

Formosiepyris, a New Genus of the Family Bethylidae
(Hymenoptera, Chrysoidea) from the Oriental Region, with
a Proposal of a New Synonymy of Genus

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Introduction

The subfamily Epyrinae, belonging to the family Bethylidae, is represented by 42 genera and distributed from the tropics to the subarctic regions around the world. This subfamily is characterized by the reduced matanotum, the developed eyes, the simple basal vein of forewing, the absence of distinct spine at dorsal posterior lateral corner of propodeum, and the simple 5th gastral sternite.

In the course of my taxonomic and phylogenetic studies of the subfamily Epyrinae, I have examined many specimens including types and found a new genus and a synonymy of genus. In this paper I describe the new genus and propose a new synonymy.

Special terms used in this paper follow those in Terayama (1999) and the following abbreviations are used: HL—head length; HW—head width; WF—width of frons; LM—length of mesosoma; LPD—length of propodeal disc; WPD—width of propodeal disc; FWL—forewing length; TL—total body length; EL—eye length; POL—shortest distance between posterior ocelli; AOL—shortest distance from a posterior ocellus to nearest eye margin; OOL—shortest distance from a posterior ocellus to nearest eye margin; WOT—distance across and including posterior ocelli. NSMT—National Science Museum, Tokyo, Japan; PMA—Provincial Museum of Alberta, Canada.

Formosiepyris gen. nov.

Type species: *Formosiepyris marishi* gen. et sp. nov.

Gender: masculine.

Diagnosis. Small to moderate-sized wasps in Bethylidae with the following combinations of

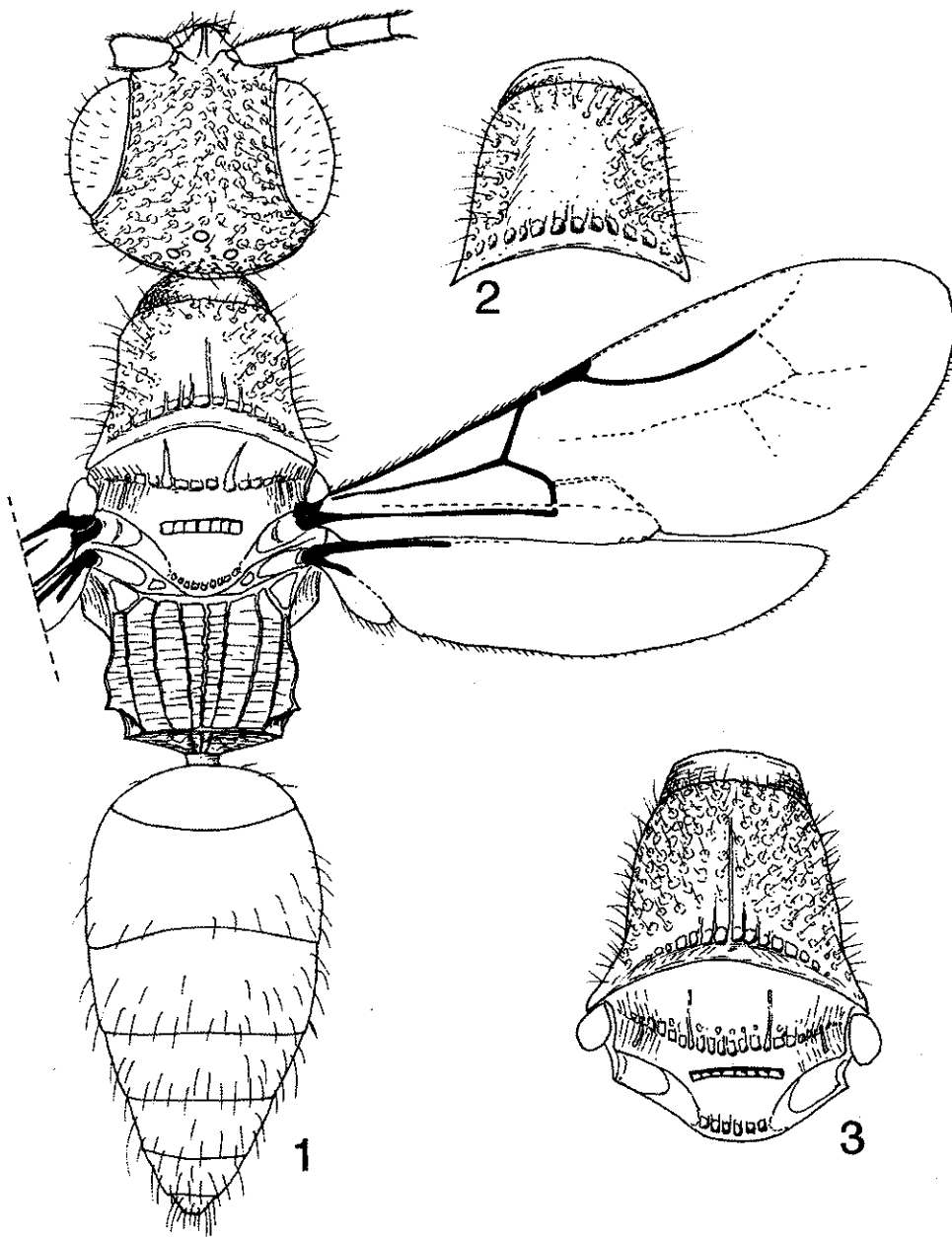
characters in the subfamily Epyrinae:

