

New Indonesian species in the *Oecetis tripunctata* species group (Trichoptera: Leptoceridae)

J. OLÁH¹ and J. SALOKANNEL²

¹János Oláh, Residence postal address: Tarján u. 28, H-4032 Debrecen, Hungary. E-mail: profolah@gmail.com
<https://orcid.org/0000-0002-6137-0553>

²Juha Salokannel, Siikinkatu 13, 33710 Tampere, Finland. E-mail: juha.salokannel@gmail.com
<https://orcid.org/0000-0002-0099-2156>

Abstract. Applying the principles and practices of fine phenomics five new species are described from Indonesia in the *Oecetis tripunctata* species group: *Oecetis makala*, *Oecetis pejenkaja*, *Oecetis posoa*, *Oecetis pelenga*, and *Oecetis saluopa* spp. nov.

Keywords. Fine phenomics, Indonesia, *Oecetis*, new species.

INTRODUCTION

Oecetis tripunctata species group is one of the seven species groups in the *Oecetis* (*Oecetis*) subgenus (Chen, 1993). *Oecetis tripunctata* (Fabricius, 1793) was long considered as a dubious taxon with unsettled taxonomy. Recently it was revised using specimens from the entire distributional area covering the Afrotropical, Palearctic, Oriental and Australasian fauna regions (Oláh 2022). The principles, procedures and practices of fine phenomics were applied in the revision but only about ten percent of the possible potential diversity was included due to the highly limited sampling coverage. The high diversity of the species complex is also confirmed by elaborating of a small sample from Indonesia which resulted in discovery of five species new to science.

MATERIAL AND METHODS

The biodiversity of Indonesia, like of any other fauna region, including even the most examined areas like Europe and especially North America, is very poorly known. Only a single Indonesian species of the *Oecetis tripunctata* group, *Oecetis kamba* Oláh, 2022 is known from Sumatra (Way

Kambas National Park). The limited samples from six habitats in Bali and Sulawesi yielded five new species. Delineation of the species was based on the speciation traits of lateral profile of the phallic organ as well as the ventral shape of the gonopods. All the specimens including holotypes and paratypes are deposited in the Oláh Private Collection (Debrecen, Hungary) under the national protection of the Hungarian Natural History Museum, Budapest, Hungary (OPC).

TAXONOMY

Oecetis makala sp. nov.

(Figures 1–4)

Material examined. Holotype: **Indonesia**, Sulawesi, Makale SE, Uluway village, 3°17' 05.7"S 119°59'06.0"E, 1060 m, 20.I.2020, light trap, leg. Marko Jaakkola (male, OPC).

Diagnosis. *Oecetis makala* sp. nov. is a remarkably unique species. According to the apicoventral lip of the phallic organ it has some resemblance to *Oecetis saluopa* sp. nov. but distinguished from all the known species by the very short and high lateral profile and the regular semicircular dorsal profile of the cerci.

Description. The entire body light brown yellowish in alcohol. Forewing partially rubbed in alcohol, membrane hyaline, length 8 mm. Forewing anastomosis cross-veins arranged in stepwise, transverse base of MA distad of transverse base of MP3+4, by more than its length. Tibial spurs 1,2,2.

Male genitalia. Segment IX short; dorsum long, ventrum very much abbreviated. Cerci very short and high entirely fused to segment X almost semicircular in dorsal views. Segment X almost lost, represented by a very short membranous lobe in lateral view, tripartite in dorsal view. Gonopods with a minute excision mesad on midway in ventral view. Phallic organ with slightly elongated rounded dorsum; single paramere curved with

