes kiangsanicus* (Ulmer, 1932). Original drawings: 55 = left lateral view of genitalia, 56 = phallic organ in lateral view.

leg., im Museum der Yenching University.” “Das einzige ♂, in Spiritus konserviert, sieht infolge der mit dunklen Aderpunkten gezierten Vorderflügel der *Leptocella bakeri* Bks. u. a. ähnlich.”

*Parasetodes kiangsanicus* (Ulmer, 1932): Yang & Morse, 2000: 59–60. “holotype=male; type repository=Museum of Yen-ching (now Beijing University); type locality=Jiang-xi Province.” “The existence of the holotype of this species is in doubt. We did not find this species in our collecting.”

*Parasetodes respersellus* (Ulmer, 1932) (part.): Malicky 2006: 1514–1515. Examining hundreds of his own *Parasetodes* specimens of the Palaearctic and Oriental Fauna Regions, from Greece to Bali, Malicky (2006) has synonymised all the described species from both fauna regions, including *Parasetodes kiangsanicus* (Ulmer, 1932) with the oldest name *Parasetodes respersellus* (Rambur, 1842).

*Remark.* Our knowledge on this species is limited to the original description and drawings. The type probably is lost. However, the original Ulmer's drawing characterizes this species, particularly by the lateral profile of the dorsal and ventral arms of the gonopods, as well as the lateral profile of the phallic organ. The drawings are complete enough to identify newly collected male specimens.

***Parasetodes lamdong* Oláh, sp. nov.**

(Figures 57–59, Map 2, 3)

*Material examined.* Holotype: **Vietnam**, Lamdong, Baoloc [Bảo Lộc, Lâm Đồng], River Da Nga, 21.X.1988, light, leg. J. Oláh (1 male, OPC).

*Diagnosis.* The S-shaped head of the phallic organ distinguishes this species from all the other species of the genus.

*Description.* Medium-sized animal. Forewing length 9 mm. Forewing anastomosis not arranged in straight line, but arranged step-wise due to

anterad shifted m-cu crossvein. Hyaline window on middle section of M-stem and brown membrane pattern indistinct. In male genitalia the lateral profile of segment X tapers, with pointed apex; almost double as long as cerci and curving downward. Cerci slender. Ventral profile of dorsal arm of gonopods narrow, without right angled apicomesal corner and with shallow middle constriction mesally; ventral arm of gonopods slightly longer than dorsal arm, arching downward. Phallic organ with characteristic S-shaped head.

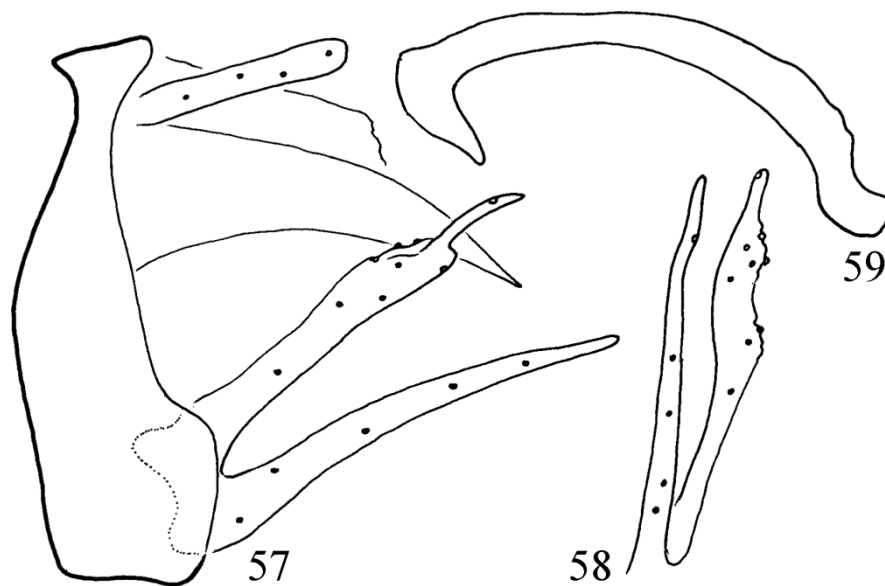
*Etymology.* *lamdong* coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes maculatus* (Banks, 1911) stat. restit.**

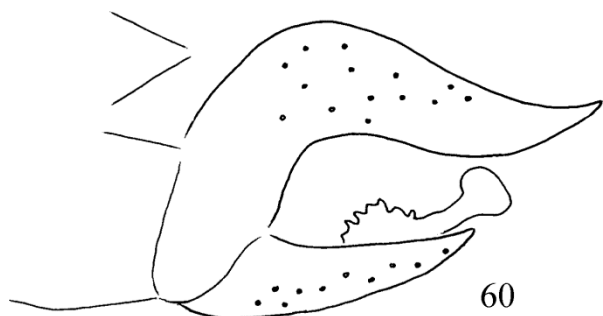
(Figures 60, Map 2)

*Leptocella maculata* Banks, 1911: 104, pl. 6 fig. 6: "From Pusa [25.9837, 85.6752], Bengal, July 30, on rice leaves."

**non** *Parasetodes maculata* (Banks): Kimmins 1963: 288. Recorded from India, Ceylon, and Burma. Misidentification.



**Figures 57–59.** *Parasetodes lamdong* sp. nov. Holotype: 57 = left lateral view of genitalia, 58 = left gonopod with apicomesal lobe in ventral perpendicular view, 59 = phallic organ in lateral view.



**Figure 60.** *Parasetodes maculatus* (Banks, 1913). Holotype, original drawing of Banks.

*Parasetodes maculatus* (Banks, 1911): Yang & Morse 2000:60. “holotype = male; type repository = possibly USNM (United States Museum of Natural History); type locality = “Pusa, Bengal (India).”

*Parasetodes respersellus* (Rambur, 1842) (part.): Malicky 2006: 1514–1515. Examining hundreds of his own *Parasetodes* specimens of the Palaearctic and Oriental Fauna Regions, from Greece to Bali, Malicky (2006) has synonymised all the described species from both fauna regions, including *Parasetodes maculatus* (Banks, 1911) with the oldest name *Parasetodes respersellus* (Rambur, 1842).

**Remarks.** The type is not available. Our knowledge is limited to the very poor description and the very incomplete original drawings. However, in *P. maculatus* (Banks, 1911) apparent forks 1 and 3 on forewing are of equal length while in *P. respersellus* (Rambur, 1842) apparent fork 3 is longer; the dorsal arm of gonopod is robust S-shaped, not slender straight and the apex of phallic organ circular, not truncate.

***Parasetodes madacus* Oláh & Johanson, sp. nov.**

(Figures 61–66, Map 2, 3)

**Material examined.** Holotype: **Vietnam**, Dong Nai Province, Vinh Cuu District, Vinh Cuu Nature Reserve, Ma Da stream, 11°22'38.2"N, 107°03'36.7"E, 78 m, loc#VN016, 16.IV.2011, light trap, leg. K. A. Johanson & T. T. Du (1 male, SMNH). Allotype: Vietnam, Dong Nai Province, Vinh Cuu District, Vinh Cuu Nature Reserve, Ma Da stream, 11°23'05.3"N, 107°03'38.7"E, 59m, loc#VN019, 19.IV.2011,

light trap, leg. K. A. Johanson & T. T. Du (1 female, SMNH). Paratypes: same as allotype (1 female, SMNH; 2 females, OPC)

**Diagnosis.** According to the genital structure *P. madacus* sp. nov. is close to *P. baoloc* sp. nov. but differs by the more developed brown membrane patch pattern with 15 patches compared to four patches of *P. baoloc* sp. nov. There are distinct divergences also in the genital structures. In *P. madacus* sp. nov. the lateral profile of segment X is simply tapering, not trapezoid; the ventral profile of the dorsal arm of the gonopod is broad and with distinct middle excision on its mesal margin; the lateral curvature and the basal region of the phallic organ have also diverged.

**Description.** Small sized animal with forewing length 8 mm. Forewing anastomosis not arranged straight line, but arched due to anterad shifted m-cu crossvein. Hyaline window on middle section of M stem present and rounded. Brown membrane pattern as presented in the forewing drawing. Male genitalia segment X tapering in lateral profile, longer than cerci. Ventral arm of gonopods slightly longer than dorsal arm. Lateral profile of phallic organ gradually broadening apically from basis. In female genitalia segment X deeply excised apically in dorsal view and upward curving almost semicircular in lateral view; lamellae very small.

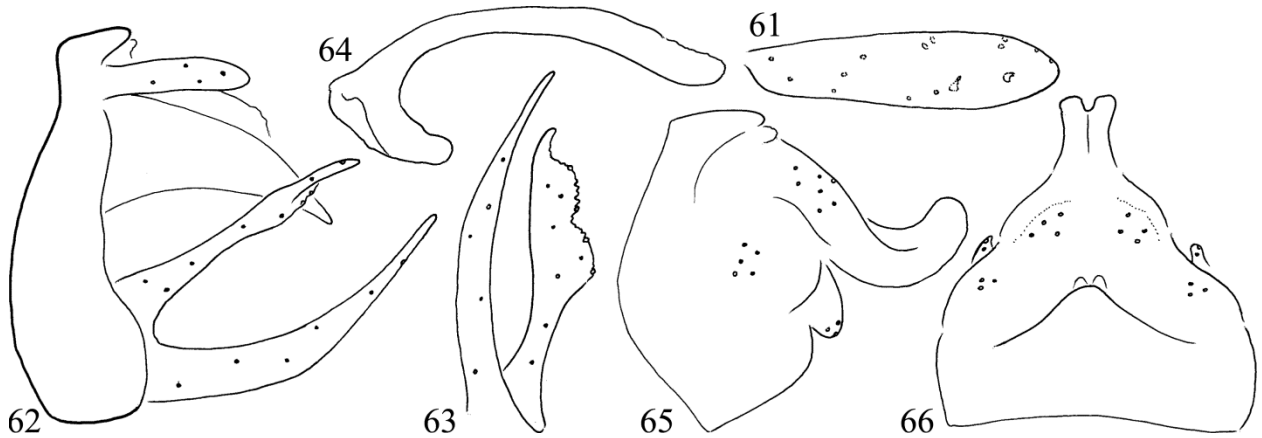
**Etymology.** *madacus* coined from the name of the *locus typicus*.

***Parasetodes maechaem* Oláh & Mey, sp. nov.**

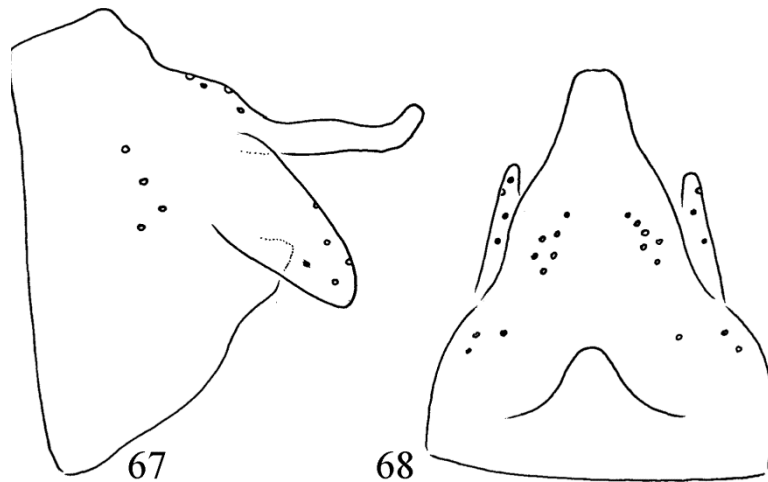
(Figures 67–68, Map 2)

**Material examined.** Holotype: **Thailand**, Mae Hong Son Province, Mae Chaem River, Hot Resort, 18°12'07N, 98°36'33"E, 268 m, loc #Tr08, 17.IV.2003, leg. D. Braasch (1 female, MfN).

**Diagnosis.** According to the female genital structure this species differs very significantly from its cohabitant *P. maehong* sp. nov. and from all the known *Parasetodes* females. The uniquely



**Figures 61–66.** *Parasetodes madacus* sp. nov. Holotype: 61 = forewing brown membrane pattern, 62 = left lateral view of genitalia, 63 = left gonopod with apicomesal lobe in ventral perpendicular view, 64 = phallic organ in lateral view. Allotype: 65 = female genitalia in lateral view, 66 = female genitalia in dorsal view.



**Figures 67–68.** *Parasetodes maechaem* sp. nov. Holotype: 67 = female genitalia in lateral view, 68 = female genitalia in dorsal view.

slender and digitiform lateral shape of segment X has some resemblance to *P. tumbang* sp. nov., but it is truncated, not narrowing rounded in dorsal view and straight with upward turning apex, not curving upward along its entire length; moreover lamellae are giant in *P. maechaem* sp. nov. and very tiny in *P. tumbang* sp. nov.

*Description.* Genitalia with mesal dorsoapical lobe rather narrowing in dorsal view; dorsal profile of segment X elongated triangular with truncated apex; in lateral view uniquely slender

digitiform and very apex turning upward; lamellae very produced, in lateral view obliquely directed downward.

*Remarks.* This species was collected from the same habitat as the *P. maehong* sp. nov., but without any male specimen. Nevertheless, the female genital structures exhibit significant character state differences. Here we describe *Parasetodes maechaem* sp. nov. as a distinct, independent species in the hope that its male will be collected within short.

*Etymology.* *maechaem*, coined from the name of the holotype's *locus typicus*, as a noun in apposition.

