

**A Revision of the Genus *Petalolyma* SCOTT
(Hemiptera: Psylloidea: Triozidae) in Japan,
with Description of a New Species**

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Abstract Three species of the genus *Petalolyma* have been known so far from Japan. One of them, *P. shibatai* is newly described and two known species, *P. bicolor* and *P. divisa* are redescribed in the present paper.

Key words Psylloidea; Triozidae; *Petalolyma*; Japan; *Ilex*; new species.

Introduction

The genus *Petalolyma* was erected by SCOTT in 1882, based on *Psylla basalis* WALKER. In 1910, Shigeru KUWAYAMA described *Trichohermes bicolor* from Japan and *T. hyalina* from Taiwan. On the other hand, *Trioza divisa* was described by CRAWFORD from the Philippines (CRAWFORD, 1917). YANG and LI (1984) transferred *Trichohermes bicolor*, *T. hyalina*, and *Trioza divisa* to the genus *Petalolyma* SCOTT. They described three new species, *P. sinica*, *P. yunnanana*, and *P. zhejiangana* from Yunnan and Zhejiang Provinces, China in 1984, and two new species, *P. variegata* and *P. fujianensis* from Fujian Province, China in 2001. From Taiwan, YANG described two new species, *P. formosana* and *P. nigra* in 1984 in addition to two known species, *P. bicolor* and *P. hyalina*.

For the Japanese species of the genus *Petalolyma*, *P. bicolor* has been more or less confused for a long time among the populations of different host plants. In this paper, one species *P. shibatai* is newly described, and two other species, *P. bicolor* and *P. divisa* are

redescribed. *Petalolyma shibatai* sp. nov. inhabits the cool-temperate deciduous forest in the mountain areas of Hokkaido to Kyushu. *Petalolyma bicolor* (KUWAYAMA) inhabits the warm-temperate evergreen forest from western Honshu to Kyushu. *Petalolyma divisa* (CRAWFORD) inhabits the subtropical evergreen forest in the Ryukyus.

The specific name of the new species described in the present paper is dedicated to the late Mr. Taichi SHIBATA who was so kind to MIYATAKE and served as a good teacher during his working days at the Osaka Museum of Natural History after 1967. His assistance and donation to the museum have been so helpful and indescribable.

Before going further, we should like to express our gratitude to Dr. Hiromitsu INOUE, National Institute of Fruit Tree Science for his kind offer of materials to our study and Dr. Kiyoshi ANDO, Ehime University, for taking pictures of specimens in fig. 4.

Genus *Petalolyma* SCOTT, 1882

Petalolyma SCOTT, 1882, Trans. ent. Soc. London, 3: 459. — YANG & LI, 1984, Zool. Res., Kunming, 5: 130.

Type species: *Psylla basalis* WALKER, 1858.

Diagnosis: Body large and stout. Head, antenna, thorax, wing veins, ventral side of abdomen and genitalia typically with long hairs. Antenna filiform, longer than width of head. Forewing large, usually broad, sometimes more or less elongate; venation triozone; Rs quite long or moderately long; basal part with a remarkable marking of yellowish to dark brown; medial cell large, subtriangular; cubital cell somewhat quadrilateral. Hind wing short and small, venation not triozone. Legs moderate in size, posterior tibia with one outer and three inner apical spurs, proximal segment of posterior tarsi without apical spur. Male proctiger stout, with long marginal hairs posteriorly. Female dorsal valve slightly longer than ventral valve.

Petalolyma bicolor (KUWAYAMA, 1910)

[Japanese name: Neguro-kijirami]

(Figs. 1, 4-A, 5)

Trichohermes bicolor KUWAYAMA, 1910, Trans. Sapporo nat. Hist. Soc., 3: 54. — TAKAHASHI, 1927, Trans. nat. Hist. Soc. Formosa, 17: 153. — KUWAYAMA, Sa., 1931, Ins. Matsum., 5: 130. — MIYATAKE, 1976, Life of the Tsushima Islands, Nagasaki, 493.

Petalolyma bicolor: YANG & LI, 1984, Zool. Res., Kunming, 5: 130.

Coloration: General color light brown to dark brown, usually female lighter and male darker. Vertex light brown, with discal impressions and median suture dark brown. Genal