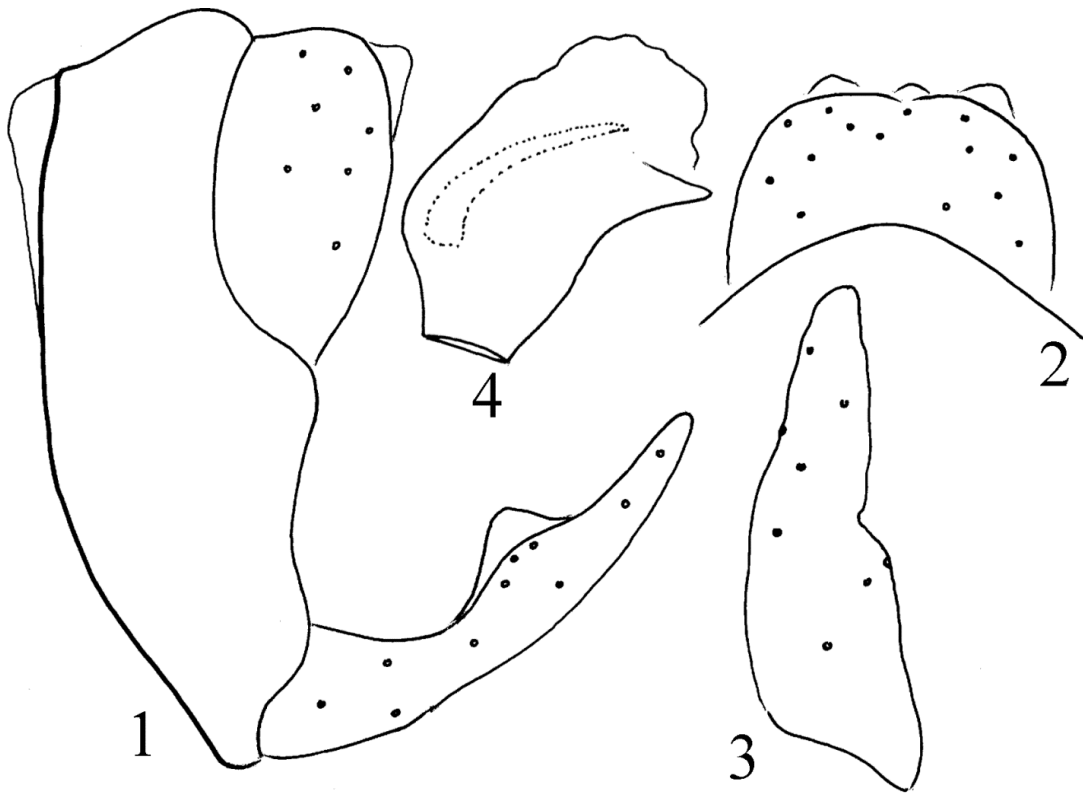
more curved basal region; apicoventral lip short, obtuse angled with tapering apex.

Etymology. Coined after the name of locus typicus, a noun in apposition.

***Oecetis pejenkaja* sp. nov.**

(Figures 5–8)

Material examined. Holotype: **Indonesia**, Bali, Gianyar, Pejeng Kaja, stony, rocky small brook, 8°29'55.8"S 115°17'25.7"E, 251 m, 5.XII. 2019, light trap, leg. Marko Jaakkola (male, OPC). Paratypes: same as holotype (2 males, 2 females; OPC).



Figures 1–4. *Oecetis makala* sp. nov. Holotype male: 1 = genitalia in left lateral view; 2 = genitalia in dorsal view; 3 = left gonopod in ventral view; 4 = phallic organ in lateral view.

Description. The body, including appendages light brown yellowish in alcohol. Forewing partially rubbed in alcohol, membrane hyaline, length 7 mm. Forewing anastomosis cross-veins arranged in step-wise, transverse base of MA distad of transverse base of MP3+4, by more than its length. Tibial spurs 1,2,2.

Male genitalia. Segment IX long; dorsum long, ventrum shorter, half as long. Cerci very high entirely fused to segment X; quadrangular in dorsal and subquadrangular in lateral views. Segment X excised in dorsal view, represented by a very short membranous lobe in lateral view. Gonopods very thin in lateral view with a minute excision mesad on midway in ventral view. Phallic organ with slightly elongated flat dorsum, elongated straight ventrum; single paramere curved with more curved basal region; apicoventral lip long, regular right angled with less tapering apex.

