

A new species of *Ficalbia* (Diptera: Culicidae) from Iriomote Island, Okinawa, Ryukyu Archipelago, Japan

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Abstract: A new species of *Ficalbia* was found in the 1978 mosquito collections from Iriomote Island of Okinawa, Ryukyu Archipelago, Japan. The genus is the first record from Japan. Three males easily distinguished from all known species of the genus by maxillary palpus and IX tergum of genitalia are described and illustrated in detail.

Key words: *Ficalbia*, *Ficalbia ichiromiyagii*, Ryukyu Archipelago, Okinawa, Japan

INTRODUCTION

This study is based on materials collected by Dr. I. Miyagi in 1978 during an extensive faunal survey of mosquitoes in Ryukyu Archipelago, Japan (Toma and Miyagi, 1986). In the study, three adult male specimens of the genus *Ficalbia*, that apparently have not been described so far, were collected by light trap in Iriomote Island (Miyagi and Toma, 1980; Toma and Miyagi, 1986). Because of limited materials, naming of the specimens was deferred until additional specimens were available (Toma and Miyagi, 1986). In this study, the specimens were carefully compared to all the seven known species of the genus *Ficalbia* by descriptions and illustrations (Ludlow, 1907; Theobald, 1901, 1908, 1910; Edwards, 1941; Mattingly, 1949, 1957; Hamon, 1954; Grjebine, 1986; Chen, 1997) and confirmed as a new species.

Ficalbia is a small genus of Culicidae and all the included seven species are known from the Ethiopian Region, the Oriental Region and China (Mattingly, 1957; Knight and Stone, 1977; Grjebine,

1986; Chen, 1997).

The terminology used for the adult male and male genitalia follows Harbach and Knight (1980, 1981).

Ficalbia ichiromiyagii Toma et
Higa, sp. nov.
[Japanese name: Okinawa-
esekobuhashika]

Ficalbia sp. of Miyagi and Toma, Jpn. J. Sanit. Zool. 31: 81, 1980.

Male. Small species. Wing length 1.58–1.60 mm (Fig. 1A).

Head: Vertex covered with decumbent pale scales, dark upright forked scales on occiput; antennae as long as proboscis; flagellomere 1 twice as long as flagellomere 2; proboscis swollen on distal half; maxillary palpus about half length of proboscis (Fig. 1B).

Thorax: Integument of scutum dark brown, scatteringly covered with narrow brown scales; acrostical setae present; about 15 very fine dorsocentral setae present; several strong setae in supraalar area; scutellum with narrow scales scatteringly, 3 scutellar setae in each lobe; mesopostnotum dark brown, naked. Pleural integument light brown; postspiracular

