

Japanese Chaoborin Mosquitoes*

With three figures

By

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In Japan, there have been known only one species of *Chaoborus* and only one subspecies of *Mochlonyx* of the subfamily *Chaoborinae*, these are, *Ch. crystallinus* DE GEER and *M. martinii simplex* SASA et TAKAHASHI.

At present, I intend to report another new subspecies of *Ch. pallidus* FABRICIUS and to describe *Chaoborus crystallinus* DE GEER. From Japan, the late Dr. S. YAMADA (1932) reported the latter species mainly on the colouration. The colouration of this species is highly variable from entirely black to mainly yellow, related to the seasons and localities as pointed out by Dr. F. W. EDWARDS (1920). Then I intend to describe mainly on the relatively stable systematic structures.

Before going further, I express my hearty thanks to Prof. Dr. MASAOKI TOKUNAGA, to whom, I am greatly indebted for his many valuable suggestions, helpness and reading through this manuscript. I am also indebted to Mr. S. ITO, Naniwa University, and Mr. Y. SHOGAKI, Kyoto, who presented their valuable collections.

Key to the Japanese Species of Subfamily Chaoborinae

1. - First tarsal segment of leg far shorter than second which is about 4-times of first at least; claws with teeth *Mochlonyx* LOEW
First tarsal segment about 1/6 of second. Wing vein R_{2+3} about 2/5 long of cell R_2 , distal section of M_{1+2} about 2/3 of cell M_1 . Legs dark brown, but bases of femora pale yellow.....
.....*M. martinii* EDWARDS subsp. *simplex* SASA et TAKAHASHI
First tarsal segment of leg far longer than second; claws simple.....
.....*Chaoborus* LICHTENSTEIN.....2.
2. Legs banded on femora and tibiae; pulvilli absent. Wing with an irregular dark band of dark scales; vein R_{2+3} about 0.5 times as long as cell R_2 and distal section of M_{1+2} slightly less than 0.5 times of cell M_1
.....*Chaoborus pallidus* FABRICIUS *japonicus* ETSUKO, subsp. nov.
Legs unbanded and yellowish; pulvilli present. Wing unmarked; vein R_{2+3} about 0.28-0.31 times of cell R_2 and distal section of M_{1+2} about 0.34-

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0.38 of cell M_1*Chaoborus crystallinus* DE GEER

1. *Chaoborus crystallinus* DE GEER

This species was reported at first by Dr. S. YAMADA (1932) from Japan. This species is comparatively common and breeds in flat ponds in environs of Osaka and Kyoto.

Female : -Body length about 6-6.5 mm. ; ground colour pale brown. Antennae 14-segmented, basal segments brown, but distal pale brown. Mouth parts brown. Thorax brown, with brownish golden setae, which are especially distinct on scutellum and at bases of wings ; upper part of scutellum pale brown ; lower part brown ; posterior pronotum brownish on upper half and yellowish on lower half. Wing about 4.3 mm. long, yellowish brown. Halteres whitish pale brown. Legs yellow ; distal segments brown ; pulvilli present. Abdomen brown, unbanded, but first segment with a pale band.

Eyes bare, widely separated above ; vertex setigerous ; proboscis shorter than vertical length of head (37 : 35) ; maxillary palpi 5-segmented (14 : 32 : 55 : 55 : 106) ; basal four segments brown ; distal one pale brown. Antennae 14-segmented ; proportional lengths of distal eight segments as follows : 26 : 27 : 27 : 27 : 28 : 28 : 42 : 53 ; ultimate segment about 0.91 (0.85-0.99) times of penultimate in length. Legs with following proportional lengths of tarsal segments : in fore 58 : 34 : 27 : 18.5 : 13, in middle 43.7 : 26.3 : 21.2 : 13.3 : 10.8, and in hind 74.3 : 41.5 : 28.3 : 16.5 : 13 ; ratio of length of fifth tarsal segment to third and fourth taken together about 0.28 in fore, 0.31 in middle, and 0.29 in hind leg ; first tarsal segment of hind leg longer than a half length of tibia (75 : 43). Wing veins yellowish brown ; relative length of R_{2+3} to cell R_2 about 0.31 (0.26-0.36), that of distal section of M_{1+2} to cell M_1 about 0.34 (0.32-0.36) ; r-m slightly before m-cu. Spermathecae three, brown and spherical.

Male : -Body length about 6 mm. Colouration closely similar to that of female. Antennae 14-segmented, last segment shorter than penultimate (19 : 15). Wing length about 3.9 mm. ; relative length of R_{2+3} to cell R_2 about 0.28 (0.24-0.33) ; that of distal section of M_{1+2} to cell M_1 about 0.39 (0.32-0.46). Proportional lengths of tarsal segments as follows : 50.5 : 34.5 : 27.8 : 18.2 : 12.3 in fore leg, 43.3 : 28.3 : 22.7 : 15.5 : 11.2 in middle leg, 75.3 : 42.8 : 29.5 : 17.3 : 13.0 in hind leg ; ratio of length of fifth tarsal to third and fourth taken together about 0.27 (0.26-0.27), 0.29 (0.27-0.31) and 0.28 (0.27-0.28) respectively.

Paramere of male hypopygium (Genitalsklerit) (Fig. 1) with a distinct claw-like projection on apical end. This projection far longer than in European specimens.

As stated above, the Japanese specimens belong to a paler variation which was

suggested by Dr. Edwards (1920), and he also stated that there are slight differences in the hypopygia between the dark and light forms. The Japanese male specimens shows a rather distinct difference in the structure of the parameres of male hypopygium from the known European forms and seem to represent a special form of Japan.

