

A NEW SPECIES OF *COLADENIA* FROM LUZON, PHILIPPINES, WITH DESCRIPTION OF IMMATURES (LEPIDOPTERA: HESPERIIDAE)

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ABSTRACT.— *Coladenia minor* Chiba, new species, is described from Luzon, Philippines. Its final instar larva and pupa are also described.

KEY WORDS: *Coladenia minor* n. sp., Connaraceae, *Connarus semidecandrus*, *Daimio*, immature stages, larva, pupa.

We have identified a new species of *Coladenia* from the island of Luzon in the Philippines. Because we (Nakanishi, Fukuda, and Yata) were able to observe the immature stages of the genus for the first time, we describe them here. We also offer notes on the taxonomy of the other species of *Coladenia* present in the Philippines.

Coladenia minor Chiba, new sp.

Description.— Male (Figs. 1, 2).— Forewing length 15mm. Head dark brown, clothed with tawny hairs. Eyelashes black. Antenna half length of costa, black, apiculus below reddish brown. Palpus, 1st and 2nd segments clothed with dark brown and tawny hairs, 3rd segment dark brown. Thorax and abdomen tawny. Hind tibia with recumbent hair pencil. Dorsal forewing: dark brown, excavate in space 1b; clothed with tawny hairy scales except submarginal and postmedian areas; yellow hyaline spots in upper discal cell, spaces 6, 8 and 11 and trace of two lower discal cell spots; subbasal black dot in space 1b; cilia brown. Dorsal hindwing: tawny except dark brown submarginal area and cilia, excavate in spaces 4 and 5. Ventral forewing: dark brown; spots as in dorsal side, but somewhat larger lower discal cell spots almost fused with each other. Ventral hindwing: dark brown; trace of black spots in spaces 1c, 2, 3, 6, 7 and end of discal cell; cilia tawny.

Genitalia (Fig. 7): tegumen trapezoid in dorsal view, anteriorly convex, twice as long as uncus; uncus, ventral portion flat, dorsal portion extended posteriorly, ending in beak-like projection; gnathos not extended posteriorly beyond base of uncus, lateral portion sclerotized with rasp-like processes, ventral portion membranous; vinculum slender; saccus very short; valva, costa membranous; ampulla smooth, more or less projected at distal end; sacculus narrow; dorso-distal portion of harpe projected inwardly, terminating beak-like, with no spiny process; aedoeagus short, suprazonal sheath as long as subzonal sheath, with lateral serrate process on left side, vesica with hairy cornuti.

Female.— Unknown.

Types.— *Holotype* ♂: PHILIPPINES.— nr. Mud Spring, Mt. Maquiling, Luzon, Aug 1978 (larva); adult emerged 4 Sep 1978,

O. Yata (deposited into the collection of the College of General Education, Kyushu University). *Paratypes* 4 ♂: PHILIPPINES.— Buenavista, Marinduque, Apr-May 1979, 1 ♂, Y. Nishiyama. Queson, Luzon, 27 Apr 1982, 1 ♂, J. Uyehara. Atimonan, Luzon, Jun 1984, 2 ♂ (H. Tsukiyama coll.).

Remarks.— Outside of Palawan, three species of *Coladenia* are now known from the Philippines—*C. igna* (Semper), *C. semperi* Elwes & Edwards, and *C. minor*. Semper (1892) described *C. igna* as a new species belonging to the genus *Tapena*, and also recorded *T. laxmi*. Elwes and Edwards (1897) described *C. semperi* from Camiguin de Mindanao based on the specimens which Semper identified as *T. laxmi*. Evans (1926), without examining the Philippine specimens, considered both *C. igna* and *C. semperi* as races of *Coladenia dan dhyana* Fruhstorfer. Later, Evans (1942) moved *C. igna* to a race of *C. agni* and *C. semperi* to a subspecies of *C. kehelatha* (again without examination). Still later he treated *C. igna* as a subspecies of *C. agni* and *C. semperi* as a synonym of *C. kehelatha* (Evans, 1949). Chiba (in prep.) examined several specimens of *Coladenia* including *igna* and *C. semperi*, and preliminary studies indicate that *C. igna* is a distinct species, and *C. semperi* is an allopatric sister species of *C. kehelatha*.