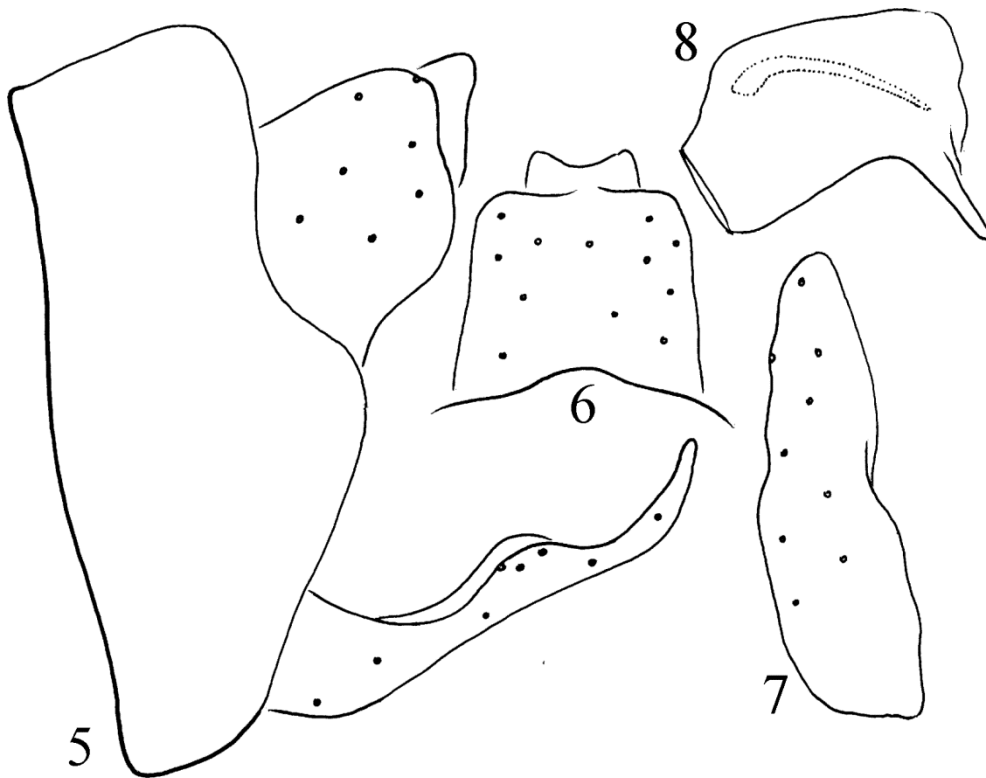
Etymology. Coined after the name of locus typicus, a noun in apposition.

***Oecetis posoa* sp. nov.**

(Figures 13–16)

Material examined. Holotype: **Indonesia**, Sulawesi, Poso Regency, Poso large lake outlet, 1°46'13.4"S 120°38'23.4"E, 527 m, 16.II.2020, light trap, leg. Marko Jaakkola (male, OPC). Paratypes: same as holotype (2 males, 3 females, OPC).

Diagnosis. *Oecetis posoa* sp. nov. has resemblance to *Oecetis kamba* Oláh, 2022, described from Indonesia, Sumatra, but distinguished by the ventral profile of the gonopods as well as the shape of the apicoventral lip of the phallic organ.



Figures 5–8. *Oecetis pejenkaja* sp. nov. Holotype male: 5 = genitalia in left lateral view; 6 = genitalia in dorsal view; 7 = left gonopod in ventral view; 8 = phallic organ in lateral view.

Description. Head, thorax, scape light brown yellowish in alcohol. Forewing rubbed in alcohol, membrane hyaline, length 7 mm. Forewing anastomosis cross-veins arranged in step-wise, transverse base of MA distad of transverse base of MP3+4, by more than its length. Tibial spurs 1,2,2.