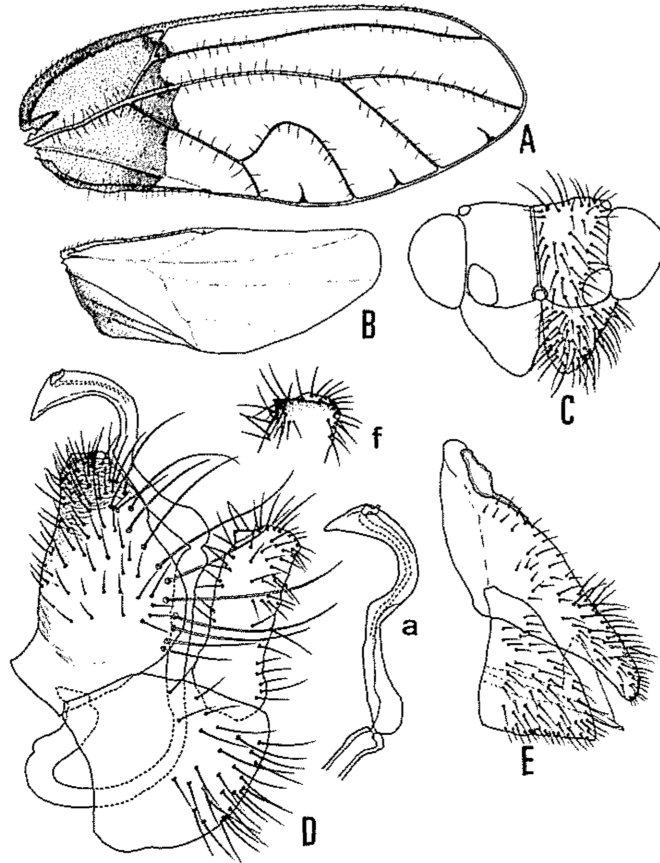


Fig. 1. *Petalolyma bicolor* (KUWAYAMA). — A, Forewing; B, hind wing; C, head, frontal aspect; D, male genitalia (f, apex of inner face of forceps; a, apical part of aedeagus); E, female genitalia.

cones light brownish. Antenna whitish to light brown, with apical part of IX and X dark brown. Eyes brownish to dark brown.

Thorax various, light brown to dark brown, sometimes with brown stripes, with small yellowish markings laterally; meso- and metascutella yellow. Forewing transparent, sometimes faintly flavous, with a distinct marking of yellowish to dark brown at base as illustrated (Fig. 1-A), outer margin of basal marking rather strongly serrate. Hind wing transparent, with a black macula along anal veins as illustrated (Fig. 1-B). Legs brown to dark brown, posterior tibia light brown. Abdomen light brown to brown. Male genitalia light brown to brown. Female genitalia yellow to light brown.

Structure: Head (Fig. 1-C) narrower than thorax, nearly vertical or sometimes slightly

deflexed; vertex slightly deflexed, $4/5$ as long as wide, pubescent, especially anteriorly; genal cones long and deflexed, slightly shorter than vertex, subconical, rounded apically, divergent, with dense pubescence. Antenna moderately long, nearly 1.4 times as long as width of head, with one long and one short apical setae, each segment with several long setae, relative length of each antennal segment as $3 : 2 : 10 : 6 : 5 : 6 : 5 : 5 : 2 : 3$.

Thorax large, strongly arched, with pubescence dorsally; pronotum vertical, depressed from plane of vertex; praescutum well convex, rounded down to pronotum anteriorly; mesoscutum wide, wider than width of head, widely flat dorsally; mesoscutellum small, conversely trapezoidal, $1/2$ as long as wide. Forewing (Fig. 1-A) large and broad, 2.4 to 2.7 times as long as wide, not acute at apex, all veins biserially set with long and erect hairs, except for apical $2/3$ of posterior margin; Rs long and slightly arcuate, not reaching wing apex; M nearly $2/3$ as long as Rs, moderately arcuate; M_{1+2} long, scarcely arcuate, nearly $4/5$ as long as M, ending close to wing apex; M_{3+4} rather straight, $3/4$ as long as M_{1+2} ; Cu_1 strongly arcuate, subparallel to Cu_2 in apical half; medial cell quite large and elongate, subtriangular; cubital cell high and stout, transformedly quadrilateral. Hind wing (Fig. 1-B) rather short, nearly $2/3$ as long as forewing, 2.5 times as long as wide, rounded at apex, with anterior margin slightly arcuate, venation not triozine, M and Cu with a common petiole, R_1 rather prominent. Legs moderate in size and massive, densely pubescent, anterior and middle femora prominently swollen; posterior tibia with a quite minute basal process, with one outer and three inner apical spurs situated on conspicuously developed arms; proximal segment of posterior tarsi without apical spurs; meracanthus short, projected ventro-caudad, acute apically. Abdomen (excl. genital segments) short, $1/2$ as long as thorax or shorter, densely pubescent ventrally.

Male genitalia (Fig. 1-D) small, $2/5$ as long as the rest of abdomen; proctiger short and stout, nearly 1.2 times as long as forceps, in lateral aspect caudal margin strongly produced caudad, pubescent on apical $2/3$, with a row of long setae along caudal margin; forceps rather subparallel-margined in lateral aspect, truncate at apex, pubescent, especially along apical margin of inner face, inner face with an acute secondary process anteriorly near apex (Fig. 1-f); aedeagus long, apical segment (Fig. 1-a) shorter than proximal segment, acute at apex; subgenital plate somewhat quadrilateral, pubescent on caudal half portion. Female genitalia (Fig. 1-E) moderate in size, nearly $1/2$ as long as the rest of abdomen; dorsal valve slightly longer than ventral, with dorsal margin rather straight and descending, apical portion attenuate and somewhat overhanging, blunt at apex, pubescent; ventral valve subtriangular, with dorsal margin slightly produced outward, subacute apically, densely pubescent throughout.

Measurements: Length of body ♂ 2.1–2.4 mm, ♀ 2.5–2.8 mm (to tip of folded wings ♂ 4.3–4.7 mm, ♀ 4.7–4.9 mm); length of forewing ♂ 3.7–3.9 mm, ♀ 4.0–4.2 mm; width of forewing ♂ 1.4–1.5 mm, ♀ 1.5 mm; length of antenna ♀ ♂ 0.9–1.1 mm.