***Parasetodes maehong* Oláh & Mey, sp. nov.**

(Figures 69–73, Map 2)

*Material examined.* Holotype: **Thailand**, Mae Hong Son Province, Mae Chaem river, Hot Resort, 18°12'07N, 98°36'33"E, 268 m, loc #Tr08, 17.IV.2003, leg. D. Braasch (1 male, MfN). Allotype: same as holotype (1 female, MfN). Paratypes: same as holotype (2 females, OPC).

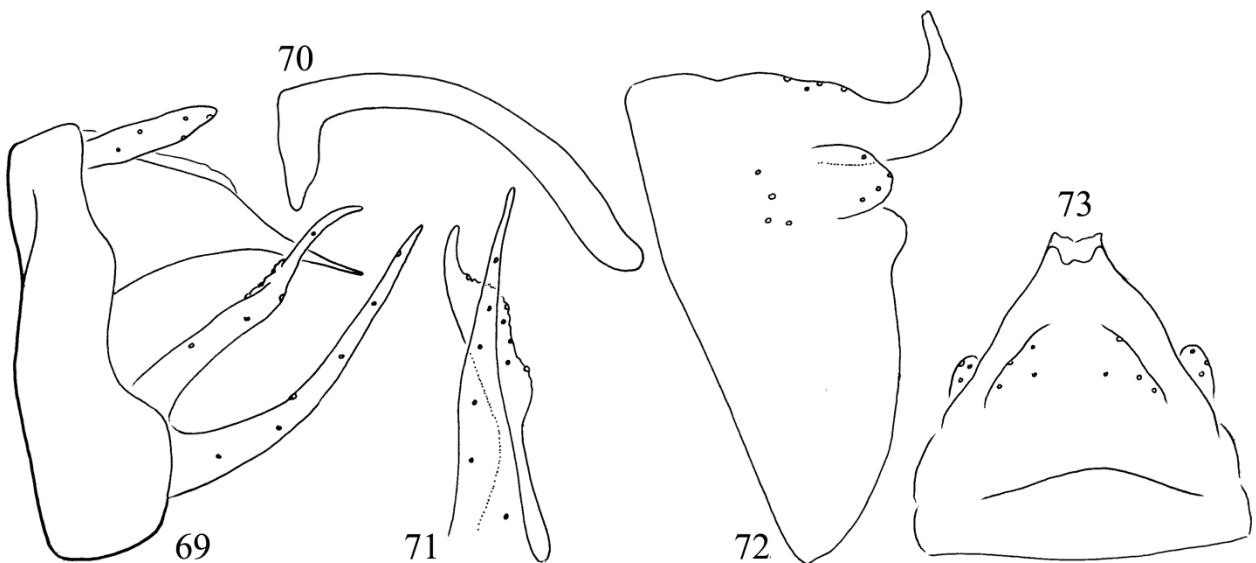
*Diagnosis.* According to the genital structure *P. maehong* sp. nov. has resemblance to *P. baoloc* sp. nov. and *P. madacus* sp. nov., but differs from both by the filiform apical half of segment X, by the very slender lateral shape of the dorsal arm of gonopod as well as by the particular lateral shape of the phallic organ. The female genitalia is completely different from the known female genitalia of *P. madacus* sp. nov., but has some resemblance to the female genitalia of *P. gunung*

sp. nov., however the lateral profile of segment X is more tapering, lamellae short and broad.

*Description.* Small-sized animal. Forewing length 7 mm. Forewing anastomosis not arranged in straight line, but arched due to anterad shifted m-cu crossvein. Hyaline window on middle section of M stem indiscernible. On male genitalia the lateral profile of segment X tapering, almost filiform from midway and double long than cerci. Titillating plate of the dorsal arm of gonopod with long digitiform ending, broad and slightly constricted middle. Ventral arm of gonopods is slightly longer than dorsal arm. Lateral profile of phallic organ forms an almost regular tube regularly curving from basad to apicad.

On the female genitalia segment X is subtriangular in dorsal view with a small apical excision, upward curving and significantly tapering in lateral view. Lamellae very short and rounded broad, obliquely downward hanging in lateral view.

*Etymology.* *maehong* coined from the name of the holotype's *locus typicus*, as a noun in apposition.



**Figures 69–73.** *Parasetodes maehong* sp. nov. Holotype: 69 = left lateral view of genitalia, 70 = left gonopod with apicomesal lobe in ventral perpendicular view, 71 = phallic organ in lateral view. Allotype: 72 = female genitalia in lateral view, 73 = female genitalia in dorsal view.

***Parasetodes namgen* Oláh & Johanson, sp. nov.**

(Figures 74–76, Map 2)

*Material examined.* Holotype: **Laos** PDR, Luang Namtha Prov. Nam Ha NBCA, Nam Gngang [Nam Ngang] stream, 300 m upstr. Namgngen Village, 558mao, UTM 47Q 0746256, UTM 2321311, Malaise trap, loc#24, 29.IV.-1.V.2005, leg. N. Jönsson, T. Malm and B. Viklund (1 male, SMNH).

*Diagnosis.* The very broad lateral and the particular ventral profile of the dorsal arm of the gonopods as well as the short and broad ventral arm of the gonopods distinguish this species from all other known members of *Parasetodes*.

*Description.* Medium-sized animal. Forewing length 9 mm. Forewing anastomosis arranged in step-wise due to anterad shifted m-cu crossvein. Male genitalia in lateral profile with segment X with blunt downward directed apex; half as long as cerci and curving downward. Cerci broad. Lateral profile of dorsal arm of gonopod, uniquely very broad with terminal digitate process; in ventral profile dorsal arm of gonopod subquadangular, without produced apicomesal corner, excision or mesal constriction; ventral arm of gonopods is broad and short, much than the dorsal arm, straight with slightly upward directed narrowing apex. Phallic organ with truncate head.

*Etymology.* *namgen* coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes nokrek* Oláh & Mey, sp. nov.**

(Figures 77–79, Map 2)

*Material examined.* Holotype: **India**, Meghalaya, Garo Hills, Nokrek National Park, 25°27'N, 90°26'E, 2-13.VII.1997, leg. Afonin & V. Siniaev (1 male, MfN).

*Diagnosis.* According to the genital structure *P. nokrek* sp. nov. has resemblance to *P. umran* sp. nov. and *P. indicus* sp. nov., but differs from both by the blunt head of segment X, not pointed,

by the less broad titillating plate as well as by the lateral profile of the phallic organ curving along its entire length and the phallic apex with pronounced ventroapical rounded angle.

*Description.* Medium sized animal. Forewing length 9 mm. Forewing anastomosis arranged in arche due to anterad shifted m-cu crossvein. Hyaline window on middle section of M stem indiscernible. Male genitalia in lateral profile with segment X tapering, with blunt apex. Titillating plate of the dorsal arm of gonopod with long digitiform ending, medium broad and slightly constricted middle. Ventral arm of gonopods almost as long as dorsal arm. Lateral profile of phallic organ forms almost regular tube regularly curving from basis to apex with ventroapical produced rounded corner.

*Etymology.* *nokrek* coined from the name of the *locus typicus*, as a noun in apposition.

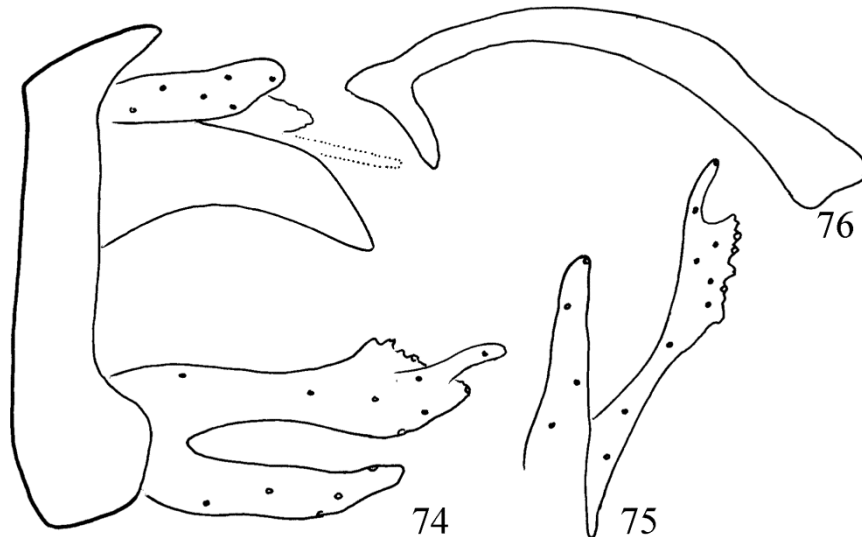
***Parasetodes pahang* Oláh, sp. nov.**

(Figures 80–82, Map 2)

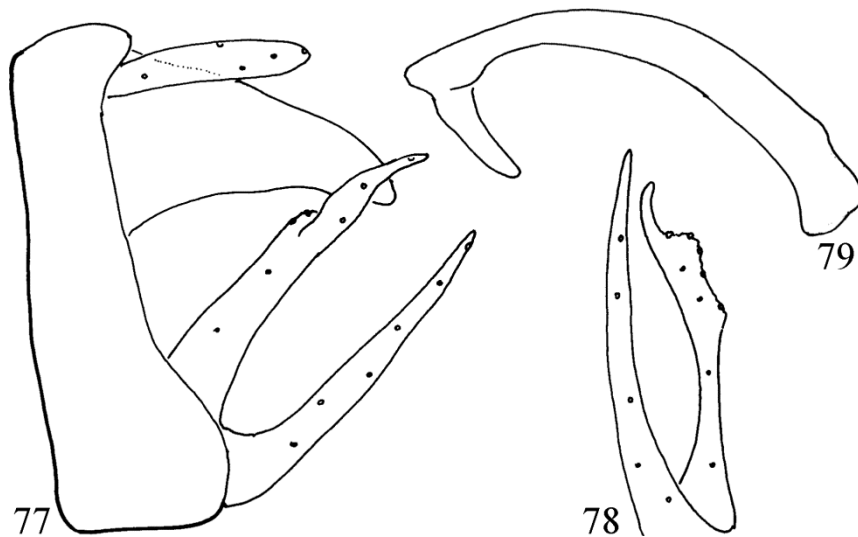
*Material examined.* Holotype: **Malaysia**, W. Pahang, Genting Tea Estate, 2000 ft, 22–31.X. 1981, light, leg. K. R. Tuck (1 male, OPC).

*Diagnosis.* This small species has a resemblance to *P. respersellus* (Rambur, 1842), but differs by the tapering, not trapezoid, lateral profile of segment X; by the longer and narrower titillating region of the dorsal arm as well as by the different curvature of the lateral profile of the phallic organ.

*Description.* Small-sized animal. Forewing length 7 mm. Forewing anastomosis not arranged in straight line, but step-wise due to anterad shifted m-cu crossvein. Hyaline window on middle section of M stem and brown membrane pattern indistinct. On male genitalia the lateral profile of segment X tapering with blunt apex; half longer than cerci and slightly curving downward. Cerci slender. Ventral profile of the dorsal arm of gonopods narrow, without right angled



**Figures 74–76.** *Parasetodes namgen* sp. nov. Holotype: 74 = left lateral view of genitalia, 75 = left gonopod with apicomesal lobe in ventral perpendicular view, 76 = phallic organ in lateral view.



**Figures 77–79.** *Parasetodes nokrek* sp. nov. Holotype: 77 = left lateral view of genitalia, 78 = left gonopod with apicomesal lobe in ventral perpendicular view, 79 = phallic organ in lateral view.

apicomesal corner and without middle constriction mesad; ventral arm of gonopods shorter than dorsal arm, straight. Phallic organ arching and gradually broadening from middle; head broader than rest of phallic organ.

*Etymology.* *pahang* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

***Parasetodes ratnapur* Oláh, sp. nov.**

(Figures 83–85, Map 2)

*Leptocella bakeri* Banks, 1913: Ulmer 1915: 56–57. “Material: 3 ♂, 1 ♀ (dies mit schmalem Hinterflügel), Peradeniya, Ceylon, Februar, März, Juni 1911, J. E. Fryer leg., Museum Cambridge. Ferner 1 ♀, Peradeniya, Ceylon, 15. Nov. 1911, Dr. Uzel leg., im Museum Wien.” Misidentification.

*Leptocella bakeri* Banks 1913: Ulmer 1951: 415–416. “Kein neues Material; Ich beschreibe hier nach Material aus Ceylon (Coll. Hugh Scott), 1 ♂ der letzteren in meiner Sammlung.” Misidentification.

*Parasetodes bakeri* (Banks, 1913): Schmid 1958: 124–125. “Ceylon, Ratnapura 3–II, 1♂ 2♀♀; Aranayaka 26–I, 3♂♂; Maha Oya 12–III, 1♀, de meme que les wewas: Rukam wewa 14–III, 1♂; Akuressa 6–II, 1♂ 1♀.” Misidentification.

*Material examined.* Holotype: **Ceylon**, Ratnapura 3–II, 1954, leg. F. Schmid (1 male, CNC). Allotype: same as holotype (1 female, CNC).

*Diagnosis.* Re-examination and redrawing of the holotype as well as the recent collection, examination and drawing of the putative female of the genuine *P. bakeri* (Banks, 1913) confirm that *P. ratnapur* sp. nov. from Sri Lanka is not *P. bakeri* (Banks, 1913) from the Philippines. *Parasetodes ratnapur* sp. nov. has the dorsal arm of the gonopods digitiform on its apical half, not broadened clavate; the ventral arm of the gonopod slender, upward curving and longer than the dorsal arm, not broad, straight and not shorter than the dorsal arm. Moreover the phallic organ is short, less curving, not extremely elongated and curving like at *P. bakeri* (Banks, 1913).