C. minor is closely related to *C. kehelatha* and *C. semperi*. *C. kehelatha* from Sulawesi, Indonesia is larger in size and grayish in color compared to *C. minor*. The white hyaline spots on the forewing are well developed in *C. kehelatha*. *C. semperi* is known from Luzon, Marinduque and Mindanao. It is also larger and grayish compared to *C. minor*. The hyaline spots are also larger and white (Figs. 5, 6). The wing markings of *C. minor* show considerable variation. The apical spot in space 7 and the median spots in spaces 2 and 3 may be present or absent. The lower discal spot on the forewing is absent or, if present, marged with the upper spot to become a larger cell spot (Figs. 3, 4). In

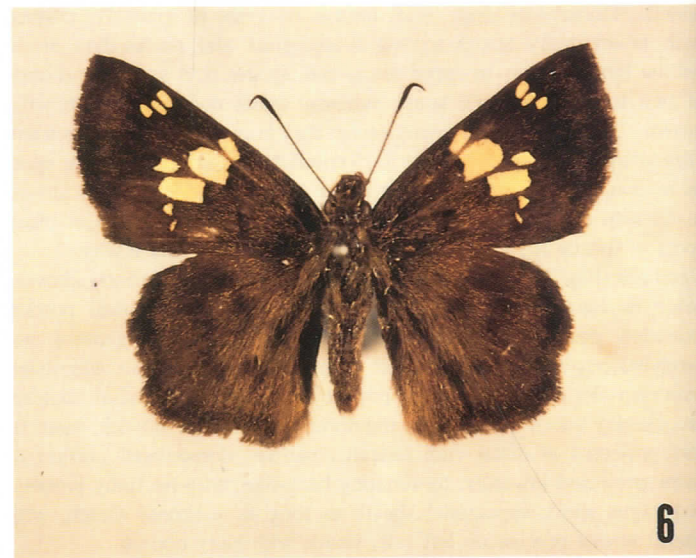
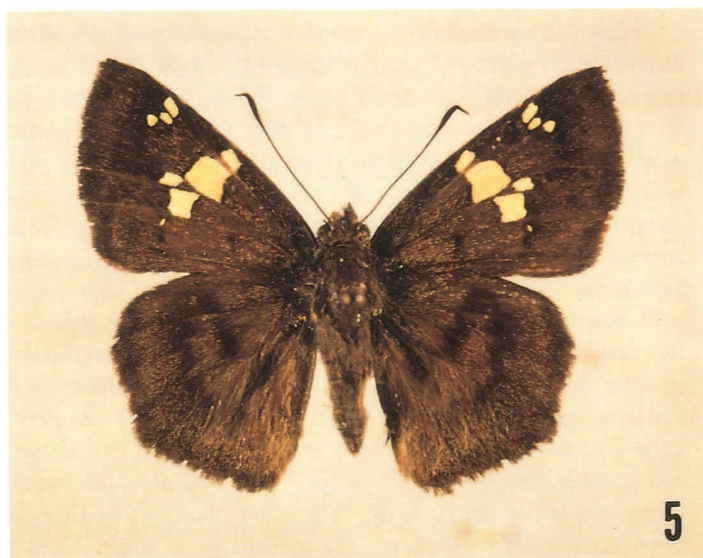
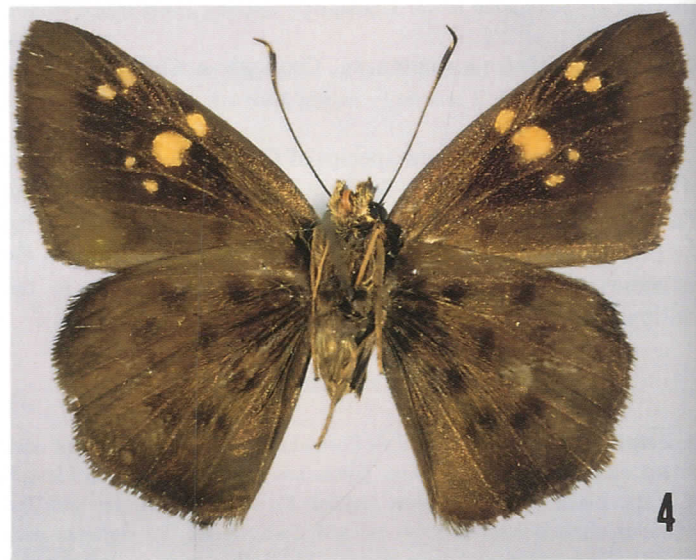
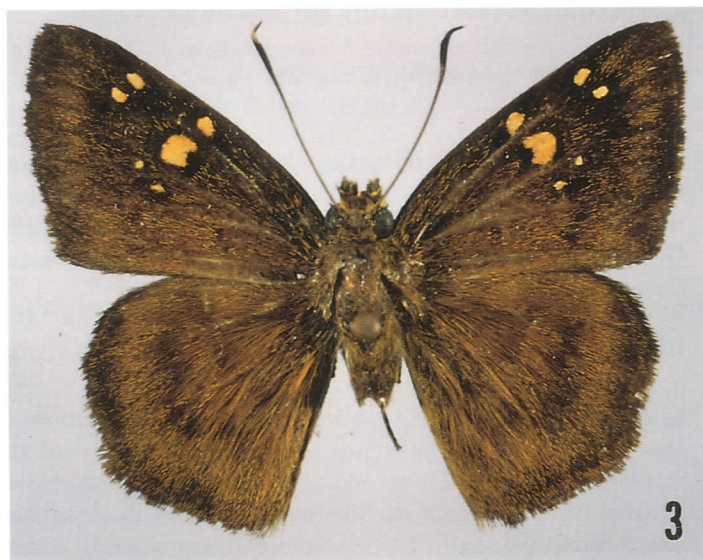
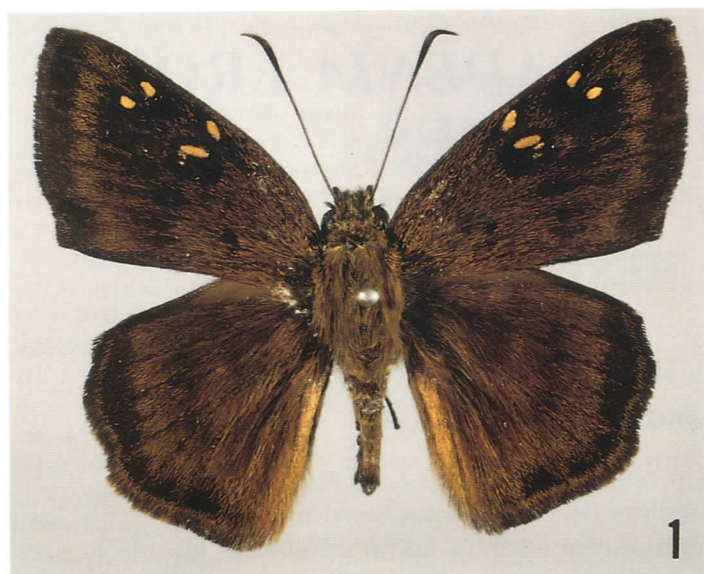