Specimens examined: [Honshu] 1 ♀, nr Kasuga Shrine, Kasuga-yama, Nara City, Nara Pref., 6. IX. 1968, I. HIURA leg.; 2 ♀ ♀, 1 ♂, Kibitani, alt. 160 m, Kaizuka City, Osaka

Pref., 15. VI. 1993, Y. MIYATAKE leg.; 1 ♂, Mt. Ohtoh, alt. 400–850 m, Higashimuro-gun, Wakayama Pref., 18. VIII. 1968, Y. MIYATAKE leg.; 1 ♀, 2 ♂♂, Mt. Oniga-take, Yakagechô, Okayama Pref., 17. VI. 1992, Y. OKUSHIMA leg.; 1 ♀, Mt. Takamatsu-zan, Asakita, Hiroshima City, Hiroshima Pref., 6. VIII. 2000, T. YAMAUCHI leg.; [Shikoku] 17 ♀♀, 17 ♂♂, Mt. Miyuki-ji, Matsuyama City, Ehime Pref., 8. VII. 1974, K. USHIJIMA leg.; [Kyushu] 1 ♂, Hirao, Fukuoka City, 30. V. 1953, Y. MURAKAMI leg.; 1 ♂, Mt. Kora-san, Kurume City, Fukuoka Pref., 7. VIII. 1951, S. MIYAMOTO leg.; 2 ♀♀, 4 ♂♂ (1 ♀, 1 ♂, teneral), many larvae, Mt. Shimizu, Izuhara-chô, Tsushima Is., Nagasaki Pref., 9. VI. 1975, on *Ilex chinensis*, Y. MIYATAKE leg.; 1 ♀, 2 ♂♂ (1 ♂, teneral), ditto, 13. VI. 1975, on *Ilex chinensis*, Y. MIYATAKE leg.

Distribution: Japan (W. Honshu, Shikoku, Kyushu, Tsushima).

Host plants: “Nanami-no-ki” — *Ilex chinensis* SIMS. [Aquifoliaceae]. “Mochi-no-ki” — *Ilex integra* THUNB. [Aquifoliaceae] (SASAKI, 1954).

Biology: Several larvae are living inside a leaf margin fold gall (Fig. 5) made on basal portion of the leaf which is not discolored and secrete wax filaments (MIYATAKE, 1996). Overwintered adults oviposit early in April and new adults emerge in June. This species is univoltine.

Petalolyma shibatai MIYATAKE et MATSUMOTO, sp. nov.

[Japanese name: Aohada-negoro-kijirami]

(Figs. 2, 4–B)

Trichohermes bicolor: MIYATAKE, 1969, Bull. Osaka Mus. nat. Hist. (22): 81 [nec KUWAYAMA, 1910]. — BABA & MIYATAKE, 1971, Bull. Osaka Mus. nat. Hist. (24): 12.

Coloration: General color dark brown to black. Vertex brown to dark brown, with discal impressions and median suture dark brown to black. Genal cones brown to dark brown basally, light to yellowish brown apically. Antenna rather colorless, sometimes whitish to light brown, with IX more or less brownish and X dark brown to black. Eyes black.

Thorax with praescutum often yellowish laterally, mesoscutum with a pair of yellowish stripes, meso- and metascutella mostly yellow, darker laterally. Forewing nearly transparent, sometimes faintly flavous, with a distinct marking of dark brown to black at base as illustrated (Fig. 2–A), often with a narrow yellow band along posterior margin from apex of clavus to wing apex, outer margin of basal marking not prominently serrate. Hind wing hyaline, with a black macula around anal vein as illustrated (Fig. 2–B). Legs dark brown, posterior tibia light brown. Abdomen dark brown, more or less lighter ventrally, especially near genitalia. Male genitalia with dark brown proctiger, brownish subgenital plate and light brown forceps. Female genitalia yellowish brown or light brown.

Structure: Head (Fig. 2–C) narrower than thorax, vertical; vertex slightly deflexed,