There are even more pronounced divergences in the structure of the female genitalia. The lateral profile of segment X forms a much produced upward directed hook. Such hook formation is present only at *Parasetodes ussuriensis* Martynov, 1935, *Parasetodes sinicus* sp. nov., *Parasetodes madacus* sp. nov. *Parasetodes bakeri* (Banks, 1913) female has not got any hook formation at the terminal of segment X. Its segment X forms the usual slightly downward directed structure.

*Rremarks.* Ulmer (1915, 1951) and Schmid (1958) described this species from Sri Lanka, both the male and female in details, as *P. bakeri* (Banks, 1913) known from Philippines.

*Etymology.* *ratnapur* coined from the name of the *locus typicus*, as a noun in apposition.

### *Parasetodes sinicus* Oláh, sp. nov.

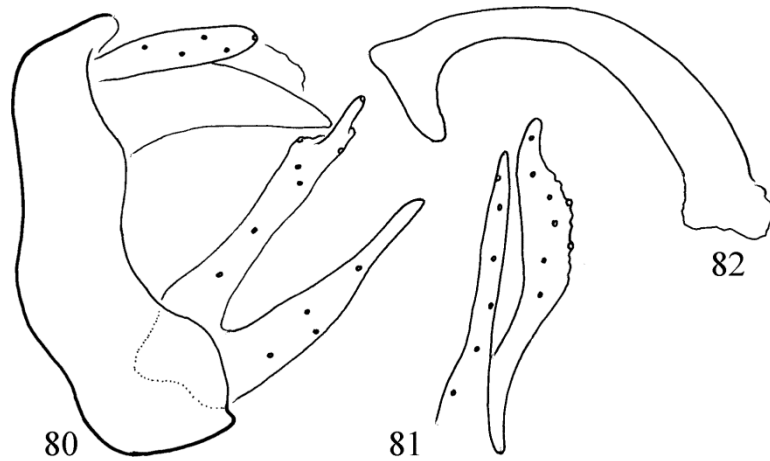
(Figures 86–91, Map 2)

*Parasetodes maculatus* (Banks, 1911): Yang & Morse 2000: 60–61. 1 male, China, An-hui Province, Wu-hu-Shi (31.23°N, 118.25°E), 4-9.VIII.1987, leg. Li You-wen; 28 females, China, Fu-jian Province, Jiu-qu-xi, 700 m elevation, 30.V.1990, leg. Qi & Yang Liang-fang; 2 males, 1 female, China, Hu-bei Province, Wu-han Shi (30.90°N, 113.55°E), Dong-hu, 11.VII.1990, leg. John Morse & Yang Lian-fang; 3 females, China, An-hui Province, Jin Xian (30.70°N, 118.35°E), Song-cun, Ding-xi-he, 33 kmE of Jin Xian, 120 m elevation, 8.VI.1990, leg. John Morse & Sun Chang-hai; 1 female, China, Fu-jian Province, Shao-wu Shi (27.21°N, 117.27°E), Nan-ban-qiao-cun, Jiao-xi, 40km S.W. of Shao-wu, 420m elevation, 2.VI.1990, leg. John Morse, Yang Lian-fang, and Sun Chang-hai; 6 females, China, Jiang-xi Province, Gui-xi-Xian (28.30°N, 117.20°E), Xi-qi-he, 10km S. of Gui-xi, 30m elevation, 4.VI.1990, leg. John Morse, Yang Lian-fang, and Sun Chang-hai; 4 males, 6 females; China, Gui-zhou Province, Li-bo Xian (25.4°N, 107.8°E), Xiao-qi-kong, 12-13.VII.1994, leg. Du Yu-zhou; 1 male, 2 females, China, Gui-zhou Province, Li-bo Xian (25.4°N, 107.8°E), Da-qi-kong-chu, 6.VII.1994, leg. Du Yu-zhou. Misidentification.

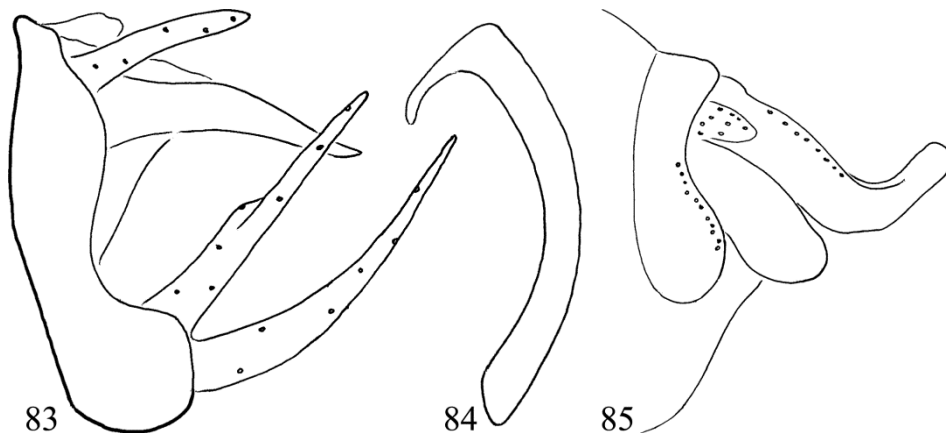
*Material examined.* Holotype: **China**, An-hui Province, Wu-hu-Shi (31.23°N, 118.25°E), 4–9.VIII.1987, leg. Li You-wen. Types are deposited in the collections of the Department of Plant Protection, Nan-jing Agricultural University (NAU), Nan-jing, Jiang-su Province, People’s Republic of China.

*Diagnosis.* This new species differs from all the known species by unique character state combination of the tapering and pointed lateral profile of segment X; the slender cerci; the particularly shaped lateral and ventral profile of the dorsal arm of the gonopod; the uniquely patterned phallic organ as well as the special female genital structure with specifically hooked lateral profile of segment X.

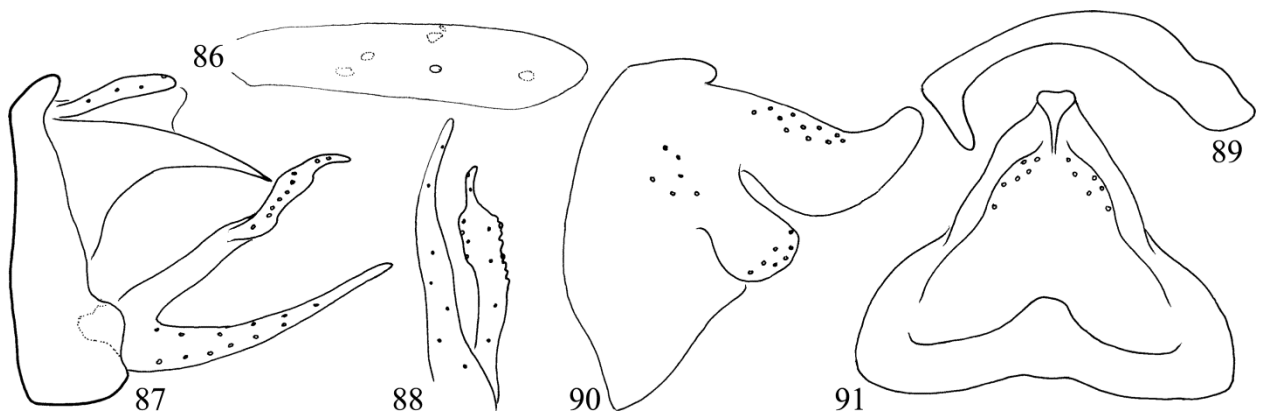




Figures 80–82. *Parasetodes pahang* sp. nov. Holotype: 80 = left lateral view of genitalia, 81 = left gonopod with apicomesal lobe in ventral perpendicular view, 82 = phallic organ in lateral view.



Figures 83–84. *Parasetodes ratnapur* sp. nov. Holotype: 83 = left lateral view of genitalia, 84 = phallic organ in lateral view. Figures 85. *Parasetodes ratnapur* sp. nov. Allotype: 85 = left lateral view of female genitalia,



Figures 86–91. *Parasetodes sinicus* sp. nov. Holotype: 86 = forewing brown membrane pattern, 87 = left lateral view of genitalia, 88 = left gonopod with apicomesal lobe in ventral perpendicular view, 89 = phallic organ in lateral view. Allotype: 90 = female genitalia in lateral view, 91 = female genitalia in dorsal view.

*Remarks.* Specimens from China were described and drawn by Yang and Morse (2000) in details as *P. maculatus* (Banks, 1911), a poorly known species described from India (Bengal). However, in *P. maculatus* (Banks, 1911) apparent forks 1 and 3 on forewing are of equal length while in *P. sinicus* sp. nov. apparent fork 3 is longer; the dorsal arm or the gonopod is robust S-shaped, not slender straight and much longer than the ventral arm as well as apex of phallic organ circular, not oblique ventrad.

*Etymology.* *sinicus* coined from the country name of the holotype's *locus typicus*.

***Parasetodes tumbang* Oláh & Mey, sp. nov.**

(Figures 92–96, Map 2)

*Material examined:* Holotype: **Indonesia**, Kalimantan, Kewah, Tumbang Korik, 28.1.1996, leg. A. Kallies (1 male, MfN). Allotype: same as holotype (1 female, MfN).

*Diagnosis.* This species resembles *P. borneo* sp. nov., collected and described here from the same habitat, but differs by the long apical finger and middle constricted titillating plate on the dorsal arm of the gonopod, the shorter and little stouter ventral arm of the gonopod as well as by the lateral profile of the phallic organ with right-angled ventroapical corner of the head of the phallosome. The female associated to male by forewing membrane pattern and venation has a rather unique genital structure with particularly elongate, slender upward curving segment X not detected yet at any other known females in the *Parasetodes* genus.

*Description.* Medium-sized. Forewing length 8 mm. Forewing anastomosis not arranged in straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern indistinct. In male genitalia the lateral profile of segment X tapering with less pointed apex, longer than cerci, slightly curving downward. Cerci long. Ventral profile of dorsal arm of gonopods with rather long apical finger the titillating plate slight-

ly constricted on middle; ventral arm of gonopods little shorter than dorsal arm, slightly upward curving. Lateral profile of phallic organ arching and broadening on dorsoapical two-thirds, apex monolobed, ventroapical corner right-angled.

The female genitalia have mesal dorsoapical lobe well discernible, short and rounded; dorsal profile of segment X highly elongated triangular, lateral shape slender digitiform, directed and curved upward; lamellae small, directed downward, lateral shape slightly elongated.

*Etymology.* *tumbang* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

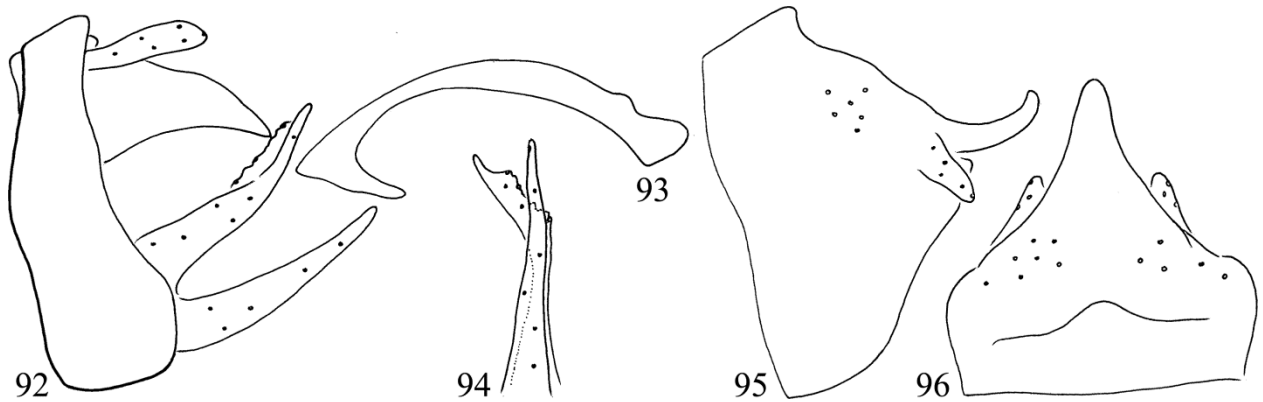
***Parasetodes umran* Oláh & Mey, sp. nov.**

(Figures 97–101, Map 2)

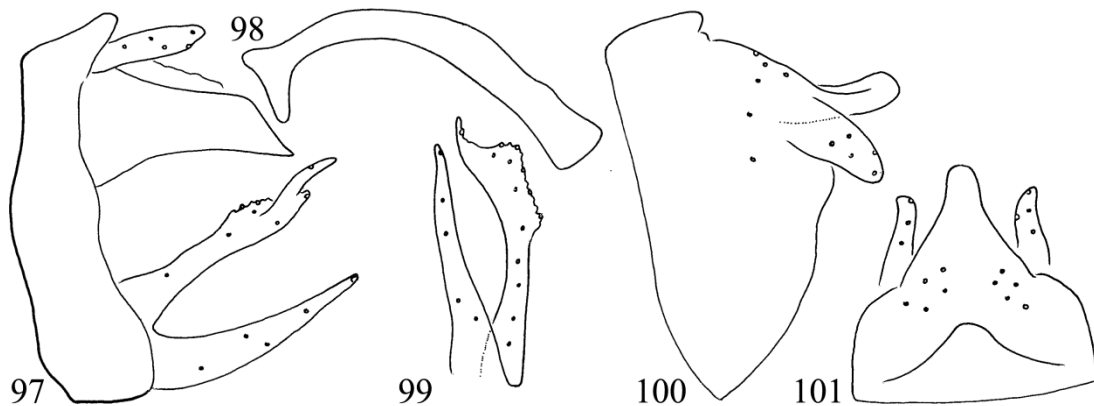
*Material examined.* Holotype: **India**, Meghalaya, Umran, 33 km N Shillong, 800 m, 25.77N, 91.87E, 14–23.VII.19997, leg. Afonin & V. Siniaev (1 male, MfN). Allotype: same as holotype (1 female, MfN). Paratypes: same as holotype (6 male, MfN; 4 males, OPC).