2. *Chaoborus pallidus japonicus* ETSUKO, subsp. nov.

This subspecies was collected by a light trap set along a marshy pond, Midoro-ike, Kyoto, by Mr. Y. SHOGAKI. The following descriptions are based on two female specimens.

Female : - Body about 2.3 mm. long, in ground colour. Antennae brown, 15-segmented; maxillary palpi dark brown, 5-segmented; frontoclypeus brown. Thoracic notum (Fig. 2) dark brown, pruinose; scutum with a pair of large median brown vittae on cephalic half and a pale large area on anterior part of caudal half and six pairs of small whitish pale brown spots around median pale brown markings; scutellum black or brownish black; postscutellum brown, with a dark brown median vitta and dark brown caudal margin. Posterior pronotum yellowish brown on upper half and brown on lower half. Legs yellowish brown in ground colour, with brown bands; coxae and trochanters brown; femora brown on basal 2/3 and yellowish brown on distal 1/3; tibiae brown but apical and basal 1/4 deep brown; tarsal segments uniformly yellowish brown. Abdomen brown, with golden yellow hairs. Wing pale brown, with an irregular transversal dark band on middle part, this band mainly due to dark hairs of veins and arised from tip of Sc, extending caudal through outside of cross-veins, and along distal section of Cu₁. Halteres white on basal part, yellowish brown on apical part.

Eyes bare, separated above as wide as 2.5 facets; vertex dark brown; maxillary palpi 5-segmented, proportional lengths of palpal segments as follows : 6 : 17 : 43 : 22 : 42; third segment longest. Antennae 15-segmented, proportional lengths of distal eight segments as follows : 31.5 : 29 : 28.5 : 26 : 22 : 20 : 16 : 22; ratio of ultimate segment to penultimate in length about 1.38. Proportional lengths of leg segments as follows : 60 : 63 : 36.5 : 15 : 11 : 8 : 6.5 in fore leg, 51 : 53 : 38 : 14 : 10 : 9 : 8 in middle leg, 58 : 63 : 44 : 20.5 : 18.5 : 13.5 : 9 in hind leg; ratio of lengths between distal and penultimate two segments taken together as follows : 0.34 in fore, 0.43 in middle leg, and 0.28 in hind leg; pulvilli absent.

Wing (Fig. 3) about 2 mm. long, pale brown; ratio of length of R₂₊₃ to cell R₂ about 0.48 and that of distal section of M₁₊₂ to cell M₁ about 0.45; r-m and m-cu almost at middle of wing and r-m slightly beyond m-cu; Cu₁ running straight to hind margin. Spermatheca one, brown and spherical.

The followings are main differnces between *Ch. pallidus* of Europe and *Ch. pallidus*

japonicus :

	<i>Ch. pallidus</i>	<i>Ch. pallidus japonicus</i>
vertex	middle black, side yellowish white	dark brown entirely
posterior pronotum	whitish, with black spot, with yellowish white long setae	upper half yellowish brown, lower half brown, without spot and distinctly long setae
scutellum	whitish brown, with black spots on lateral side	dark brown, without spots
leg	basal three tarsal segments slightly paler than distal two	tarsal segments entirely yellowish brown
abdomen	yellowish white, with whitish hairs and black dots	brown, with golden yellow hairs and without dots
wing	vein Cu_1 with a hairy spur near tip parallel to hind margin, relative length of R_{2+3} to cell R_2 about 0.17, that of distal section of M_{1+2} to cell M_1 about 0.2	vein Cu_1 running straight to hind margin, relative length or R_{2+3} to cell R_2 about 0.48, that of distal section of M_{1+2} to cell M_1 about 0.45

In the above comparison, systematic characters of the type species are adopted from the descriptions of Dr. E. Martini (1931) on the European specimens. According to Dr. P. Freeman (1950), the feature of the wing vein Cu_1 is one of the important characters, however in the present Japanese specimens Cu_1 meets straight to the hind margin highly differing from the type species in my careful observation.

Male : -Unknown

Locality : -Honshu, Japan.

Holtype : -Female mounted in Gater's solution; June 6, 1952.

Paratopotype : -Female, dry specimen; June 6, 1952.

Type specimens : -Deposited in the entomological laboratory, Saikyo University, Kyoto, Japan.

Literature

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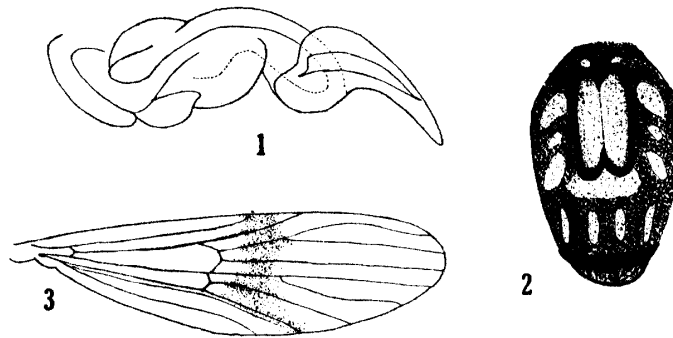


Fig. 1. *Chaoborus crystallinus*; Paramere of male hypopygium, dorsal aspect.

Fig. 2. *Ch. pallidus japonicus*; dorsal thoracic pattern.

Fig. 3. *Ch. pallidus japonicus*; wing, hairs omitted.