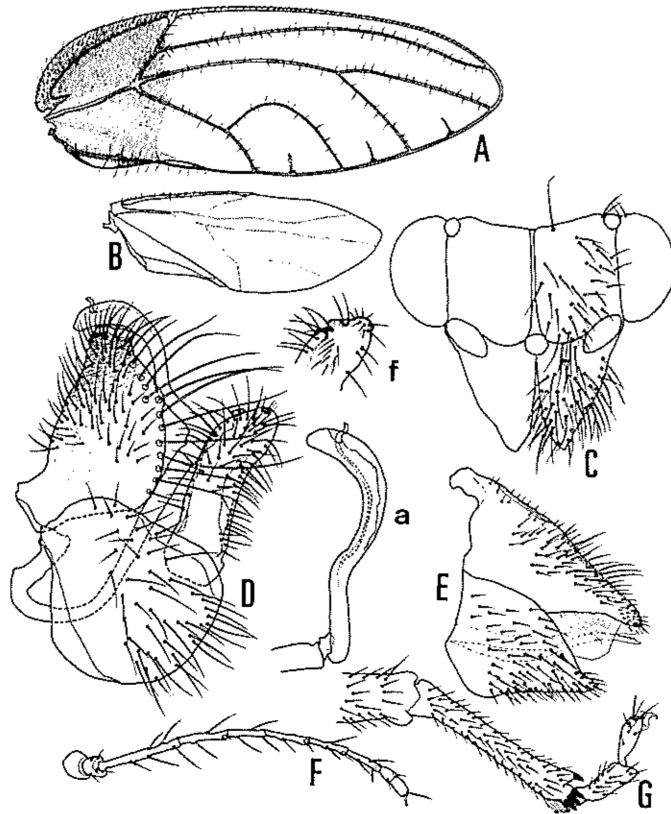


Fig. 2. *Petalolyta shibatai* sp. nov. — A, Forewing; B, hind wing; C, head, frontal aspect; D, male genitalia (f, apex of inner face of forceps; a, apical part of aedeagus); E, female genitalia; F, antenna; G, tibia and tarsi of posterior leg.

$3/5$ as long as wide, with a discal impression on each side of median line, with heavy pubescence; genal cones long, nearly as long as vertex, vertical, depressed from plane of vertex, contiguous, heavily pubescent, subacute apically; occiput depressed, not visible from above. Antenna (Fig. 2-F) long and slender, nearly 1.5 times as long as width of head, with one long and one short apical setae, each segment with several long setae as illustrated, relative length of each antennal segment as 3 : 2 : 11 : 6 : 5 : 6 : 5 : 5 : 3 : 2.

Thorax large, strongly arched, conspicuously pubescent; pronotum vertical, depressed from plane of vertex; praescutum well convex, rounded down to pronotum anteriorly; mesoscutum quite wide, more than 1.2 times as wide as head, widely flat dorsally; mesoscutellum rather small, conversely trapezoidal, $3/5$ as long as wide. Forewing (Fig. 2-A)

large, rather narrow and elongate, about 3 to 3.2 times as long as wide, not sharply but roundly angular at apex, all veins biserially set with conspicuously long and erect setae, except for apical 2/3 of posterior margin; Rs very long, almost 2/3 as long as forewing, slightly arcuate, subparallel to anterior margin in apical half, ending close to wing apex; M moderately arcuate, nearly 2/3 as long as Rs; M₁₊₂ long, scarcely arcuate, over 1.5 times as long as M₃₊₄, ending distinctly at posterior margin of forewing; M₃₊₄ almost straight; Cu₁ strongly arcuate, subparallel to Cu₂ in apical half; medial cell large and elongate, subtriangular; cubital cell low and stout, somewhat quadrilateral. Hind wing (Fig. 2-B) short, nearly 3/5 as long as forewing, 2.7 times as long as wide, with anterior margin almost straight, narrowly rounded apically, venation not triozone, M and Cu with a distinct common petiole, R₁ rather prominent. Legs long and massive, densely pubescent; anterior and middle femora prominently swollen; posterior tibia (Fig. 2-G) without basal spurs, with one outer and three inner apical spurs, which are situated on considerably developed arms; proximal segment of posterior tarsi without apical spurs; meracanthus short, projected caudad, blunt apically. Abdomen (excl. genital segments) short, 1/2 as long as thorax or shorter, densely pubescent ventrally.

Male genitalia (Fig. 2-D) large, 1/2 as long as the rest of abdomen; proctiger short and stout, almost as long as or scarcely longer than forceps, in lateral aspect caudal margin strongly produced caudad, pubescent on apical 2/3, with a row of long setae along caudal margin; forceps long, in lateral aspect moderately thick, parallel-margined, slightly curved caudad apically, with an acute secondary process (Fig. 2-f) anteriorly near apex, with blunt apices, densely pubescent, especially along anterior margin of inner face; aedeagus long, apical segment (Fig. 2-a) much shorter than proximal segment, not conspicuously swollen apically; subgenital plate large, somewhat quadrilateral in lateral aspect, dorsal margin strongly produced outward in anterior half, pubescent nearly throughout.

Female genitalia (Fig. 2-E) large, almost as long as the rest of abdomen; dorsal valve slightly longer than ventral, shorter than ovipositor, with dorsal margin nearly straight and descending, apical portion attenuate and somewhat overhanging, blunt at apex, sparsely pubescent except for basal part; ventral valve in lateral aspect somewhat pentagonal, with dorsal margin produced outward, subacute apically, densely pubescent throughout.

Measurements: Length of body ♂ 1.8–2.1 mm, ♀ 2.0–2.3 mm (to tip of folded wings ♂ 4.1–4.5 mm, ♀ 4.3–4.7 mm); length of forewing ♂ 3.6–3.9 mm, ♀ 4.0–4.2 mm; width of forewing ♂ 1.1–1.3 mm, ♀ 1.3–1.4 mm; length of antenna ♀ ♂ 1.0–1.1 mm.

Holotype (♂): Mt. Hiko-san, Soeda-chô, Tagawa-gun, Fukuoka Pref., 6. VI. 1959, Y. MIYATAKE leg.