*Diagnosis.* According to the genital structure *P. umran* sp. nov. has resemblance to *P. nokrek* sp. nov. and *P. indicus* sp. nov., but differs from both by the trapezoid head of segment X, by the less broad basad narrowing titillating plate as well as by the lateral profile of the phallic organ with truncated head.

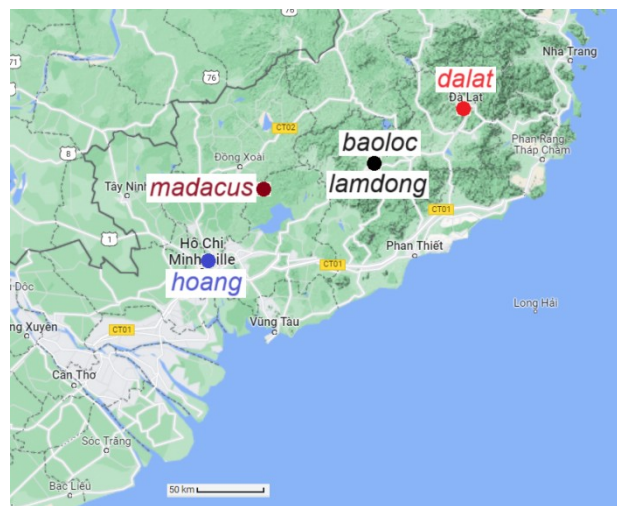
*Description.* Medium sized animal. Forewing length 8 mm. Forewing anastomosis arranged in arch due to the anteriorly shifted m-cu crossvein. Hyaline window on middle section of M stem indiscernible. In male genitalia the lateral profile of segment X tapering, with trapezoid pointed head, longer than cerci. Titillating plate of dorsal arm of gonopod with long digitiform ending, broad and slightly narrowing basad. Ventral arm of gonopods slightly shorter than the dorsal arm. Lateral profile of phallic organ forms an almost regular tube curving from basad to middle and straight after; phallic head slightly broadening and truncated.



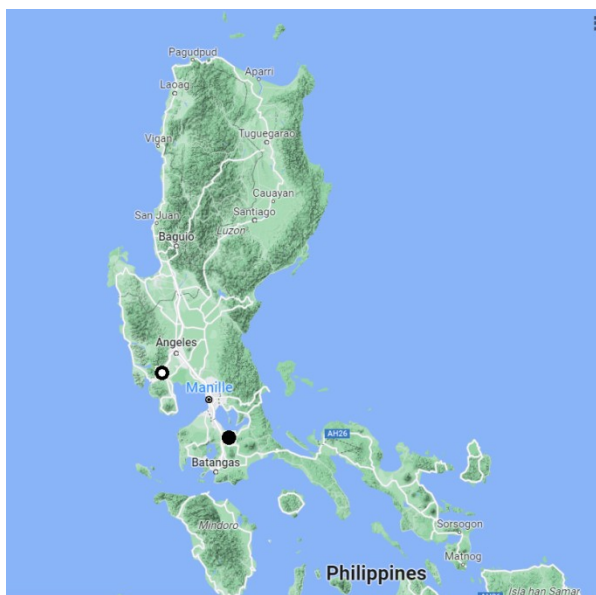
**Figures 92–96.** *Parasetodes tumbang* sp. nov. Holotype: 92 = left lateral view of genitalia, 93 = left gonopod with apicomesal lobe in ventral perpendicular view, 94 = phallic organ in lateral view. Allotype: 95 = female genitalia in lateral view, 96 = female genitalia in dorsal view.



**Figures 97–101.** *Parasetodes umran* sp. nov. Holotype: 97 = left lateral view of genitalia, 98 = left gonopod with apicomesal lobe in ventral perpendicular view, 99 = phallic organ in lateral view. Allotype: 100 = female genitalia in lateral view, 101 = female genitalia in dorsal view.



**Map 3.** *Parasetodes* species in Vietnam



**Map 4.** *Parasetodes bakeri* localities surrounding Manila, in the Luzon Island of the Philippine Islands.

The female genitalia have mesal dorsoapical lobe well discernible, short and rounded; dorsal profile of segment X highly elongated triangular, lateral shape short digitiform, slightly upward directed; lamellae elongated, as long as segment X, directed downward.

*Etymology.* *umran* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

#### Afrotropical Fauna Region

##### *Parasetodes amboas* Oláh, sp. nov.

(Figures 102–105, Map 5)

*Material examined.* Holotype: **Madagascar**, Amboasary (Bac) [25.04°S, 46.379°E], Route Fort Dauphin, III. 1955, leg. Paulian (1 male, OPC).

*Diagnosis.* This species resembles the other Malagasy species *P. ambovom* sp. nov., but differs by the different, highly reduced pattern of brown membrane patches, as well as by the pointed, not broad and blunt cerci, the different curvature of the phallic organ, and the bilobed

apex of the phallic organ with blunt, not pointed apical lobe.

*Description.* Medium-sized animal. Forewing length 11 mm. Forewing anastomosis arranged in a nearly straight line; the hyaline window on middle section of M stem indistinct; pattern of the brown membrane patches reduced to distinct patches before pterostigma, fork of discoidal cell, fork of sector radius and along anal vein. On male genitalia the lateral profile of segment X tapering with pointed apex; double longer than cerci and slightly curving downward. Cerci pointed. Ventral profile of dorsal arm of gonopods tapering from broad base to apex; ventral arm of gonopods is slightly longer than dorsal arm, straight. In lateral profile, the phallic organ arching and gradually broadening apically, apex bilobed.

*Etymology.* *amboas*, coined from the name of the *locus typicus*, as a noun in apposition.

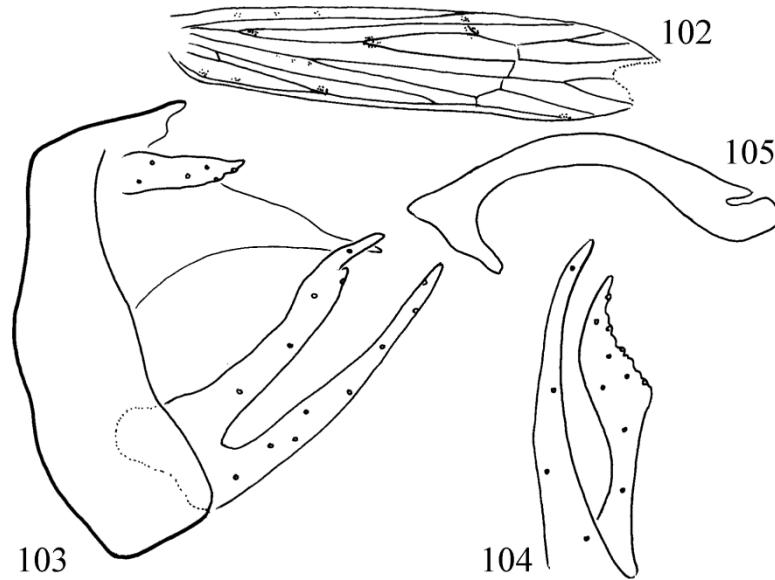
##### *Parasetodes ambovom* Oláh, sp. nov.

(Figures 106–109, Map 5)

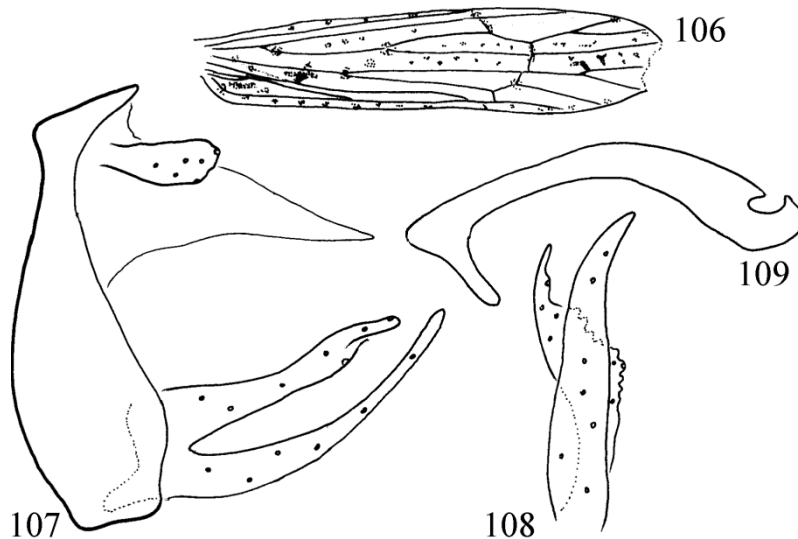
*Material examined.* Holotype: **Madagascar**, Ambovombe, Tulear Province [25.165°S, 46.09°E], VII. 1952, leg. Paulian (1 male, OPC).

*Diagnosis.* This species resembles the other Malagasy species *P. amboas* sp. nov., but differs by the different, highly elaborated rich pattern of brown membrane patches, as well as by the short, broad and blunt not pointed cerci, the different curvature of the phallic organ, the bilobed apex of the phallic organ with pointed, not blunt apical lobe.

*Description.* Medium sized animal. Forewing length 11 mm. Forewing anastomosis arranged in nearly straight line; hyaline window on middle section of M stem indistinct; pattern of brown membrane patches elaborated forming dense patches and spots both on veins and on membrane. On male genitalia the lateral profile of segment X tapering with pointed apex; almost triple longer than cerci and slightly curving downward. Cerci short, broad with rounded apex.



**Figures 102–105.** *Parasetodes amboas* sp. nov. Holotype: 102 = forewing brown membrane pattern, 103 = left lateral view of genitalia, 104 = left gonopod with apicomeral lobe in ventral perpendicular view, 105 = phallic organ in lateral view.



**Figures 106–109.** *Parasetodes ambovom* sp. nov. Holotype: 106 = forewing brown membrane pattern, 107 = left lateral view of genitalia, 108 = left gonopod with apicomeral lobe in ventral perpendicular view, 109 = phallic organ in lateral view.

Ventral profile of dorsal arm of gonopods tapers from broad base to apex; ventral arm of gonopods slightly longer than dorsal arm, straight. Lateral profile of phallic organ arching and gradually broadening apically, apex bilobed.

*Etymology.* *ambovom*, coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes barnardi* Oláh, Johanson, Mey & Salokannel, sp. nov.**

(Figures 110–114, Map 5)

*Parasetodes* sp. Barnard 1934: 331. „Locality. Otjimbombe [near Ruacaná: 17.387°S, 14.21°E], Kunene River, South West Africa [Angola-Namibie border] (K. H. B., March 1923, 1 specimen). Antennae,

fore-legs, and abdomen missing. Ulmer did not figure the wing of the Sudan species, but there seems to be considerable similarity between his species and the Kunene specimen. Without knowing the genitalia of the latter, it would be unwise to pronounce them either distinct or the same. No specific name is therefore attached.”

*Material examined.* Holotype: **Namibia**, Kunene, Kunene River, 17°21'16.6"S 13°52'54.0"E, 760 m, 24.XI.2019 light leg. Risto Haverinen (1 male, OPC). Allotype: same as holotype (1 female, OPC). Paratypes: Namibia, Popa Falls, Okavango River, 3.IX.1993, leg. F. Koch (2 males, 1 female; ZMB). **South Africa**, KwaZulu Natal. S. Graytown, Umvoti River crossing road at Kinloch Farm, 29.1483°S 30.644°E, 935 m, 20.X.2011, light trap, leg. M. Espeland (1 male, 3 females; SMNH; 1 female, OPC).

*Diagnosis.* This species has resemblance to *P. maguirus* (Mosely, 1948), but differs by the lateral shape of segment X, just pointed, not with terminal filament, the dorsal arm of the gonopod with distinct and characteristic terminal digitate process, as well as by the lateral profile of the phallic organ simple clavate, not upward curving capitate.

*Description.* Small-sized animal. Forewing length 8 mm. Forewing anastomosis arranged in a nearly straight line; the hyaline window on middle section of M stem indistinct; pattern of brown membrane patches very elaborated on veins. In male genitalia lateral profile of segment X tapering with pointed apex; almost double longer than cerci and slightly curving downward. Cerci short, broad with tapering apex. Ventral profile of dorsal arm of gonopods with apically narrowing plate terminated in digitate process; ventral arm of gonopods longer than dorsal arm, slightly curving upward. The lateral profile of phallic organ almost straight, gradually broadening apically, apex partially membranous.

Female genitalia is characterized by rounded apical margin of segment X in dorsal view; by reduced narrowing segment X in lateral view; lamellae rather produced and narrowing in dorsal

view and downward directed almost vertical in lateral view.

*Etymology.* Relying on the excellent published wing drawings of K. H. Barnard with exact forewing membrane pattern and compared them to our male and female specimens collected along the Kunene River and from other localities recently we are sure that the Barnard specimen and our specimens represent the same species. Here we dedicate this beautiful new species to the name of the first collector.