Male genitalia. Segment IX short with long dorsum and abbreviated ventrum. Cerci entirely fused to segment X and triangular in lateral and subquadrangular in dorsal views. Segment X slightly and widely excised apicad. Gonopods with mesad displaced apical third in ventral view. Phallic organ slightly elongated rounded; single paramere shorter; apicoventral lip robust, almost right angled with apicad turning apex.

Etymology. Coined after the name of locus typicus, a noun in apposition.

***Oecetis pelenga* sp. nov.**

(Figures 9–12)

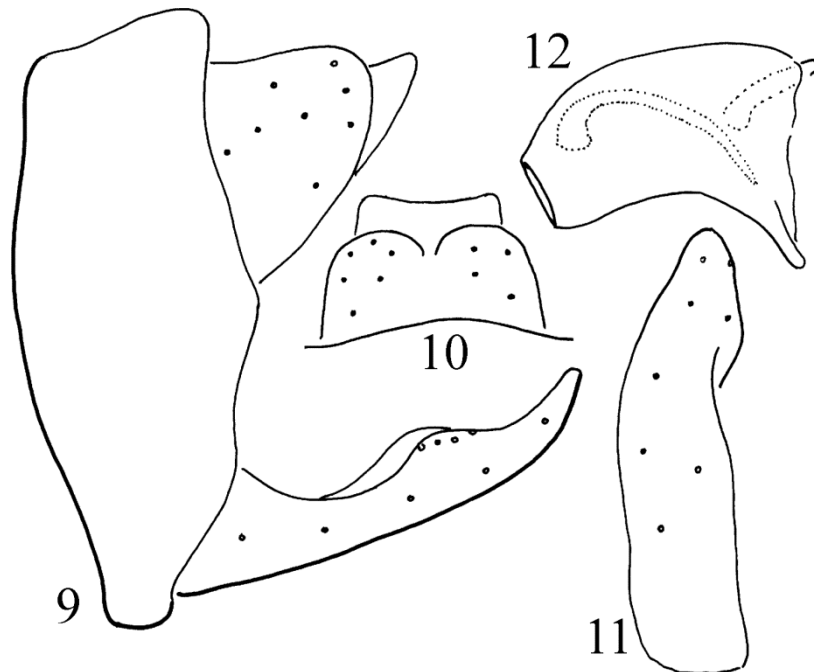
Material examined. Holotype: **Indonesia**, Sulawesi, Banggai Kepulauan, Peleng Island,

North Tinankung, Air Terjun Tembang Luk Sagu, river fall, 1°16'42.3"S 123°25'35.3"E, 76 m, 9.II.2020, light trap, leg. Marko Jaakkola (male, OPC). Paratypes: same as holotype (15 females; OPC).