Paratopotypes: [Kyushu] all the paratopotypes were collected on Mt. Hiko-san, Soeda-chô, Tagawa-gun, Fukuoka Pref. except for 34 specimens which were collected at the restricted area of Mt. Hiko-san mentioned below: 10 ♀ ♀, 15 ♂ ♂, same data as the holotype; 1 ♀, 2 ♂ ♂, 14. VI. 1959, T. KAWARABATA leg.; 2 ♀ ♀, 14. VI. 1959, S. MIYAMOTO leg.; 14 ♀ ♀ (1 ♀, slide), 9 ♂ ♂, 14. VI. 1959, K. MORIMOTO leg.; 2 ♀ ♀, 4 ♂ ♂,

15. VI. 1955, K. MORIMOTO leg.; 1 ♀, 14. VII. 1958, K. MORIMOTO leg.; 1 ♂, 17. VII. 1958, K. MORIMOTO leg.; 1 ♀, 5. VIII. 1958, K. MORIMOTO leg.; 3 ♀ ♀, 3 ♂ ♂, 27–29. VI. 1958, Y. MIYATAKE leg.; 5 ♀ ♀, 2 ♂ ♂, 15–17. VIII. 1958, Y. MIYATAKE leg.; 22 ♀ ♀, 28 ♂ ♂, 8–11. IX. 1997, K. MATSUMOTO leg.; 22 ♀ ♀, 10 ♂ ♂, 5. VI. 1998, H. INOUE leg.; 5 ♀ ♀, 6 ♂ ♂, 5. VI. 1998, S. KAMITANI leg.; 11 ♀ ♀, 3 ♂ ♂, Notouge, alt. 800 m, Mt. Hiko-san, 20. VIII. 1998, H. INOUE leg.; 2 ♀ ♀, 5 ♂ ♂, ditto, 27. VIII. 1998, H. INOUE leg.; 1 ♂, ditto, 3. IX. 1998, H. INOUE leg.; 1 ♂, ditto, 27. VII. 2000, H. INOUE leg.

Paratypes: [Hokkaido] 1 ♀, Mt. Apoi, Samani, Hidaka, 18. VII. 1967, A. NAKANISHI leg.; [Honshu] 2 ♂ ♂, Shiobara, Nasu, Tochigi Pref., 23. VI. 2001, T. YAMAUCHI leg.; 2 ♀ ♀, 5 ♂ ♂, Oh-hora-dam (Reservoir), Ohtaki-mura, Saitama Pref., 1–6. VIII. 1994, K. MATSUMOTO leg.; 1 ♀, Sengen-one, Hinohara-mura, Tokyo Metro., 16. VI. 1991, K. MATSUMOTO leg.; 1 ♂ (broken), Akadama-sugiike, nr Mt. Kunimi, Ryotsu, Sado Is., Niigata Pref., 22. VII. 1970, K. BABA leg.; 5 ♀ ♀, 4 ♂ ♂, Mt. Yahiko, alt. 150–500 m, Yahikomura, Nishikanbara-gun, Niigata Pref., 20. VII. 1967, K. BABA leg.; 1 ♂, Kanayama, Masutomi, Yamanashi Pref., 2. VIII. 1959, Y. MIYATAKE leg.; 4 ♀ ♀, 1 ♂, Kanayama, Sudama-chô, Yamanashi Pref., 30. VII. 1997, K. MATSUMOTO leg.; 7 ♀ ♀, 4 ♂ ♂, Kutsukake, Karuizawa-chô, Nagano Pref., 9. VII. 1966, gall on *Ilex macropoda*, Y. MIYATAKE leg.; 2 ♂ ♂, ditto, 9. VII. 1966, M. HONDA leg.; 3 ♀ ♀, ditto, 9. VII. 1966, H. SHIMA leg.; 1 ♀, 4 ♂ ♂, Senga-taki, Karuizawa-chô, Nagano Pref., 11. VII. 1966, Y. MIYATAKE leg.; 19 ♀ ♀, 15 ♂ ♂, Daizahoshi-ike, alt. 1,000 m, Nagano City, Nagano Pref., 6. VII. 1966 Y. MIYATAKE leg.; 1 ♀, 1 ♂, ditto, 9. VI. 1966, M. HONDA leg.; 1 ♀, ditto, 6. VII. 1966, H. SHIMA leg.; 1 ♂, Mt. Murakuni, Takefu City, Fukui Pref., 15. VII. 1953, Y. MURAKAMI leg. 1 ♀, 1 ♂, Hirakura, Misugi-chô, Mie Pref., 7–8. VI. 1997, K. MATSUMOTO leg.; 4 ♀ ♀, 5 ♂ ♂, Yokote-michi, Mt. Daisen, Tottori Pref., 24. VII. 1969, gall on *Ilex macropoda*, Y. MIYATAKE leg.; 7 ♀ ♀, 22 ♂ ♂, Yokote-michi, Mt. Daisen, alt. ca. 850 m, Tottori Pref., 24. VI. 1997, K. MATSUMOTO leg.; 2 ♀ ♀, 1 ♂, Gyoja-dani, Mt. Daisen, Tottori Pref., 25. VII. 1969, Y. MIYATAKE leg.; 5 ♀ ♀, 9 ♂ ♂, Sandan-kyô, Hiroshima Pref., 9. VI. 1958, M. TAKAHASHI leg.; [Shikoku] 1 ♀, Omogo Valley, Ehime Pref., 18. VI. 1952, T. ISHIHARA & T. EDASHIGE leg.; [Kyushu] 1 ♀, 1 ♂, Mt. Sefuri, alt. 1,000 m, Fukuoka City, Fukuoka Pref., 16. VI. 2001, H. INOUE leg.; 1 ♂, Oike, alt. 900 m, Mt. Kuro-dake, Ôita Pref., 25. VIII. 1998, H. INOUE leg.