*Remarks.* This new species was already partially described by Barnard (1934) as *Parasetodes* sp. from an injured specimen without an abdomen, but with a very distinct drawing of the forewing pattern. We have recollected this species both from Namibia and South Africa and associated it with the elaborated identical forewing pattern.

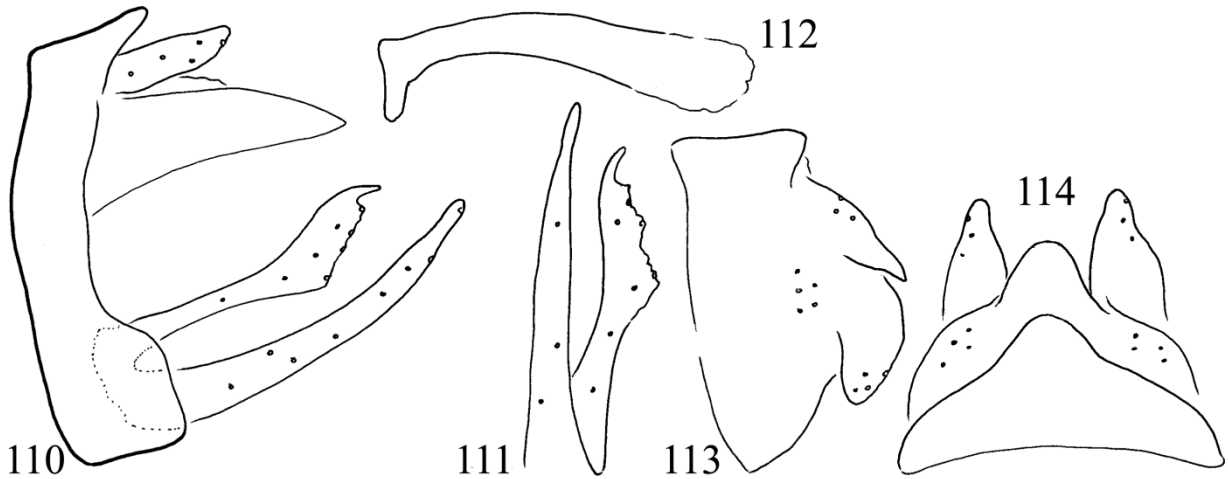
#### *Parasetodes caprivi* Mey & Oláh, sp. nov.

(Figures 115–117, Map 5)

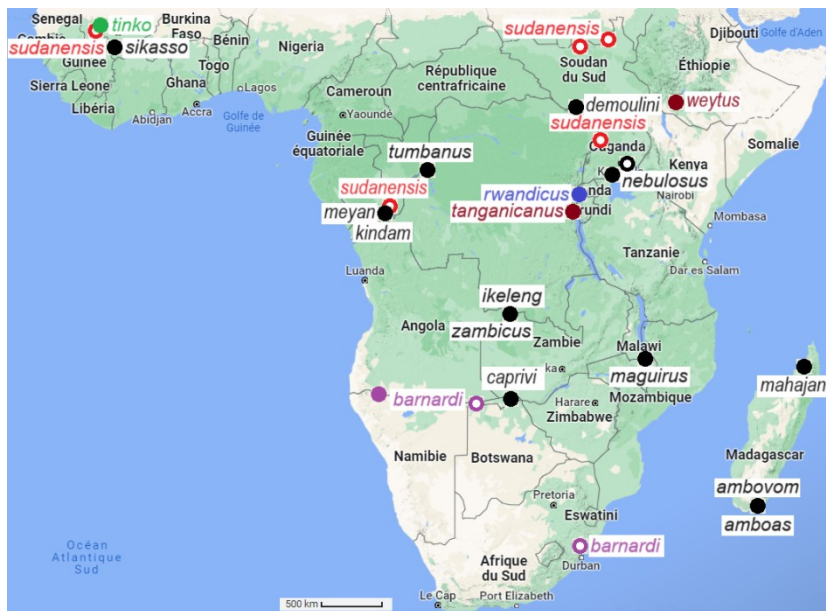
*Material examined.* Holotype: **Namibia**, E. Caprivi Distr., 15 km NW Ngoma, 17°46'S 24°35'E, 26.II.2006, leg. H. Hacker & H-P. Schreier (1 male, holotype male genitalia slide, Mey39/23; MfN). Paratypes: same as holotype (1 male in alcohol, 1 male pinned; MfN).

*Diagnosis.* This species resembles *P. nebulosus* Kimmins, 1956, but differs by the lateral shape of segment X, less pointed, lateral profile of dorsal arm of the gonopods less S-shaped curved, ventral arm of the gonopods longer than the dorsal arm, not equal, ventral arm of the gonopods almost straight, not curving upward, phallic organ longer with differently patterned bilobed apex.

*Description.* Small sized animal with forewing ca. 7 mm. In male genitalia the lateral profile of segment X tapering particularly along terminal region; double longer than cerci. Cerci short, broad with rounded apex. Ventral profile of dorsal arm of gonopods slightly S-shaped and gradually



**Figures 110–114.** *Parasetodes barnardi* sp. nov. Holotype: 110 = left lateral view of genitalia, 111 = left gonopod with apicomeral lobe in ventral perpendicular view, 112 = phallic organ in lateral view. Allotype: 113 = female genitalia in lateral view, 114 = female genitalia in dorsal view.



**Map 5.** *Parasetodes* species of the Afrotropical Faunal Region

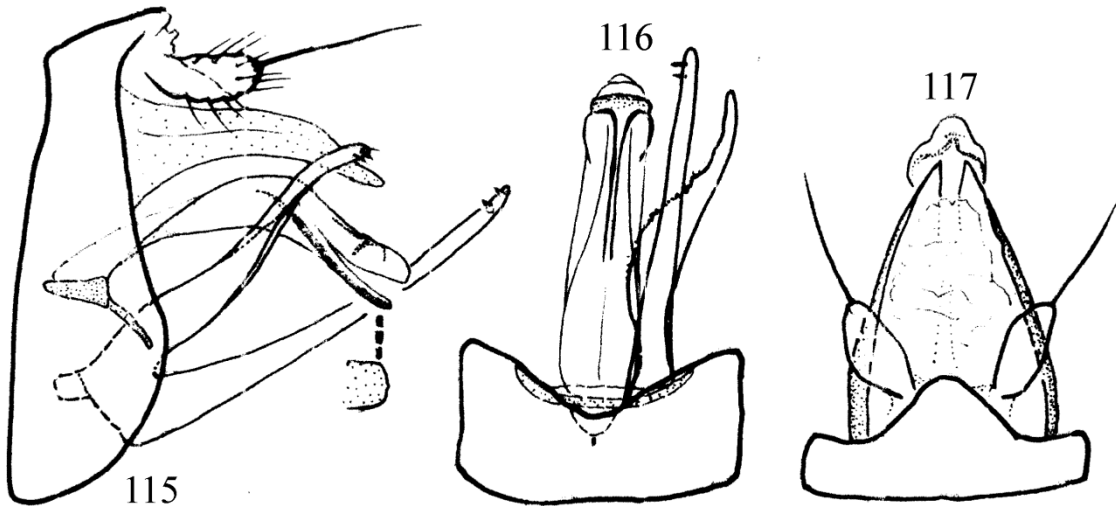
tapering from the middle to apex; ventral arm of gonopods longer than dorsal arm, almost straight. The lateral profile of phallic organ arching, gradually broadening from basal to middle, ending in a bilobed apex.

*Etymology.* *caprivi* coined from the name of the *locus typicus*, a noun in apposition.

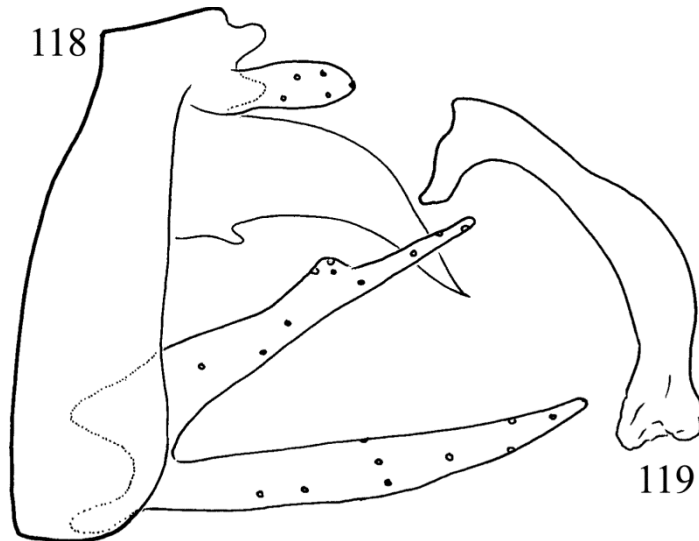
***Parasetodes demoulini* (Jacquemart, 1966)  
comb. nov.**

(Figures 118–11, Map 5)

*Triaenodes demoulini* Jacquemart, 1966: 41. “Holotype ♂, 10. XI. 1949 (De Saeger), camp de Bagbele, lisière de galerie forestière humide.” Garamba National Park, Democratic Republic of the Congo.



Figures 115–117. *Parasetodes caprivi* sp. nov. Holotype: 115 = left lateral view of genitalia, 116 = genitalia in ventral view, 117 = genitalia in dorsal view.



Figures 118–119. *Parasetodes demoulini* (Jacquemart, 1966). Male: 118 = left lateral view of genitalia, 119 = phallic organ in lateral view.

*Remarks.* This species was very briefly described by Jacquemart (1966) as a new *Triainodes* taxon. However, it was supplied with a rather detailed lateral view of the male genitalia and its structure clearly demonstrates that it is a genuine *Parasetodes* species. Here we transfer it to *Parasetodes*, *P. demoulini* (Jacquemart, 1966) **comb. nov.** According to the lateral profile of the gonopods, particularly the lateral shape of the

dorsal arm of the gonopod this species has resemblance to the Afrotropical species of *P. meyan* sp. nov., *P. nebulosus* Kimmins, 1956 and *P. sikasso* sp. nov., but differs from all the three species by the lateral profile of the phallic organ. More reliable identity will be confirmed by the knowledge of the unknown ventral profile of the dorsal arm of gonopod.



***Parasetodes ikeleng* Oláh & Johanson, sp. nov.**

(Figures 120–122, Map 5)

*Material examined.* Holotype: **Zambia**, North-Western Province, Ikelenge District, Hillwood Farm, 1395 m, 11.2669°S, 24.3166°E, loc#Tr08, stream at campsite, in riverine forest, light trap, 11.XII.2011, leg. M. Espeland & R. Vila (1 female, SMNH, NHRS-HISI, 000001207). Paratypes: same as holotype (1 female, SMNH; 1 female, OPC).

*Diagnosis.* According to both the brown membrane pattern and the female genital structure this species differs from its cohabitant *P. zambicus* sp. nov. and from all the known *Parasetodes* females. The unique, almost regular semicircular lateral profile of the lamellae combined with the subtriangular dorsal profile of segment X makes the delineation of *P. ikeleng* female easy.

*Description.* Small species with forewing 7 mm. The genitalia with mesal dorsoapical lobe rather narrowing; dorsal profile of segment X almost triangular, lateral shape is digitiform; lamellae short, lateral shape simple semicircular.

*Remarks.* This species was collected from the

same habitat as the *Parasetodes zambicus* sp. nov., but without any male specimen. Nevertheless, the female genitalia exhibit significant character state differences. Here we describe *Parasetodes ikeleng* sp. nov. as a distinct, independent species in the hope that its male will be collected sometimes in a more science respectful period. We have distinguished 12 brown patches on the forewing.

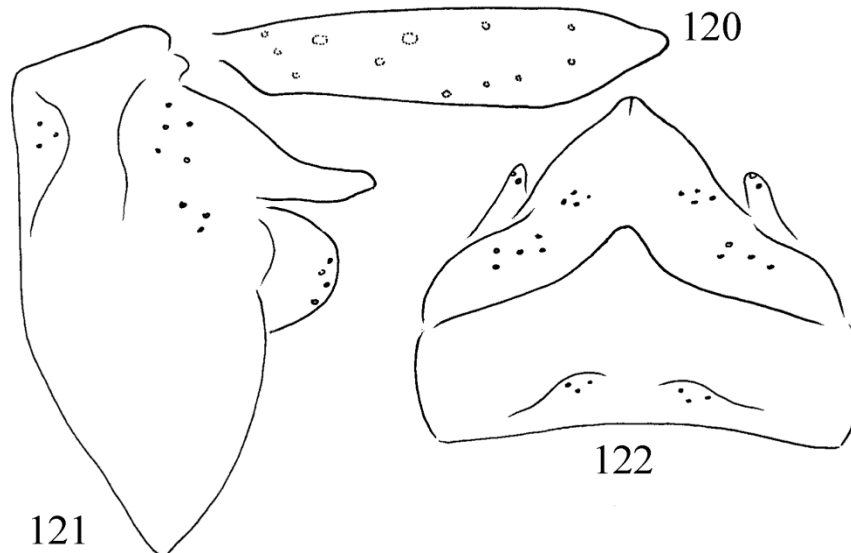
*Etymology.* *ikeleng* coined from the name of the *s locus typicus*, as a noun in apposition.