1. Head round, with an occipital carina.
2. Mandible small with 3 or 4 teeth including apical projection (tooth).
3. Median lobe of clypeus small with rounded or dully angulate anterior margin.
4. Lateral lobe of clypeus not developed.
5. Palpal formula, 5 : 3.
6. Eye remarkably large and relatively strongly convex, with erect hairs.
7. Antenna with 13 articles, without modification.
8. Pronotal disc with a transverse foveolate groove posteriorly.
9. Mesoscutum transversely dipressed medially, with a transverse foveolate groove.
10. Notauli and parapsidal lines present, but weak.
11. Scutellum with a transverse groove at base.
12. Propodeal disc wider than long, with discal carinae.
13. Pterolateral corner of propodeal disc with 2 pairs of dull small teeth.
14. Posterolateral corner of propodeal disc foveolate.
15. Pterostigma narrow.
16. Prostigma absent in forewing.
17. Radial vein modelately long.
18. Basal vein reaching subcosta to base of pterostigma.
19. Tarsal claw bifid.

Etymology. *Foromosi*, Latin, beautiful + *Epyris*.

Distribution. Asia (India, Thailand, Taiwan).

Remarks. This new genus belongs to the tribe Epyrini by the characteristics 3, 5, 7 and 14. The cladistic analysis of the tribe suggested that this genus is mostly related to the genus *Disepyris* Kieffer, 1905, (Terayama, in prep.) by the disproportionately large eyes (character 6) and transversely depressed mesoscutum (char. 9). However, it is separated from the latter by the mesoscutum with a transverse foveolate groove (char. 8), simple fore tarsi without a lake, presence of notauli (char. 10), narrow pterostigma (char. 15), absence of prostigma (char. 16), and long radial vein (char. 17). Character 8 in this genus is autapomorphic and unique in the subfamily Epyrinae.



Figs. 1-3. *Formosiepyris marishi* gen. et sp. nov. — 1, Body, dorsal view, male; 2, pronotum with an obscure median longitudinal carina, dorsal view, male; 3, pronotum, dorsal view, female.

Formosiepyris marishi sp. nov.

(Figs. 1-5)

Female (holotype). HL 1.05 mm; HW 1.05 mm; WF 0.50 mm; LM 2.05 mm; LPD 0.58 mm; WPD 0.78 mm; FWL 2.7 mm; TL 5.8 mm.

Body black; mandible and antenna blackish brown; coxae and femora black; tibiae and tarsi dark brown to brown.

Head as long as wide, with convex posterior margin in full face view; frons and vertex densely punctate with microreticulate interspaces; punctures ca. 0.01-0.03 mm diameters. Mandible with 4 teeth; apical tooth largest and basal most one smallest. Anterior clypeal margin subtriangular, with an obtuse median angle. First 5 articles of antenna in a ratio of 17 : 7 : 7 : 9 : 6 in length. EL 0.63 mm; WF 0.79 times EL. Ocelli forming a right triangle; OOL 0.9 times WOT.

Pronotum punctate with microreticulate interspaces; punctations sparser than that of head; disc flat, with a median longitudinal carina at posterior 3/4; in dorsal view anterolateral corner rounded. Mesonotum punctate as in pronotum; interspaces microreticulate. Propodeum 0.74 times as long as wide, with 5 discal carinae; surface between the carinae transversely striate; sublateral carina present.

First gastral tergite smooth and shining; 2nd tergite densely punctate excepting posterior 1/5 mostly smooth with small moderate punctures; 3rd segment shagreened with small moderate punctures.