Remarks: This species is somewhat similar to the Chinese species, *P. sinica* and *P. yunnanana*, but differs from them in the shape and venation of forewing, and characteristics of male genitalia.

Distribution: Japan (Hokkaido, Honshu, Sado Is., Shikoku, Kyushu).

Host plant: "Aohada" — *Ilex macropoda* MIQ. [Aquifoliaceae].

Biology: Several larvae are inhabiting a leaf fold gall of the host plant in the mountain areas.

Depository of type series: Holotype is deposited in the collection of the Osaka Museum of Natural History, Osaka with some paratypes. Other paratypes will be preserved in collections of MATSUMOTO and Dr. Hiromitsu INOUE, and in the collections of Kyushu University in Fukuoka, National Museum of Nature and Science, Tokyo, Natural History Museum, London and U. S. National Museum, Washington.

Petalolyma divisa (CRAWFORD, 1917)

[Japanese name: Kibane-negoro-kijirami]

(Figs. 3, 4-C)

Trioza divisa CRAWFORD, 1917, Philip. J. Sci., (D), 12: 172. — MIYATAKE, 1965, Kontyû, Tokyo, 3: 186.

Petalolyma divisa: YANG & LI, 1984, Zool. Res., Kunming, 5: 130.

Coloration: General color brown to dark brown, usually lighter in female. Genal cones brown basally, light to yellowish brown apically. Antenna yellowish brown, with IX more or less brownish and X dark brown to black. Eyes black. Thorax without distinct markings or stripes. Forewing transparent, entirely flavous, with a distinct basal marking of

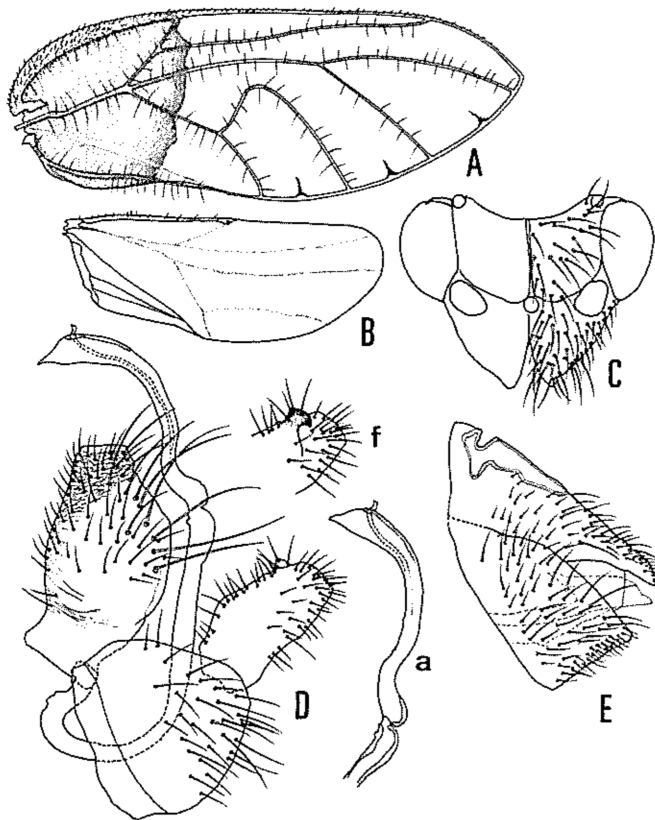


Fig. 3. *Petalolyma divisa* (CRAWFORD). — A, Forewing; B, hind wing; C, head, frontal aspect; D, male genitalia (f, apex of inner face of forceps; a, apical part of aedeagus); E, female genitalia.

brown to dark brown as illustrated (Fig. 3-A). Hind wing hyaline, with a brownish macula around anal vein as illustrated (Fig. 3-B). Legs brown to dark brown, with posterior leg lighter. Abdomen dark brown to black, lighter near genital segments. Genitalia of both sexes whitish or light green, sometimes light brown.

Structure: Head (Fig. 3-C) small, narrower than thorax, nearly vertical; vertex slightly deflexed, $3/5$ as long as wide, with a shallow discal impression on each side of median line, with heavy pubescence; genal cones long, nearly as long as vertex, vertical, more or less depressed from plane of vertex, mostly contiguous, slightly divergent apically, heavily pubescent, subacute at apices; occiput depressed, not visible from above. Antenna long, slender, about 1.2 times as long as width of head, with one long and one short apical setae, each segment with several long setae, relative length of each antennal segment as 3 : 2 : 9 : 5 : 4 : 5 : 4 : 4 : 3 : 2.