***Parasetodes kindam* Oláh, sp. nov.**

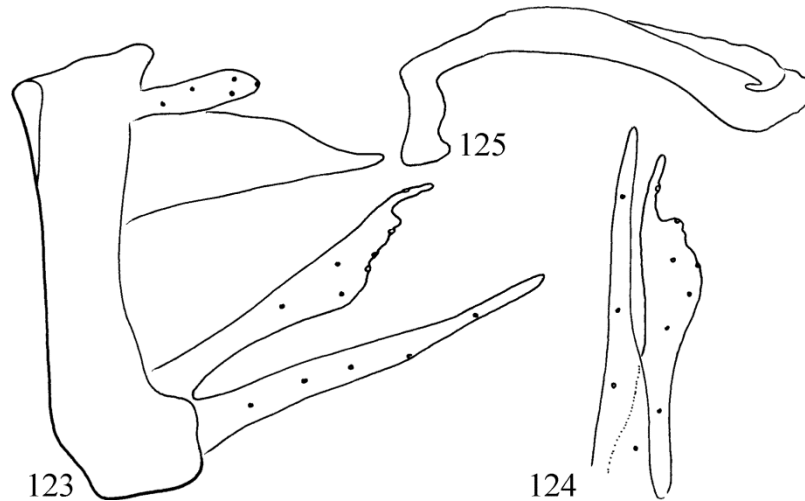
(Figures 123–125, Map 5)

*Material examined.* Holotype: **Republic of Congo** (Congo-Brazzaville), Kindamba [3.743°S, 14.525°E], Meya, Lovolo River, 12.XI.1963, light leg. Balogh & Zicsi (1 male, OPC). Paratype: same as holotype (1 male, OPC). Republic of Congo (Congo-Brazzaville), Brazzaville, 21.XII.1963, light leg. Endrődy (1 male, OPC).

*Diagnosis.* This species resembles *P. barnardi* sp. nov., but differs by the mesal pattern of the dorsal arm of gonopod in ventral view and by the phallic organ with bilobed apex.



**Figures 120–122.** *Parasetodes ikeleng* sp. nov. Holotype female: 120 = forewing brown membrane pattern, 121 = female genitalia in lateral view, 122 = female genitalia in dorsal view.



**Figures 123–125.** *Parasetodes kindam* sp. nov. Holotype: 123 = left lateral view of genitalia, 124 = left gonopod with apicomasal lobe in ventral perpendicular view, 125 = phallic organ in lateral view.

*Description.* Small-sized animal. Forewing length 8 mm. Forewing anastomosis not arranged in straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern indistinct. Male genitalia in lateral profile of segment X tapering with pointed apex; double as long as cerci. Cerci short. Ventral profile of dorsal arm of gonopods exhibits downward broadening mesal lobe with single small mesal constriction and long digitiform apical process; ventral arm of gonopods slightly longer than dorsal arm, straight. Lateral profile of phallic organ arching and significantly broadening on dorsoapical half, apex bilobed.

*Etymology.* *kindam* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

***Parasetodes maguirus* (Mosely, 1948)**

(Figures 126–128, Map 5)

*Leptocerus maguirus* Mosely, 1948: 32–34. Lake Nyasa, Fort Maguire [southern part of Lake Malawi]: 30.VI.–1.VII.1946. Insect collected in spirit and almost completely bleached white.

*Remark.* Based upon the almost straight, not curving stem of phallosome, with an upward

directed phallic head, and ventral profile of the truncated dorsal arm head, this is a distinct species of Lake Nyasa.

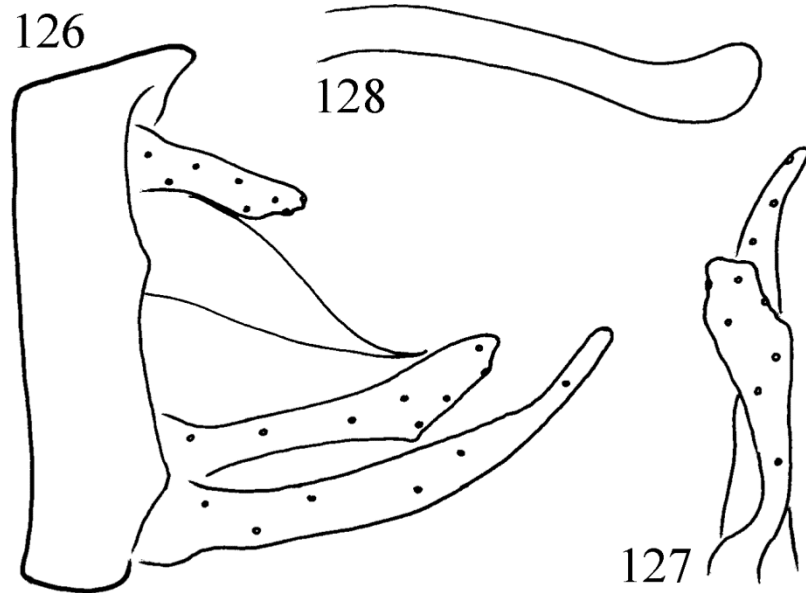
***Parasetodes mahajan* Oláh & Johanson, sp. nov.**

(Figures 129–132, Map 5)

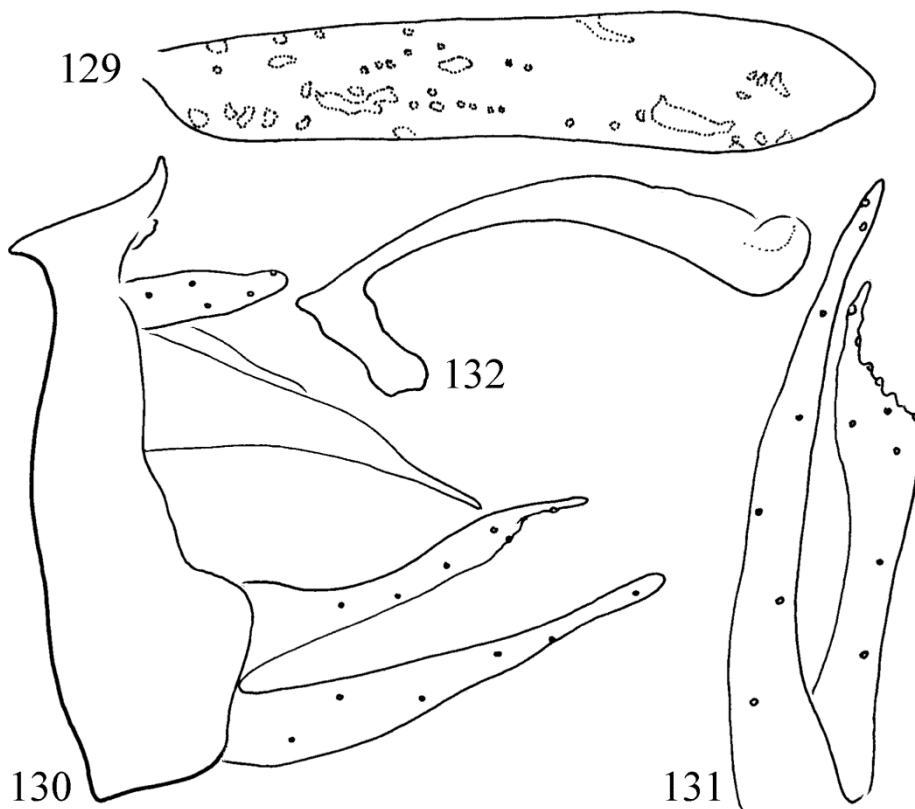
*Material examined.* Holotype: **Madagascar**, Mahajanga, Manongarivo NP, Beraty, river Antsambarahy on bridge, 21.XI.2012, 22W black light trap, 14.03715°S, 48.22945°E, leg. J. Bergsten, R. Bukontaite, T. Ranarilalotiana & J. H. Randriamihaja (1 male, SMNH).

*Diagnosis.* According to the genital structure this new species resembles the other Malagasy species *P. amboas* sp. nov. and *P. ambovom* sp. nov., but differs by the different and most elaborated pattern of brown membrane patches, as well as by the capitate apex of the phallic organ. Unfortunately, the fine structures of the phallic head are not discernible clearly in all the three Madagascar species.

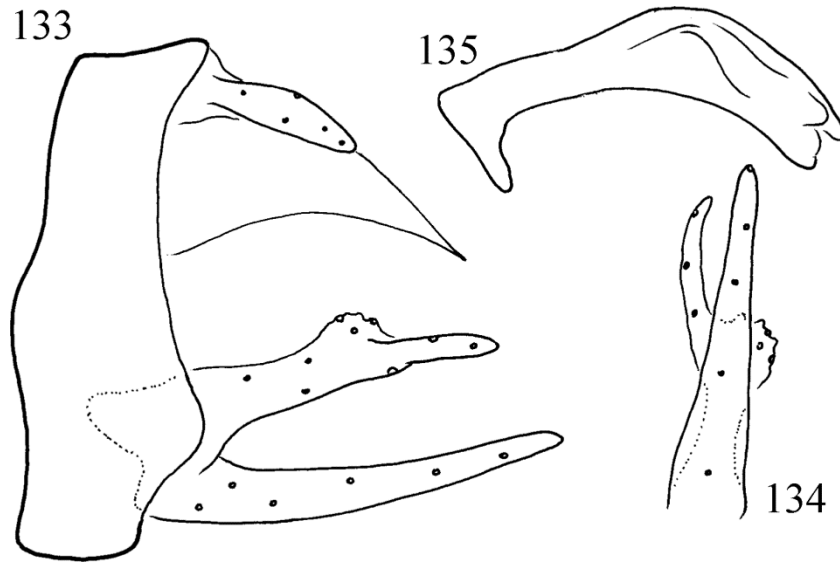
*Description.* Medium-sized animal. Forewing length 10 mm. Forewing anastomosis arranged in nearly straight line; hyaline window on middle section of M stem indistinct; pattern of the brown



**Figures 126–128.** *Parasetodes maguirus* (Mosely, 1948). Reproduced from original drawings: 126 = left lateral view of genitalia, 127 = left gonopod with apicomasal lobe in dorsal perpendicular view, 128 = phallic organ in lateral view.



**Figures 129–132.** *Parasetodes mahajan* sp. nov. Holotype: 129 = forewing brown membrane pattern, 130 = left lateral view of genitalia, 131 = left gonopod with apicomasal lobe in ventral perpendicular view, 132 = phallic organ in lateral view.



**Figures 133–135.** *Parasetodes meyan* sp. nov. Holotype: 133 = left lateral view of genitalia, 134 = left gonopod with apicomesal lobe in ventral perpendicular view, 135 = phallic organ in lateral view.

membrane patches is much elaborated. In lateral profile male genitalia of segment X tapering with filiform and pointed apical region; more than double the length of cerci and slightly curving downward. Cerci narrowing apicad. Ventral profile of dorsal arm of the gonopods tapering from broad base to apex; mesal dentate margin concave; ventral arm of gonopods slightly longer than dorsal arm, straight. In lateral profile phallic organ arching and gradually broadening apically, apex clavate.

*Etymology.* *mahajan* coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes meyan* Oláh, sp. nov.**

(Figures 133–135, Map 5)

*Material examined.* Holotype: **Republic of Congo** (Congo-Brazzaville), Kindamba [3.743°S, 14.525°E], Meya, 10.XI.1963, light leg. Balogh & Zicsi (1 male, OPC).

*Diagnosis.* This species resembles *P. zambicus* sp. nov., but differs by the less produced tergite IX, the segment X with needle-pointed apex, the rounded mesal lobe on the dorsal arm of gonopod and by the phallic organ with trilobed apex.

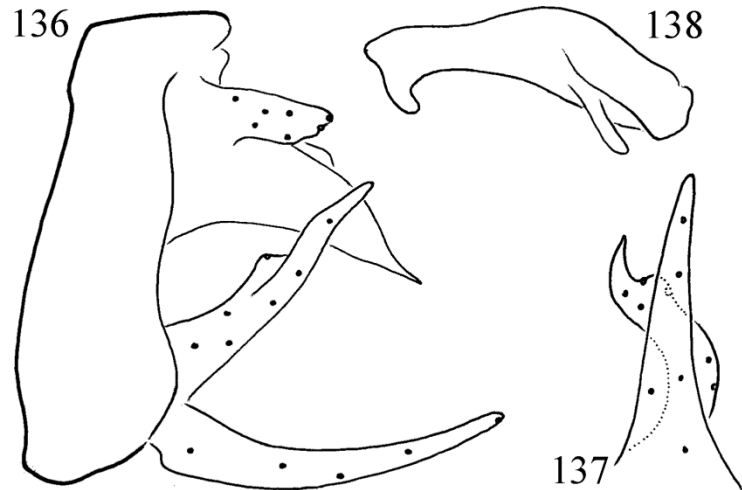
*Description.* Small-sized animal. Forewing length 8 mm. Forewing anastomosis not arranged in a straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern indistinct. Male genitalia in lateral profile of segment X tapering with pointed apex; double as long as cerci, slightly curving downward. Cerci short. Ventral profile of dorsal arm of gonopods with rounded mesal lobe and long digitiform apical process; ventral arm of gonopods slightly longer than dorsal arm, straight. Lateral profile of phallic organ arching and significantly broadening on dorsoapical half, apex trilobed.

*Etymology.* *meyan* coined from the name of the *locus typicus*, as a noun in apposition.