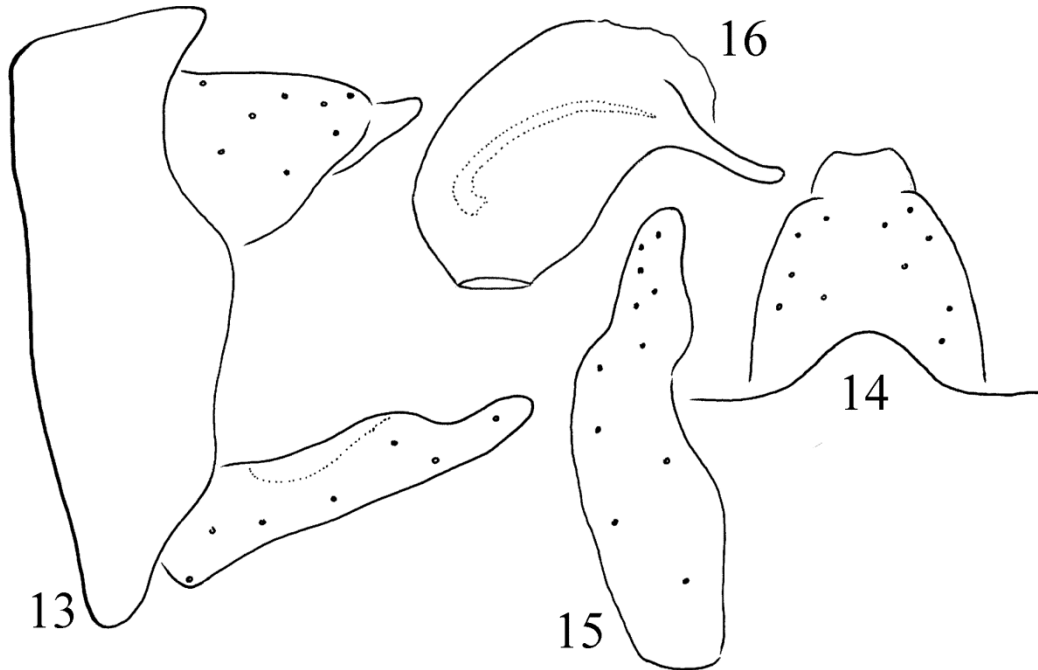
Diagnosis. *Oecetis pelenga* sp. nov. has close resemblance to *Oecetis kamba* Oláh, 2022, described from Indonesia, Sumatra, but distinguished by the much shorter cerci both in lateral and dorsal view; the ventral profile of the gonopods mesad produced on its apex and parallel-sided, not with much broader basal region, the phallic organ supplied with an additional short rod and the shape of the apicoventral lip of the phallic organ broader based.

Description. The entire body light brown yellowish in alcohol. Forewing partially rubbed in alcohol, membrane hyaline, length 7 mm. Forewing anastomosis cross-veins arranged in step-wise, transverse base of MA distad of transverse base of MP3+4, by more than its length. Tibial spurs 1,2,2.

Male genitalia. Segment IX short; dorsum long, ventrum abbreviated. Cerci short entirely



Figures 9–12. *Oecetis pelenga* sp. nov. Holotype male: 9 = genitalia in left lateral view; 10 = genitalia in dorsal view; 11 = left gonopod in ventral view; 12 = phallic organ in lateral view.



Figures 13–16. *Oecetis posoa* sp. nov. Holotype male: 13 = genitalia in left lateral view; 14 = genitalia in dorsal view; 15 = left gonopod in ventral view; 16 = phallic organ in lateral view.

fused to segment X almost semicircular in lateral and subquadrangular in dorsal views. Segment X almost truncated without apical excision. Gonopods with slightly mesad displaced apical quarter in ventral view. Phallic organ with slightly elongated rounded dorsum; single paramere curved with more curved basal region, accompanied by a unique short rod; apicoventral lip broad-based, short, obtuse angled with tapering apex.

Etymology. Coined after the name of locus typicus, a noun in apposition.

***Oecetis saluopa* sp. nov.**

(Figures 17–20)