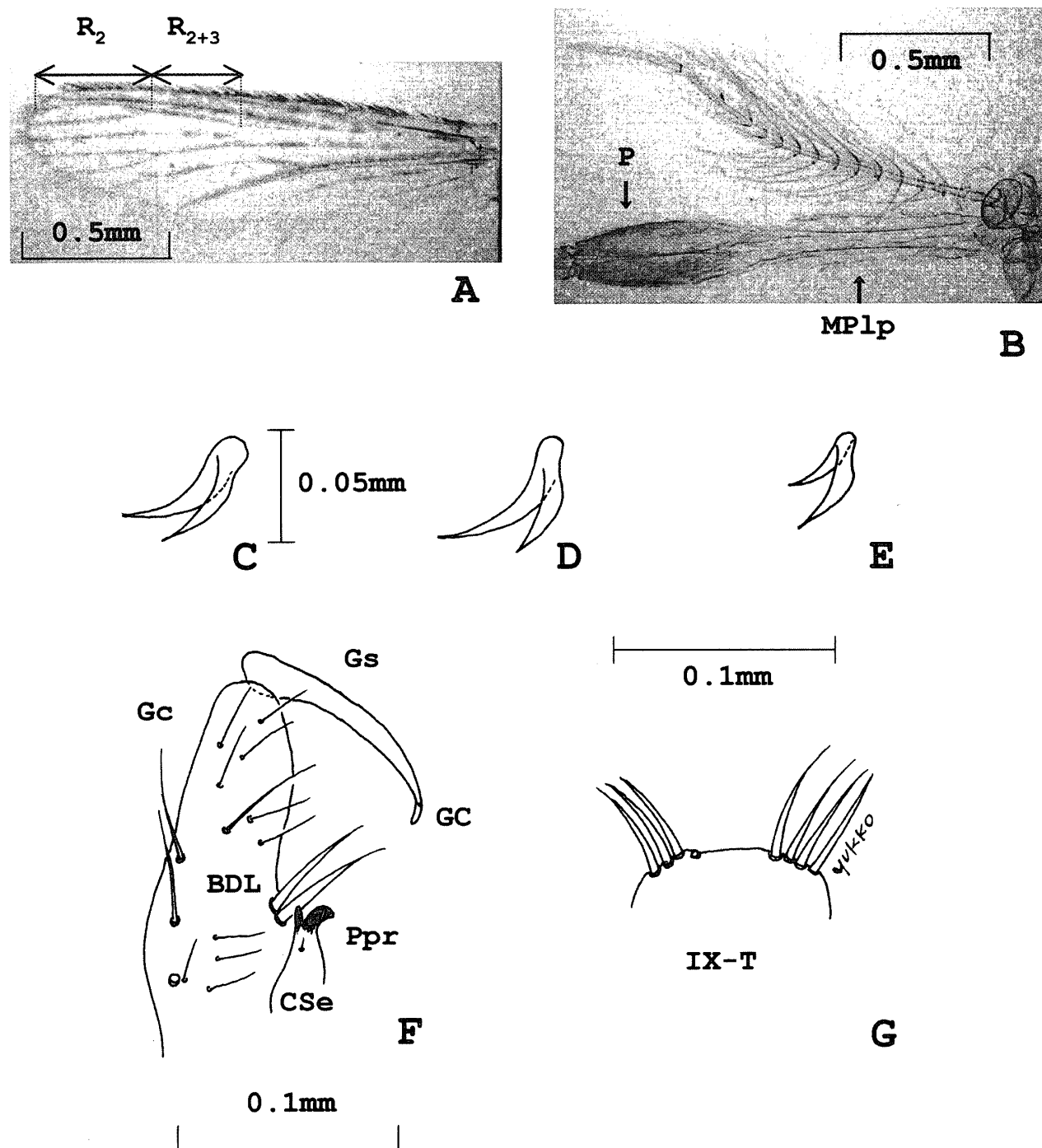


Fig. 1. Holotype male of *Ficalbia ichiromiyagii* sp. nov.. (A) Wing (Scales on alula were lost during mounting process); (B) Proboscis and maxillary palpus; (C) Ungue of foreleg; (D) Ungue of midleg; (E) Ungue of hindleg; (F) Dorsal aspect of genitalia; (G) IX-tergum. R_2 : radius-two and cell; R_{2+3} : radius-two-plus-three. P, proboscis; MPlp, maxillary palpus; Gc, gonocoxite; GC, gonostylar claw; Gs, gonostylus; BDL, basal dorsomesal lobe; Ppr, paraproct; CSe, cercal seta.

setae absent; 3 lower mesokatepisternum setae present; upper mesepimeral setae present; antepronotum having 4 setae.

Wing: Covered with dark broad scales (Fig. 1 A); alula with a fringe of narrow scales; calypter with narrow scales; Cell R_2 about 1.4 length of R_{2+3} .

Legs: Forecoxa with several pale scales and 5 setae anterior side, 1 seta posterior side; midcoxa with several pale scales and 6 setae anterior side; hindcoxa with 4 setae; fore-, mid- and hindfemora dark scaled with apical pale band; fore-, mid- and hindtibiae dark scaled with several pale scales apically; fore-, mid- and hind-

Table 1. Morphological differences of the genus *Ficalbia* between *ichiromiyagii* sp. nov. and all the seven known species.

	<i>ichiromiyagii</i> sp. nov.	<i>uniformis</i> (Edwards, 1941; (Theobald, 1910; (Theobald, 1941; Edwards, 1941; Hamon, 1954; Grjebine, 1986)	<i>malfeiyi</i> (Theobald, 1910; Edwards, 1941; Hamon, 1954)	<i>circumtestacea</i> (Theobald, 1910; Edwards, 1941; Hamon, 1954; Grjebine, 1986)	<i>nigra</i> (Edwards, 1941; Hamon, 1954)	<i>minima</i> (Theobald, 1901; Theobald, 1908; Mattingly, 1957; Chen, 1997)	<i>ludlowae</i> (Ludlow, 1907; Mattingly, 1957)	<i>jacksoni</i> (Mattingly, 1949, 1957; Chen, 1997)
Maxillary palpus (length for proboscis)	1/2	2/3	2/3	3/4	3/4	1/8-1/6	longer than proboscis	1/6
Wing length (mm)	1.58-1.60	2.0-2.5	2.0-2.5	about 3.0	about 2.0	1.8-2.8	about 3.0	about 2.0 (F)
Abdominal terga	Pale basal bands (II-VIII)	Pale lateral spots, pale basal bands	Pale lateral spots, pale basal bands	Pale basal lateral spots	Unmarked	Completely dark (I), yellowish basal bands (II-VIII)	Yellowish basal bands, basal lateral spots	Indistinct pale basal lateral spots
Abdominal sterna	Mostly pale (several dark scales: II-VII)	Pale	Pale	Pale	Pale	Pale	Mainly pale	Not described
Shape of IX-T	Broad	Concave	Broad and slightly convex	Broad and thick	Slightly concave	Thin and small	Not described	Not described
No. setae in each side of IX-T	3-4 setae	3-6 setae	4-5 setae	3 setae	2-3 setae	4-5 setae	Not described	Not described
No. setae in basal dorsomesal lobes	2	4	4	Absent	2	2	Not described	Not described
Distributions	Iriomote (Ryukyu Arch., Japan)	Widely in Africa	Widely in Africa	Africa (South of Sahara)	Benin, Nigeria, Uganda, Zaire	South and Southeast Asia, China, Australia	Indonesia, Philippines	Hong Kong, Yunnan (China)