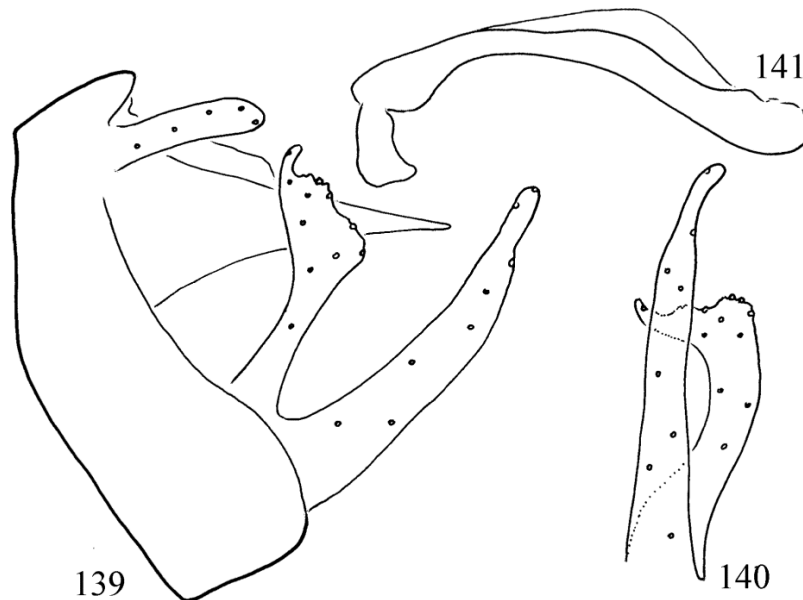
***Parasetodes nebulosus* Kimmins, 1956**

(Figures 136–138, Map 5)

*Parasetosus nebulosa* Kimmins, 1956: 123–124. „Uganda: L. Viktoria, Kagera Bay [0.944°S, 31.778°E], 12. V. 1954, 1 ♂ (N. E. Hickin); Jinja [0.437°N, 33.192°E], VI. 1954, 1 ♂, 2 ♀ (P. S. Corbet). ♂ Holotype (Kagera Bay, pinned, with abdomen mounted as microscope preparation in Canada balsam) in Brit. Mus. (Nat. Hist.), para



**Figures 136–138.** *Parasetodes nebulosus* Kimmins, 1956. Reproduced from original drawings: 136 = left lateral view of the genitalia, 137 = left gonopod with apicomesal lobe in ventral perpendicular view, 138 = phallic organ in lateral view.



**Figures 139–141.** *Parasetodes rwandicus* sp. nov. Holotype: 139 = left lateral view of the genitalia, 140 = left gonopod with apicomesal lobe in ventral perpendicular view, 141 = phallic organ in lateral view.

types (in fluid) into the E.A.F.R.O. collection, Jinja and in Brit. Mus. (Nat. Hist.).” „This species is closely related to the two other described African species, *P. sudanensis* Ulmer and *P. maguire* (Mosely), the latter being here transferred from its original genus *Leptocerus*, in which it was clearly misplaced, having regard to the venation of the hind wing and the structure of the genitalia. It may be distinguished from both by the form of the upper branch of the clasper, which in *sudanensis* is

stouter, suddenly constricted near the apex in side view. In *maguire* the upper branch is dilated and truncate at the apex in dorsal view, and in side view expanded on its ventral surface.”

*Remarks.* This species resembles *P. meyan* sp. nov., but differs by the broader cerci; the ventral profile of the dorsal arm of gonopods being S-shaped with reduced rounded mesal lobe; its phallic organ with a unique ventral rod-like process.

***Parasetodes rwandicus* Oláh & Mey, sp. nov.**

(Figures 139–141, Map 5)

*Material examined.* Holotype: **Rwanda**, Butare, University Guesthouse, 2.35°S, 29.44°E, 11.IX.2002, light leg. L. Kühne (1 male, ZMB). Paratypes: same as holotype (3 males, ZMB; 2 males, OPC).

*Diagnosis.* This species is unique and characteristic by the straight, narrowing and needle-like pointed segment X and by the ventral profile of the dorsal arm of gonopods with its almost right-angled terminal process

*Description.* Medium-sized. Forewing length 9 mm. Forewing anastomosis not arranged in straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem lacking, brown membrane pattern indistinct. In male genitalia the lateral profile of segment X tapering with pointed apex; double as long as cerci, straight, not curving downward. Cerci broad. Ventral profile of dorsal arm of gonopods with short mesal lobe and right-angled terminal process; ventral arm of gonopods slightly longer than dorsal arm, straight. Lateral profile of phallic organ arching and significantly broadening on dorsoapical half, with mesal ridge.

*Etymology.* *rwandicus* named after the *locus typicus*.

***Parasetodes sikasso* Oláh & Johanson, sp. nov.**

(Figures 142–146, Map 5)

*Material examined.* Holotype: **République du Mali**. Sikasso Region, Lac du Barrage de Sélingue, 11°34'33"N, 8°10'26"W, 21–22.VIII.1980, light, leg. W. Tobias (1 male, SMNH). Allotype: (1 female, SMNH). Paratypes: same as holotype (22 males, 17 females; SMNH, 10 males, 10 females; OPC). République du Mali: Barrage de Manantali [13.203°N, 10.455°W], 1000 m en aval du barrage. Cité de trois cases, 4–6.X.1993, leg. W. Tobias (1 male, SMNH; 1 male, OPC). République du Mali: Bafing at Tinko

[13.4984°N, 10.7555°W], 9.X.1992, 18:50–20:50h, leg. W. Tobias (1 male, SMNH).

*Diagnosis.* This species resembles *P. zambicus* sp. nov., but differs by the less produced tergite IX; by the downward narrowing mesal lobe on the dorsal arm of the gonopods, and by the more slender phallic organ.

*Description.* Medium-sized. Forewing length 9 mm. Forewing anastomosis not arranged in a straight line, but arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem and brown membrane pattern indistinct. In male genitalia lateral profile of segment X tapering with less pointed apex; double as long as cerci, slightly curving downward. Cerci long. Ventral profile of dorsal arm of gonopods with gradually downward narrowing mesal lobe and medium long digitiform apical process; ventral arm of gonopods shorter than dorsal arm, upward curving. Lateral profile of phallic organ arching and slightly broadening on dorsoapical two-thirds, apex monolobed.

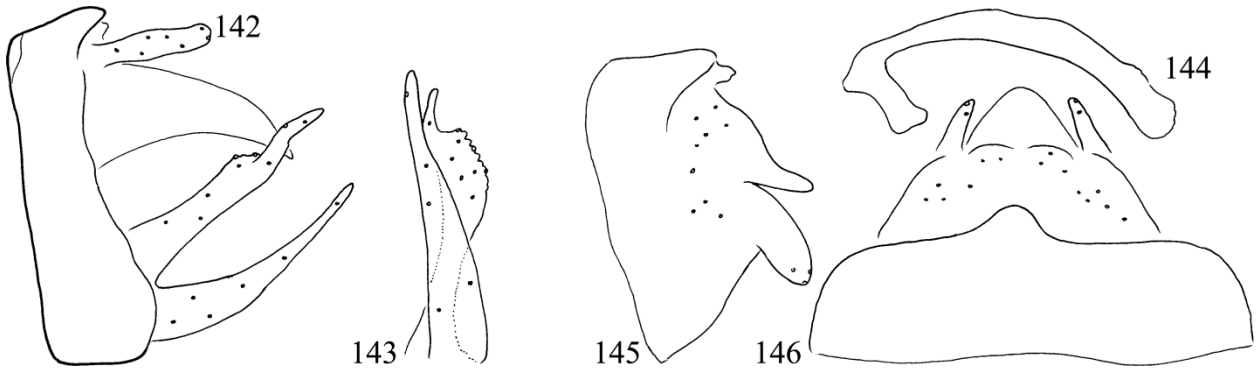
The female genitalia have mesal dorsoapical lobe short and rounded; dorsal profile of segment X rounded triangular, lateral shape digitiform and directed downward; lamellae directed downward, lateral shape slightly elongated.

*Etymology.* *sikasso* coined from the name of the holotype's *locus typicus*, as a noun in apposition.

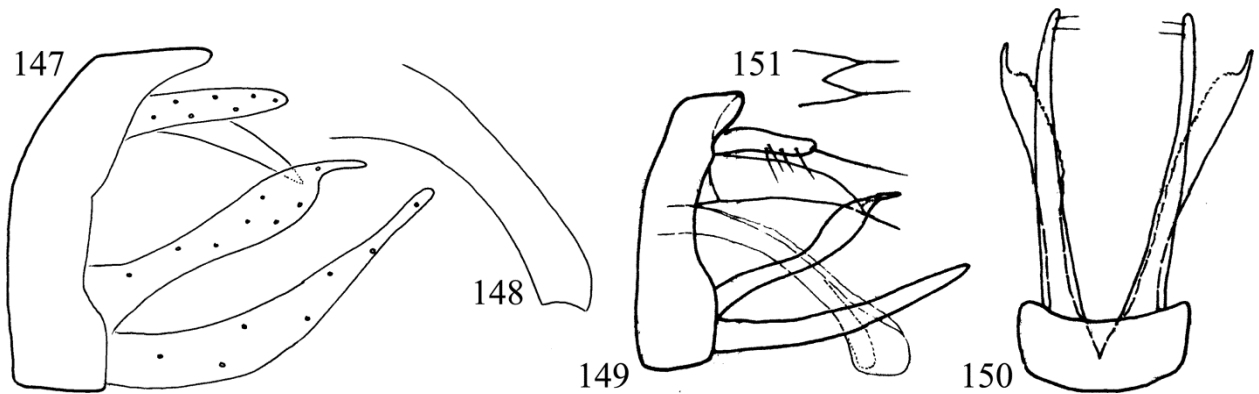
***Parasetodes sudanensis* Ulmer, 1922**

(Figures 147–153, Map 5)

*Parasetodes sudanensis* Ulmer, 1922: 47. "An Material für die folgenden Mitteilungen über Sudan-Trichopteren stand mir zur Verfügung: 1. Eine Sammlung von Spiritusexemplaren, die auf einer Jagdexpedition zum Weißen Nil mittels eines Dahlschen Lichtfangapparates durch Herren Hesselberger im Februar 1912 gefangen wurden; dies Material gehört der Zoologischen Sammlung des Bayerischen Staates in München. 2. Ein reiche Sammlung ebenfalls von Spiritus-exemplaren, gesammelt auf der „Expedition von Prof. Dr. A Koenig in den anglo-ägyptischen Sudan, Frühjahr



**Figures 142–146.** *Parasetodes sikasso* sp. nov. Holotype: 142 = left lateral view of genitalia, 143 = left gonopod with apicomesal lobe in ventral perpendicular view, 144 = phallic organ in lateral view. Allotype: 145 = female genitalia in lateral view, 146 = female genitalia in dorsal view.



**Figures 147–150.** *Parasetodes sudanensis* Ulmer, 1922. Reproduced from original drawings: 147 = left lateral view of the genitalia, 148 = phallic organ in lateral view. Lectotype: 149 = left lateral view of genitalia, 150 = gonopods with apicomesal lobe of dorsal arm in ventral perpendicular view 151 = dorsal view of the head of segment X.



**Figures 152–153.** *Parasetodes sudanensis* Ulmer, 1922. Female from the syntype series: 152 = left lateral view of genitalia, 153 = dorsal view of the apex of segment X.

1913" durch die Herren H. Freiherr Geyr von Schweppenburg und Dr. O.le Roi; diese Sammlung ist Eigentum des Museums Koenig in Bonn a. Rh. und wird mir weiter unten immer als Coll. Roi bezeichnet. 3. Eine Sammlung trockener Exemplare im Besitze des Zoologischen Museums Wien; dieses Material wurde von Herrn Prof. R. Ebner im Februar, März und April 1914 zusammengebracht." 57–59: „Material: 1.(first) Coll. le Roi: 1♂ Meschra Zeraf (B.el Ab.) 23.II.1913; 2♂ 1♀ Bahr el Ghazal [9.3266°N, 29.86°E], 5.III.; 1♂ Lul [9.765°N, 31.95°E] (B el Ab.) 18.III.; 1♂ Gebel Achmed Aga (B. el Ab.) 22.III. 2.(second) Coll. Ebner: 1♂ bei Tonga, am Dampler, 17.IV.1914.”

*Leptocerus maguirus* Mosely, 1948: Jacquemart 1959: 113–114. "Matériel recueilli par M. J. Verbeke au lac Albert, Parcs Nationaux du Congo Belge: Kase

nyi [1.388°N, 30.438°E], 21.VI.1953, 23.VI. 1953, 25.VI.1953, 28.VI.1953, 15.XII.1953. Sabe, 16.XII.1953. Bezaha, 19.XII.1953. Mahagi [2.156° N, 31.236°E], 15.II.1954. Le matériel étudié est déposé dans les collections de l'Institut royal des Sciences naturelles de Belgique." Misidentification. *Parasetodes respersellus* (Rambur, 1842): Malicky 1983: 270. Drawings prepared by Malicky for his Atlas of European Trichoptera from unknown specimen represent *Parasetodes sudanensis*, not *Parasetodes respersellus*. Misidentification. *Parasetodes respersellus* (Rambur, 1842): Malicky 2004: 341. Drawings prepared by Malicky for his Atlas of European Trichoptera from unknown specimen represent *Parasetodes sudanensis*, not *Parasetodes respersellus*. Misidentification.

*Material examined.* Syntype series: 2 males, 1 female, "Bahr el Ghasal, 5.3.1913, Dr. Le Roi leg"/" Zoologisches Museum Hamburg, coll. G. Ulmer, Eingangs Nr. 6 - 1963"/ "Genitalia slide Mey 55/23 and 56/23". The material is in alcohol, but completely de-coloured. The specimens are transparent, difficult to handle. The abdomens of this old material could not be examined anymore. Staining did also not work. We have made drawings, as we saw the structures in alcohol. The remains of the abdomina were embedded into Euparal and mounted on glass slides. We have chosen the male with the genitalia slide as lectotype. The other are paralectotypes.