Thorax large, strongly arched, with dense and conspicuously long pubescence; pronotum vertical, depressed from both planes of vertex and praescutum; praescutum well convex, rounded down to pronotum anteriorly. Forewing (Fig. 3-A) large, remarkably broad, 2.6 to 2.7 times as long as wide, angular at apex, all veins biserially set with conspicuously long and erect setae, except for apical $2/3$ of posterior margin; Rs moderately long, nearly $1/2$ as long as forewing, more or less bisinuate, extending beyond the fork of M, but far from wing apex; M1+2 long, 1.3 times as long as M3+4, slightly arcuate, ending at posterior margin close to wing apex; M3+4 rather long, nearly straight; Cu1 long, strongly arcuate as illustrated; Cu2 short, subparallel to apical half of Cu1; medial cell large, triangular; cubital cell large, elongate, somewhat quadrilateral. Hind wing (Fig. 3-B) large, about $2/3$ as long as forewing, nearly 2.6 times as long as wide, with anterior margin slightly arcuate, broadly rounded apically, venation not triozone, M and Cu with a distinct common petiole, R1 rather prominent. Legs rather short, massive, heavily pubescent; femora swollen; posterior tibia without basal spurs, with one outer and three inner apical spurs, which are situated on developed arms; proximal segment of posterior tarsi without apical spurs; meracanthus short, projected caudad, subacute at apex. Abdomen (excl. genital segments) short, $1/2$ as long as thorax or shorter, densely pubescent ventrally.

Male genitalia (Fig. 3-D) large, almost $1/2$ as long as the rest of abdomen; proctiger stout, in lateral aspect somewhat subtriangular, 1.3 to 1.4 times as long as forceps, with posterior margin strongly produced caudad, with anterior margin slightly produced cephalad, with pubescence nearly throughout, except for basal part, with three or four long setae on posterior lobe; forceps short and stout, slightly curved caudad apically, almost parallel-margined, blunt at apices, anterior margin of inner face with an acute process (Fig. 3-f), heavily pubescent, with inner face bearing short retrorse setae; aedeagus long, with apical segment (Fig. 3-a) much shorter than proximal segment and bisinuate, with apical portion not distinctly swollen, sharp apically; subgenital plate deep, in lateral aspect somewhat triangular, with dorsal margin produced dorsad, especially basally, pubescent on caudal half.

Female genitalia (Fig. 3-E) large, $2/3$ to $3/4$ as long as the rest of abdomen; dorsal

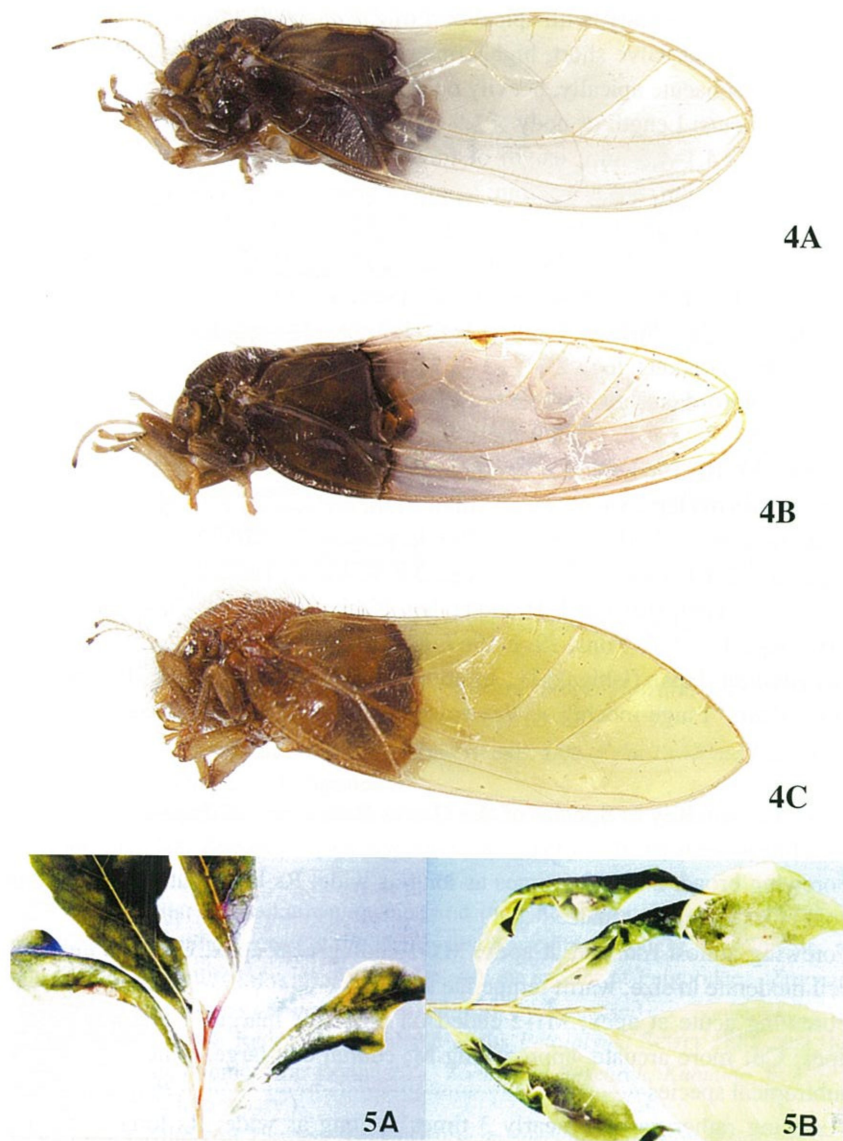


Fig. 4. *Petalolyma* spp., Habitus in lateral view. — A, *Petalolyma bicolor* (KUWAYAMA), ♂, Mt. Miyuki-ji, Matsuyama City, Ehime Pref., 8. VII. 1974; B, *P. shibatai*, sp. nov., ♂, Daizahoshi-ike, alt. 1,000 m, Nagano City, Nagano Pref., 14. VI. 1959; C, *P. divisa* (CRAWFORD), ♂, Mt. Omoto-dake, Ishigaki Is., Okinawa Pref., 16. III. 1964.