Males. General shape as in female excepting 3-toothed mandible. Five paratype males with the following measurements: HL 0.75-0.99 mm; HW 0.78-1.00 mm; WF 0.36-0.55 mm; LM 1.33-1.88 mm; LPD 0.48-0.65 mm; WPD 0.53-0.78 mm; FWL 1.3-2.5 mm; TL 2.3-4.3 mm.

Variation. Median longitudinal carina on pronotal disc varies from developed (Fig. 1) to almost absent (Fig. 2).

Holotype. Female, Doi Inthanon Nat. Park, 70 km S. W. Chiang Mai, 530 m, Thailand, 31.I-7.II.1989, T. W. Thormin leg.

Paratypes. 5 females, 6 males, the same data as holotype; 9 females 16 males, Khao Yai Nat. Park, 40 km South of Pak Chong, Thailand, 10-17.II.1989, T. W. Thormin leg.; 6 males, Chiang Mai, Doi Inthanon National Park, 1300 m, Thailand, 7-12.V.1990, E. Fuller leg.; 1 male, Chiangmai, Thailand, 18.VIII.1992, M. Terayama leg.

Type depository. PMA.

Etymology. The specific epithet refers to the name of god in buddism.

Formosiepyris shiva sp. nov.

(Figs. 6-8)

Female (holotype). HL 1.10 mm; HW 1.06 mm; WF 0.55 mm; LM 2.05 mm; LPD 0.60 mm; WPD 0.88 mm; FWL 2.6 mm; TL 5.0 mm.

Body black; mandible brown; antenna dark brown excepting brown scape; legs reddish brown.

Head almost as long as wide, with convex posterior margin in full face view; frons and vertex with shallow but relatively large punctures densely and strongly microreticulate interspaces; punctures ca. 0.03-0.05 mm diameters. Mandible with 3 teeth. Clypeus with a broad U-shaped anterior margin. First 5 articles of antenna in a ratio of 9 : 4 : 4 : 4 : 4 in length. EL 0.60 mm; WF 0.92 times EL. Ocelli forming a right triangle; OOL 0.9 times WOT.

Pronotal disc scattered with shallow punctures and strongly microreticulate interspaces; anterolateral corner rounded. Mesonotum strongly microreticulate with shallow punctures densely. Propodeal disc 0.68 times as long as wide, with 5 discal carina; surfaces between discal carinae transversely striate; surface between median carina and inner submedian carinae with a longitudinal striae.

First gastral tergite smooth and shining; 2nd tergite with relatively sparse small punctures and smooth interspaces; 3rd tergite shagreened and impunctate.

Variation. The paratype specimen is even smaller with the following measurements: HL 0.98 mm; HW 0.95 mm; WF 0.50 mm; LM 1.78 mm; LPD 0.60 mm; WPD 0.73 mm; FWL 2.5 mm; TL 4.8 mm.

Holotype. Female, Karnataka, Bangalore, 916 m, India, 22-31.V.1986, K. Chorpade leg.

Paratype. 1 female, Bangalore, Karnataka, India, 1-31.VIII.1987, K. Chorpade leg.

Type depository. PMV.

Etymology. The specific epithet refers to the name of goddess in buddism.

Formosiepyris takasago sp. nov.

(Figs. 9-11)

Male (holotype). HL 1.05 mm; HW 1.05 mm; WF 0.60 mm; LM 1.01 mm; LPD 0.61 mm; WPD 0.76 mm; FWL 2.9 mm; TL 4.9 mm.

Body black; mandible, antenna and legs black.

Head as long as wide, with straight posterior margin in full face view; frons and vertex densely

punctate with strongly microreticulate interspaces; punctures ca. 0.02–0.03 mm diameters. Mandible with 3 teeth; apical teeth largest and basal most one smallest with a blunt tip. Anterior margin of clypeus round, without median projection. First 5 articles of antenna in a ratio of 13 : 4 : 10 : 11 : 9 in length. EL 0.55 mm; WF 1.09 times EL. Ocelli forming an obtuse triangle; OOL 0.9 times WOT.

Pronotal disc densely punctate with strongly microreticulate interspaces as in head; median longitudinal carina absent; in dorsal view anterolateral corner rounded. Mesonotum microreticulate and sparsely punctate; punctures shallower than those of pronotum.

Propodeum wider than long, with 5 discal carinae; surface between the carinae transversely striate; sublateral carinae present.

First gastral tergite smooth and shining; 2nd and 3rd terga densely micropunctate.

Holotype. Male, Nanshan-chi, Nanfen Cun, Nantou Hsien, Taiwan, 21.VIII.1995, M. Terayama leg.