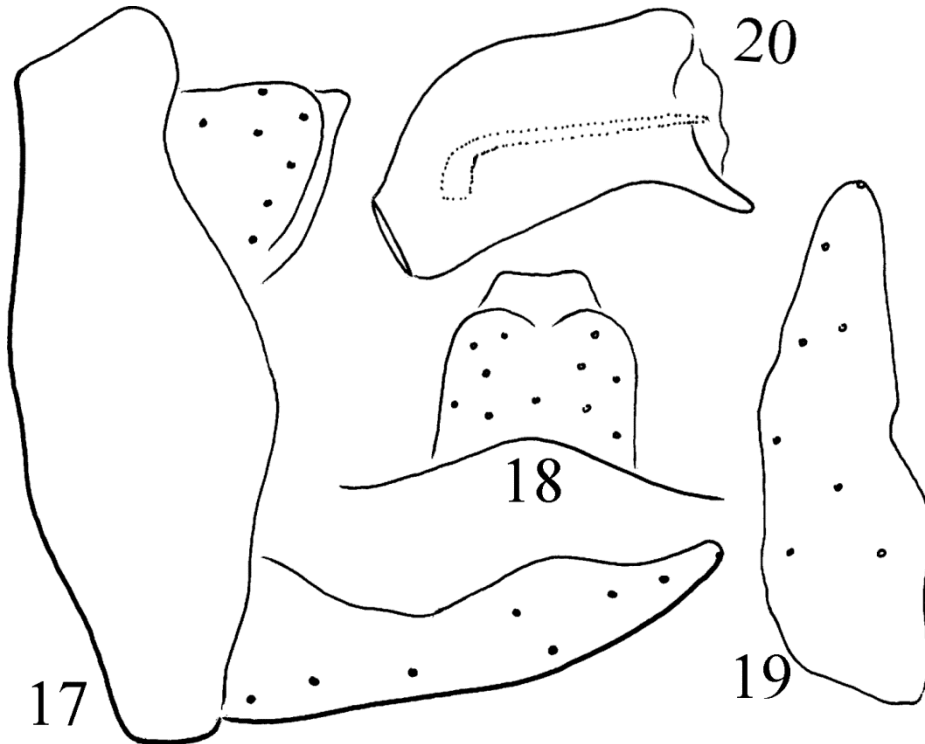
Material examined. Holotype: **Indonesia**, Sulawesi, Poso Regency, Air Terjun Saluopa, small river fall, 1°44'59.6"S 120°32'29.2"E, 563 m, 17.II.2020, light trap, leg. Marko Jaakkola (1 male, OPC). Paratypes: same as holotype (5 males, 7 females; OPC). Indonesia, Sulawesi, Banggai Regency, Air Terjun Salodik, large brook fall, 0°49'50.8"S 122°52'11.5"E, 473 m, 14.II.

2020, light trap, leg. Marko Jaakkola (3 males, 3 females; OPC).

Diagnosis. *Oecetis saluopa* sp. nov. has resemblance to *Oecetis kamba* Oláh, 2022, described from Indonesia, Sumatra, but distinguished by the much shorter cerci, ventral profile of the gonopods as well as by the longer phallic organ and the shape of the apicoventral lip of the phallic organ.

Description. The entire body, head, thorax, scape light brown yellowish in alcohol. Forewing partially rubbed in alcohol, membrane hyaline, length 7 mm. Forewing anastomosis cross-veins arranged in step-wise, transverse base of MA distad of transverse base of MP3+4, by more than its length. Tibial spurs 1,2,2.

Male genitalia. Segment IX short with almost equal dorsum and ventrum. Cerci particularly short, abbreviated, entirely fused to segment X and rounded triangular in lateral and subquadrangular in dorsal views. Segment X slightly and widely excised apicad, but variously formed at paratypes; even the holotype excised apical mar-



Figures 17–20. *Oecetis saluopa* sp. nov. Holotype male: 17 = genitalia in left lateral view; 18 = genitalia in dorsal view; 19 = left gonopod in ventral view; 20 = phallic organ in lateral view.

gin could be an artefact; the membranous and gentile apical region of segment X is liable to deformation during copulation or preparation. Gonopods with slightly mesad displaced apical half in ventral view. Phallic organ slightly elongated rounded; single paramere almost straight with curved basal region; apicoventral lip short, obtuse angled with tapering apex.

Etymology. Coined after the name of locus typicus, a noun in apposition.

Acknowledgement – Mr. Marko Jaakkola is sincerely acknowledged for his efforts to do all the collections. The

collector did quite a lot of work sometimes in difficult local conditions.

REFERENCES

- CHEN, Y.E. (1993): *Revision of the Oecetis (Trichoptera: Leptoceridae) of the world*. Ph.D. Dissertation Presented to the Graduate School of Clemson University. UMI Dissertation Services, 704 pp.
- OLÁH, J. (2022): Contribution to the taxonomy of the *Oecetis (Oecetis) tripunctata* (Fabricius, 1793) species group (Trichoptera: Leptoceridae). *Opuscula Zoologica (Budapest)*, 53 (1):3–30. <https://doi.org/10.18348/opzool.2022.1.3>