*Remarks.* Here we reproduce Ulmer's original drawing as well as present our drawings of the lectotype male and of the female. It is remarkable how well the original lateral drawing of Ulmer and our lateral drawing correspond. The ventral view of the gonopods, particularly the ventral profile of the dorsal arm of gonopods missing in the original drawing were drawn from the lectotype.

*Re-diagnosis.* The mesal dentate titillating structure of the dorsal arm of the gonopod, the probable speciation trait of the *Parasetodes* genus is a very characteristic elongated narrow plate with mesal dentation and with a short apicolateral slender finger in *P. sudanensis*. This particular

structure clearly delineates *Parasetodes sudanensis* Ulmer, 1922 from all its relatives.

The female genitalia with mesal dorsoapical lobe rounded in lateral view; dorsal profile of segment X regular short semicircular, lateral shape straight with sharply pointed apex; lamellae produced, downwardly directed, with narrowing apex.

***Parasetodes tanganicanus* Marlier, 1956 stat. nov.**

(Map 5)

*Parasetodes sudanensis tanganicana* Marlier, 1956: 359. „Provenance: Holotype mâle: Uvira, lac Tanganika, à la lumière, 22.V.1952. *Parasetodes sudanensis tanganicana* est capturé régulièrement à la lumière à Uvira (côte de sable et de galets) au bord du lac Tanganika. „La sous-espèce *tanganicana* est fondée sur la coloration des ailes.”

*Remarks.* The subspecies was established upon the presence of a unique forewing colour and pattern. Only wind drawings are available, nevertheless we increased its taxonomic status to species rank according to previous taxonomic practise elevating subspecies and race to species level when appropriate (Oláh et al. 2018).

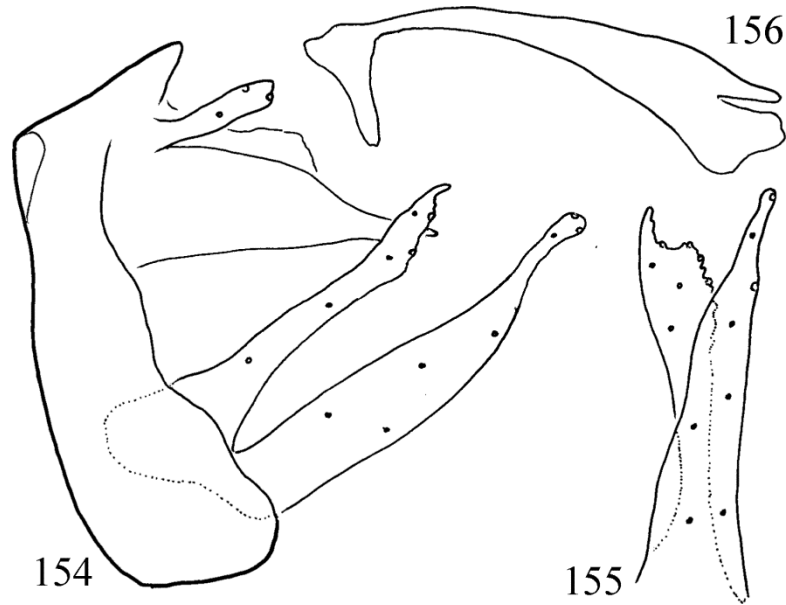
***Parasetodes tinko* Oláh & Johanson, sp. nov.**

(Figures 154–156, Map 5)

*Material examined.* Holotype: **République du Mali**, Kayes Region, Bafing River, at Tinko, 13.4984°N, 10.7555°W, 11.VIII.1993, light trap, 20:30–22:30h, leg. W. Tobias (1 male, SMNH). Paratype: same as holotype (1 male, OPC).

*Diagnosis.* This species resembles *P. sikasso* sp. nov., but differs by the small, not long cerci; by the straight, not downward curving segment X, the small apical digitate process on the dorsal arm of gonopod, the ventral arm of gonopod capitate, longer than the dorsal arm, not narrowing and shorter than the dorsal arm, the lateral profile of the phallic organ very thin basally and broadening apicad and with bilobed head.





**Figures 154–156.** *Parasetodes tinko* sp. nov. Holotype: 154 = left lateral view of genitalia, 155 = left gonopod with apicomasal lobe in ventral perpendicular view, 156 = phallic organ in lateral view.

*Description.* Small-sized. Forewing length 8 mm. Forewing anastomosis not arranged in straight line, instead arched due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem lacking, brown membrane pattern indiscernible. In male genitalia the lateral profile of segment X tapering with pointed apex; two times longer than cerci and straight, not curving downward. Cerci small. Ventral profile of dorsal arm of gonopods with gradually downward narrowing mesal lobe and small digitiform apical process; ventral arm of gonopods slightly longer than dorsal arm, straight and slightly capitate. The lateral profile of phallic organ arching and significantly broadening apicad, with bilobed apex.

*Etymology.* *tinko* coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes tumbanus* Marlier, 1958**

(Figures 157–159, Map 5)

*Parasetodes tumbana* Marlier, 1958: 304–30. Holotype: Lake Tumba [0.7286°S, 18.1225°E], a shallow lake in northwestern part of the Democratic Republic of the Congo, in the Bikoro Territory of the Province of Équateur.

*Remarks.* A distinct species with slightly bilobed cerci; elongated, narrow mesal plate on the dorsal arm of gonopods and the straight phallic organ with clavate head.

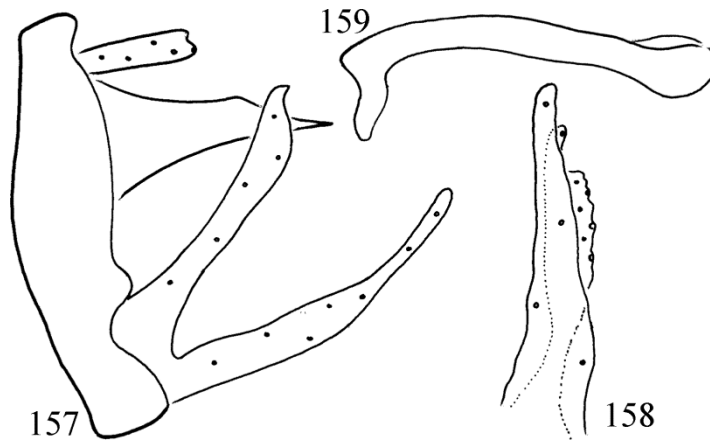
***Parasetodes weytus* Mey & Oláh, sp. nov.**

(Figures 160–162, Map 5)

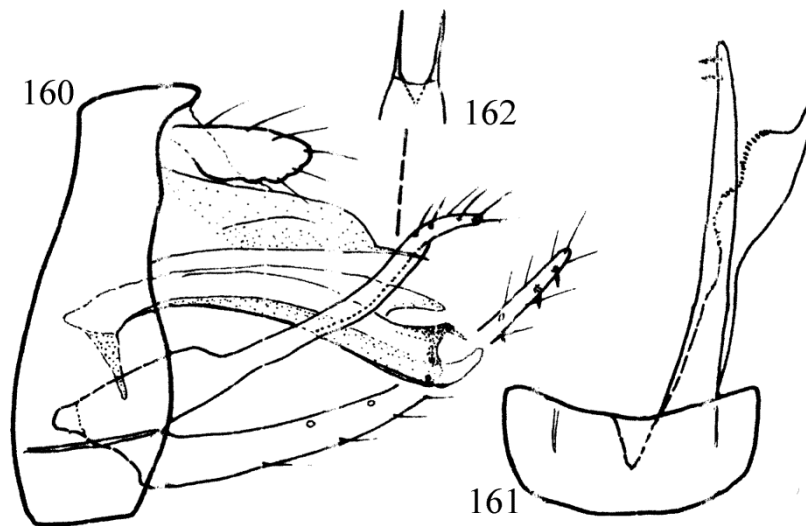
*Material examined.* Holotype: **Ethiopia**, Southern Province, 6 km ENE Weyto, Segen River, 05°21'18"N, 37°02'34"E, 600 m, 11.XI. 2010, leg. H. Hacker & H.-P. Schreiner (1 male, ZMB, pinned). Paratypes: same as holotype (2 males, ZMB, pinned).

*Diagnosis.* This species resembles *P. barnardi* sp. nov., but differs by the lateral shape of segment X, having long terminal filament; by lateral profile of dorsal arm of the gonopods without pronounced ventral angle, as well as by lateral profile of the phallic organ with trilobed apex.

*Description.* Small sized animal with forewing length 7 mm. In male genitalia lateral profile of segment X slightly tapering with elongated pointed filament; together with the long terminal filament almost double longer than cerci. Cerci



**Figures 157–159.** *Parasetodes tumbanus* Marliers, 1958. Reproduced from original drawings: 157 = left lateral view of genitalia, 158 = left gonopod with apicomesal lobe in ventral perpendicular view, 159 = phallic organ in lateral view.



**Figures 160–162.** *Parasetodes weytus*. Holotype: 160 = left lateral view of genitalia, 161 = gonopods with apicomesal lobe of dorsal arm in ventral perpendicular view 162 = dorsal view of the head of segment X.

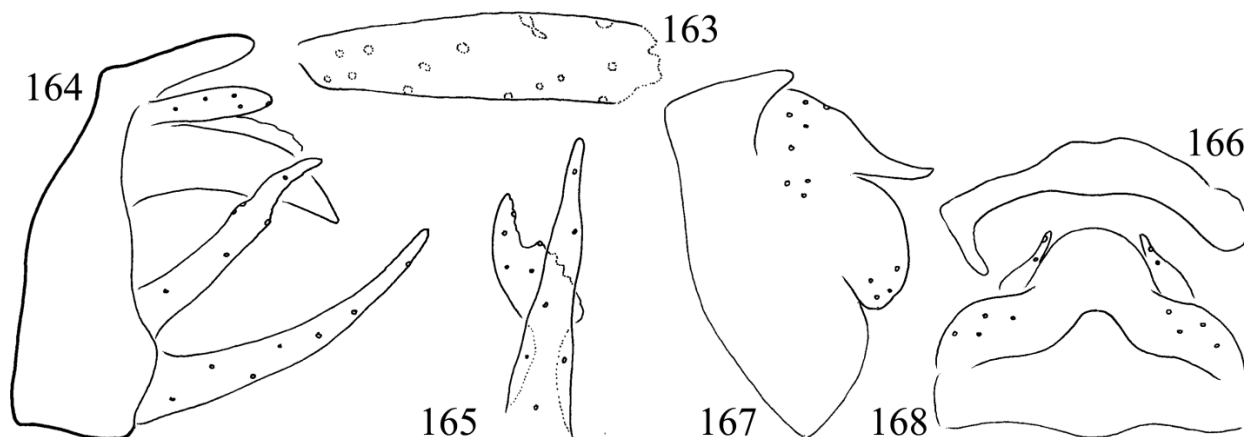
short, broad with rounded apex. Ventral profile of dorsal arm of gonopods with mesally constricted plate terminated in digitate process; ventral arm of gonopods little longer than dorsal arm, slightly curving upward. The lateral profile of phallic organ almost straight, gradually broadening apically, ending in trilobed apex.

*Etymology.* *weytus* coined from the name of the *locus typicus*, as a noun in apposition.

***Parasetodes zambicus* Oláh & Johanson, sp. nov.**

(Figures 163–168, Map 5)

*Material examined.* Holotype: **Zambia**, North-Western Province, Ikelenge District, Hillwood Farm, 1395 m, 11.2669°S, 24.3166°E, loc#Tr08, stream at campsite, in riverine forest, light trap, 11.XII.2011, leg. M. Espeland & R. Vila (1 male, SMNH, NHRS-HISI, 000001207). Allotype:



**Figures 163–168.** *Parasetodes zambicus* sp. nov. Holotype: 163 = forewing brown membrane pattern, 164 = left lateral view of genitalia, 165 = left gonopod with apicomeral lobe in ventral perpendicular view, 166 = phallic organ in lateral view. Allotype: 167 = female genitalia in lateral view, 168 = female genitalia in dorsal view.

same as holotype (1 female, SMNH). Paratypes: same as holotype (2 males, 5 females, SMNH; 2 males, 2 females; OPC).

**Diagnosis.** This species resembles *P. meyan* sp. nov., but differs by the strongly produced tergite IX, by the segment X without needle-pointed apex, by the quadrangular mesal lobe on the dorsal arm of gonopods and by the phallic organ without trilobed apex.

**Description.** Middle-sized. Forewing length 9 mm. Forewing anastomosis arranged not in straight line, but step-wise due to anterad shifted m-cu crossvein; hyaline window on middle section of M stem lacking; brown membrane pattern distinct with 15 patches. In male genitalia the lateral profile of segment X tapering at apex without distinct point; longer than cerci and slightly curving downward. Cerci long. Ventral profile of dorsal arm of gonopods with quadrangular mesal lobe and broad digitiform apical process; ventral arm of gonopods slightly longer than dorsal arm, slightly upward turning. The lateral profile of phallic organ arching and significantly broadening on dorsoapical half.

The female genitalia with mesal dorsoapical lobe rounded; dorsal profile of segment X regular semicircular, lateral shape pointed digitiform with

slightly upward directed apex; lamellae short, but downwardly directed, lateral shape slightly elongated.

**Etymology.** *zambicus* named after the *locus typicus*.

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