Type depository. NSMT.

Etymology. This species is named in honor of the people (Takasago tribe) loving Taiwan.

Remarks. Of the two females and two males described above, the following salient features separate them.

F. marishi (female and male): mandible with 4 teeth in female and with 3 teeth in male; anterior margin of clypeus triangular; surfaces between median carina and submedian carinae of propodeum transversely striate, without longitudinal striae; 2nd gastral tergite densely micropunctate excepting posterior 1/5 smooth interspaces.

F. shiva (female): mandible with 3 teeth; anterior margin of clypeus broad U-shaped; surfaces between median carina and inner submedian carina of propodeum with a longitudinal striae; 2nd gastral tergite with sparse small punctures and smooth interspaces.

F. takasago (male): mandible with 3 teeth; anterior margin of clypeus broad U-shaped; surfaces between median carina and inner submedian carina of propodeum with a longitudinal striae; 2nd gastral tergite densely micropunctate.

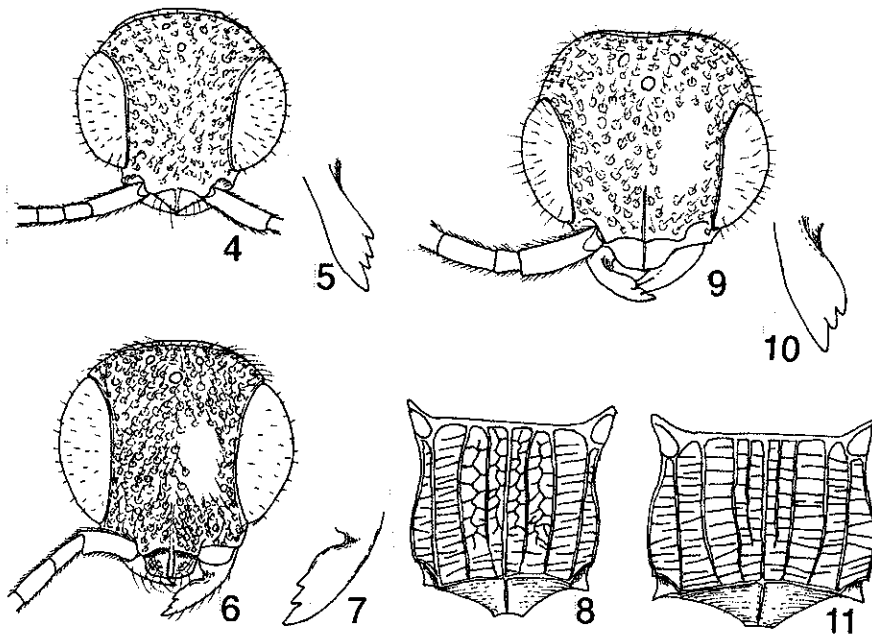
Genus *Disepyris* Kieffer

Disepyris Kieffer, 1905, Ann. Soc. Sci. Bruxelles, 29: 105, 115.

Type species: *Disepyris ruffipes* Kieffer, 1905

Lytepyris Kieffer, 1913, Boll. Lab. Zool. Gen. Agr. Scu. Sup. d'Agri. Por., 7: 108. **Syn. nov.**

Type species: *Trachepyris biscrensis* Kieffer, 1906 (subsequent designation by Kieffer, 1914)



Figs. 4-11. *Formosiepyris* spp. — 4, 5, *F. marishi* gen. et sp. nov., female; 6-8, *F. shiva* gen. et sp. nov., female; 9-11, *F. takasago* gen. et sp. nov., male — 4, 6, 9, Head, full face view; 5, 7, 10, mandible; 8, 11, propodeum, dorsal view.

The genus *Disepyrus* Kieffer is represented by two species, *D. rufipes* and *D. pallidinervis*, and known from India. This genus is characterized by the disproportionately large eyes, the absence of notauli, the presence of prostigma of forewing, the large pprostigma, the short radial vein, and the tarsi with a lake.

A direct comparison between *Disepyrus rufipes* Kieffer (Figs. 12-17) and *Lytepyris biscrensis* Kieffer (Figs. 18-21) both are type species of representative genera indicated no significant differences in genus level.

The following two species are removed from the genus *Lytepyris*.

Disepyrus afer (Magretti, 1884) comb. nov.

Pristocera afra Magretti, 1884, Ann. Mus. Civ. Storia Nat. Genova, Ser. 3, 1: 533-534.

Lytepyris afer: Kieffer, 1914, Bethylinae. In Das Tierreich, 41: 416-417.