tarsi dark scaled with several pale scales apically, the fifth segments of fore- and midtarsi longer than the fourth.

Ungues (Fig. 1C-E): Foreungue (Fig. 1C) simple, mostly equal in length, mid- (Fig. 1D) and hindungues (Fig. 1E) simple, subequal in length, hindungue smaller than fore- and midungues.

Abdomen: Terga dark scaled, having basal pale bands in II-VIII terga; sterna mostly pale scaled, with apical and basal dark bands in III-VII sterna.

Genitalia (Fig. 1F, G): Gonocoxite relatively narrow, about three times as long as its breadth at center, outer and dorsal surfaces of gonocoxite with some long strong setae. Basal dorsomesal lobes with 2 strong setae, not well developed. Gonostylus narrow without setae, small stout tooth at apex. Paraproct crown with 2 strong spines, 1-3 cercal setae on paraproct (Fig. 1F). IX-tergum broad with lateral group of 3 or 4 setae well developed (Fig. 1G).

Female, pupa and larva are unknown.

Type Specimens. All specimens were collected by Professor Ichiro Miyagi at Funaura, Iriomote Is., Ryukyu Archipelago, Japan. Holotype: male (with wing, head, thorax, abdomen, legs and genitalia on a slide 9-VII-78) collected by light trap in July 9, 1978. Paratypes: male (with wing, head, thorax, abdomen, legs and genitalia on a slide 6-VII-1978) collected by light trap in July 6, 1978; male on a pin, 9-VII-1978 collected by light trap in July 9, 1978.

Etymology. *Ficalbia ichiromiyagii* is in honor of Prof. Emeritus Ichiro Miyagi of the University of the Ryukyus for his great contributions to mosquito taxonomy and ecology of the Ryukyu Archipelago and to education for Health Sciences in Okinawa, Japan.

Taxonomic discussion

On the basis of examination of three males collected by light traps in July 1978, it is obvious that *ichiromiyagii* sp. nov. belongs to the genus *Ficalbia* (Toma and Miyagi, 1986). Although additional speci-

mens could not be obtained since 1978 in spite of several attempts, it was possible to compare morphological characteristics between *ichiromiyagii* sp. nov. and all the seven known species by descriptions and illustrations (Ludlow, 1907; Theobald, 1901, 1908, 1910; Edwards, 1941; Mattingly, 1949, 1957; Hamon, 1954, Grjebine, 1986; Chen, 1997). The differences are shown in Table 1. The marked differences between *ichiromiyagii* sp. nov. and all the known species are observed in the morphology of male maxillary palpus and genitalia. The length of maxillary palpus is half the length of proboscis in *ichiromiyagii* sp. nov., but about 2/3 in *uniformis* and *malfeyti*, about 3/4 in *circumtestacea* and *nigra*, about 1/8-1/6 in *minima* and *jacksoni*, and longer than proboscis in *ludlowae*. The number of setae in each side of IX-T, the shape of IX-T and the number of setae in basal dorsomesal lobes also show distinct differences (Table 1). From careful observations, we conclude that *ichiromiyagii* is a new species of the genus *Ficalbia*, which is a first record of the genus from Japan.

Distribution. At present, known only from Iriomote Island, the Ryukyu Archipelago, Japan.

Bionomics. *Ficalbia ichiromiyagii* sp. nov. is apparently very rare in the Ryukyu Archipelago. Males are attracted to light traps. This species may be of no medical importance because of no blood feeding records of the genus so far.

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