Fig. 5. Leaf fold galls of *Petalolyma bicolor* (KUWAYAMA) on *Ilex chinensis*, Inagawa-chō, Hyōgo Pref., VII. 1981 (A, dorsal view; B, ventral view).

valve slightly longer than ventral, nearly as long as ovipositor, in lateral aspect with dorsal margin descending straightly, with apical portion attenuate, blunt at apex, pubescent mostly in apical half; ventral valve short, high, somewhat triangular in lateral aspect, with dorsal margin arcuate, subacute apically, heavily pubescent throughout.

Measurements: Length of body ♂ 1.9–2.1 mm, ♀ 2.1–2.5 mm (to tip of folded wings ♂ 3.8–4.3 mm, ♀ 4.1–4.5 mm; length of forewing 3.3–3.6 mm, ♀ 3.5–3.8 mm; width of forewing ♂ 1.2–1.3 mm, ♀ 1.3–1.4 mm; length of antenna ♀ ♂ 0.9–1.0 mm.

Specimens examined: [Ishigaki Is.] 1 ♂, Mt. Omoto-dake, 17. XI. 1963, G. A. SAMUELSON leg.; 13 ♀ ♀, 9 ♂ ♂, Mt. Omoto-dake, 16. III. 1964, on *Ilex hayatana*, Y. MIYATAKE leg.; 1 ♀, 1 ♂, Mt. Omoto-dake, 16. III. 1964, T. SHIRÔZU leg.; 13 ♀ ♀, 11 ♂ ♂, Mt. Omoto-dake, 16. III. 1964, S. KIMOTO leg.; 1 ♂, Mt. Omoto-dake, 16. III. 1964, C. M. YOSHIMOTO & J. HARRELL leg.; 2 ♀ ♀, 1 ♂, Mt. Omoto-dake, 21. V. 1964, T. TAKARA leg.; 3 ♀ ♀, Mt. Omoto-dake, alt. 0–250 m, 22. V. 1964, malaise trap, N. TAKAHASHI leg.; [Iriomote Is.] 5 ♀ ♀, 3 ♂ ♂, Ushiku-mori, 9. III. 1964, Y. MIYATAKE leg.; 16 ♀ ♀, 15 ♂ ♂, Ushiku-mori, 11. III. 1964, on *Ilex hayatana*, Y. MIYATAKE leg.; 1 ♀, 1 ♂, Ushiku-mori, 11. III. 1964, S. KIMOTO leg.; 3 ♀ ♀, 1 ♂, Ushiku-mori, alt. 525 m, J. C. HARRELL leg.; 2 ♀ ♀, 7 ♂ ♂, Nakara-gawa, 12. III. 1964, on *Ilex hayatana*, Y. MIYATAKE leg.; 3 ♀ ♀, 2 ♂ ♂, Nakara-gawa, 12. III. 1964, S. KIMOTO leg.; 3 ♀ ♀, 4 ♂ ♂, Nakara-gawa, alt. 0–200 m, 12. III. 1964, C. M. YOSHIMOTO & J. HARRELL leg. [Okinawa Is.] 1 ♀, Yona, 19. XI. 1963, H. HASEGAWA leg.; 1 ♀, 1 ♂, Yona, 29. I. 1967, K. YASUMATSU leg.

Distribution: Japan (Ishigaki Is., Iriomote Is., Okinawa Is.); the Philippines.

Host plant: "Tsuge-mochi" — *Ilex hayatana* LOESN. [Aquifoliaceae].

Key to Species of the Genus *Petalolyma* of Japan

- 1(4) Forewing broad, 2.5 to 2.6 times as long as wide; Rs long, but ending far from wing apex; Cu1 strongly arcuate.
- 2(3) Forewing almost rounded at apex; M1+2 ending near apex; Cu1 less arcuate; cubital cell moderate in size; warm-temperate species..... *P. bicolor* (KUWAYAMA).
- 3(2) Forewing acute at apex; M1+2 ended on posterior margin a little far from angular apex; Cu1 more arcuate, approaching M; cubital cell large, quite high, and elongate; subtropical species..... *P. divisa* (CRAWFORD).
- 4(1) Forewing rather narrow, nearly 3 times as long as wide; Rs long, almost reaching wing apex; Cu1 moderately arcuate; cool-temperate species..... *P. shibatai* sp. nov.

要 約

宮武 頼夫・松本 浩一：日本産ネグロキジラミ属の再検討と 1新種の記載。——日本には、ネグロキジラミ属 (*Petalolyma*) のキジラミが、3種分布する。本論文では、アオハダを

食樹とするアオハダネグロキジラミ (新称) *Petalolyma shibatai* を新種として記載し, 既知種のネグロキジラミ *P. bicolor* とキバネネグロキジラミ (新称) *P. divisa* を再記載した。

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