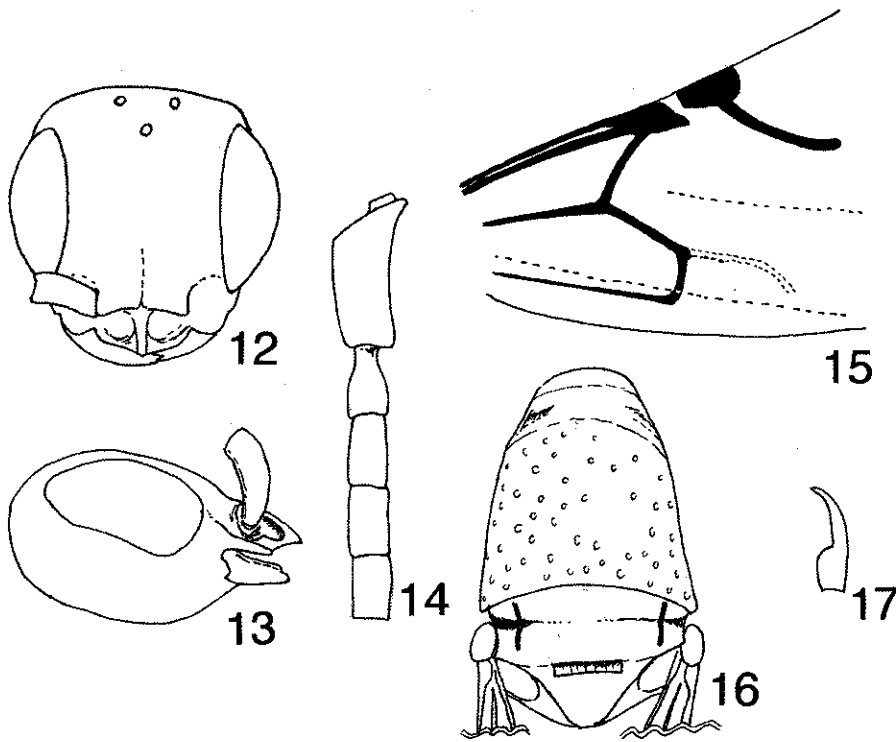
Disepyris biscrensis (Kieffer, 1906) comb. nov.

Trachepyris biscrensis Kieffer, 1906, Species des Hyménoptères d'Europe & d'Algérie, 9: 414.

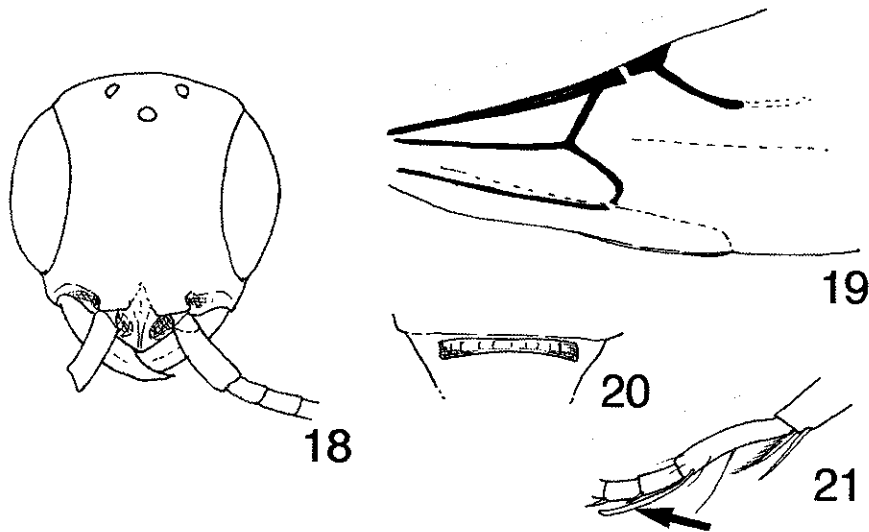
Lytepyris biscrensis: Kieffer, 1914, Bethylinae. In Das Tierreich, 41: 416.

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Figs.12-17. *Disepyris rufipes* Kieffer 1905 (drawn from holotype). — 12, Head, full face view; 13, head, lateral view; 14, first 5 articles of antenna; 15, fore wing; 16, pronotum and scutellum; 17, claw of hind leg.



Figs. 18-21. *Lytepyris biscrensis* (Kieffer, 1906) (drawn from holotype). — 18, Head, full face view; 19, fore wing; 20, transverse groove on scutellum; 21, fore tarsi with a lake (arrow).

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