Fig. 1-6. 1-2. Dorsal (1) and ventral (2) view of the holotype of *C. minor*; 3-4. Dorsal (3) and ventral (4) view of the paratype of *C. minor*; 5. Dorsal view of the male of *C. semperi*; 6. Dorsal view of the female of *C. semperi* (Fig. 5-6 reduced in size).

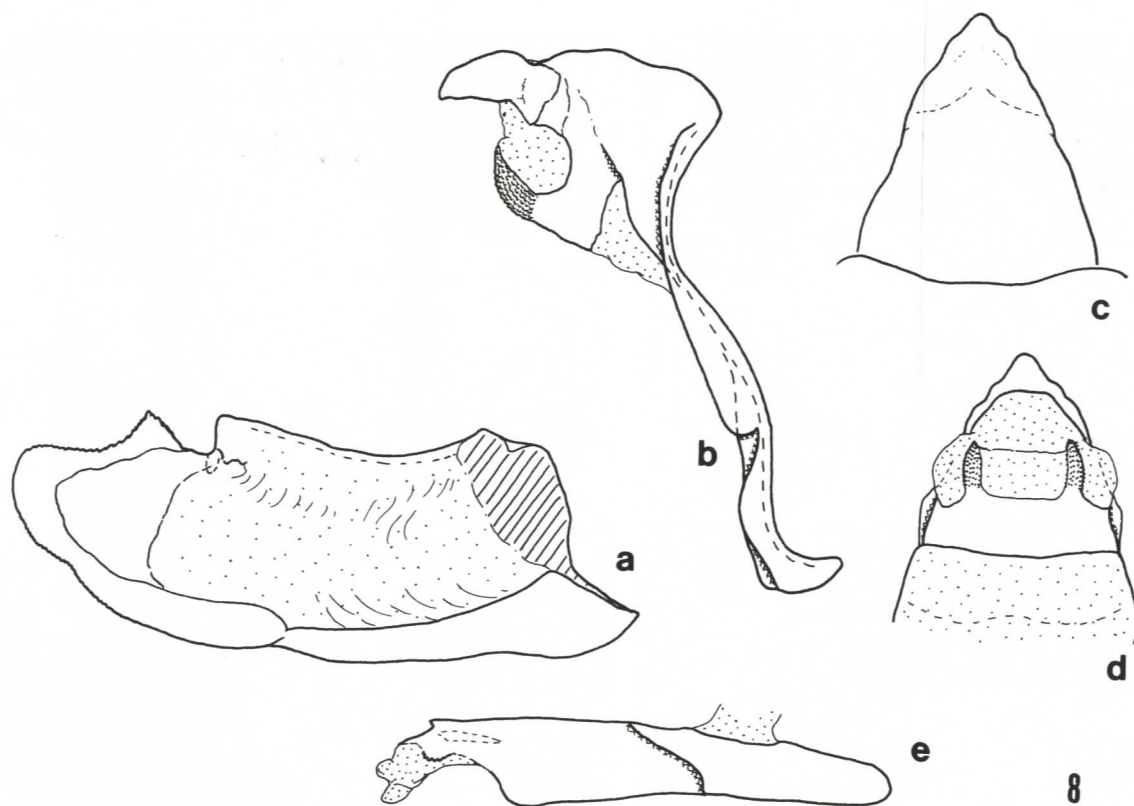
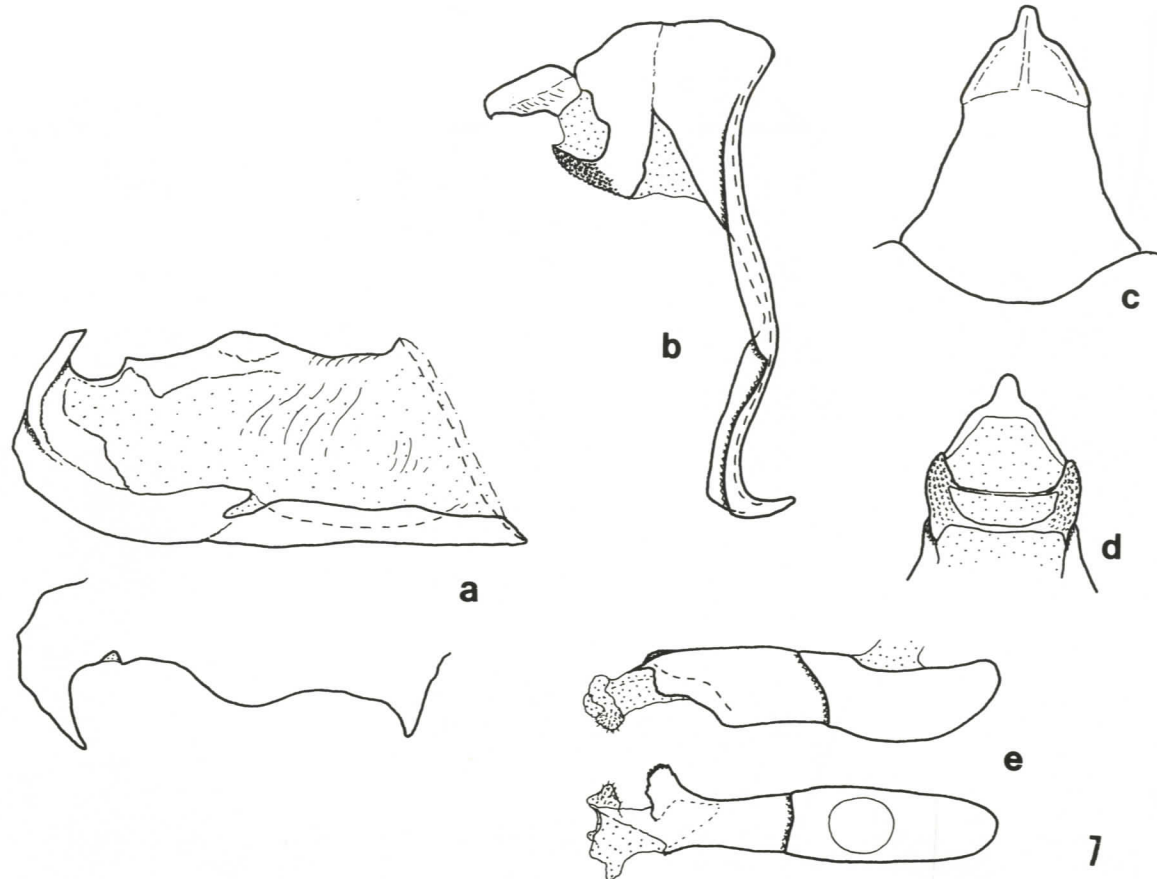


Fig. 7. Male genitalia of *C. minor*: a) left valva (top, lateral view; bottom, dorso-lateral view); b) lateral view of tegumen and vinculum; c) dorsal view of tegumen; d) ventral view of tegumen; e) aedeagus (top, lateral view; bottom, dorsal view).

Fig. 8. Male genitalia of *C. semperi*: a) left valva (top, lateral view; bottom, dorso-lateral view); b) lateral view of tegumen and vinculum; c) dorsal view of tegumen; d) ventral view of tegumen; e) aedeagus (top, lateral view; bottom, dorsal view).

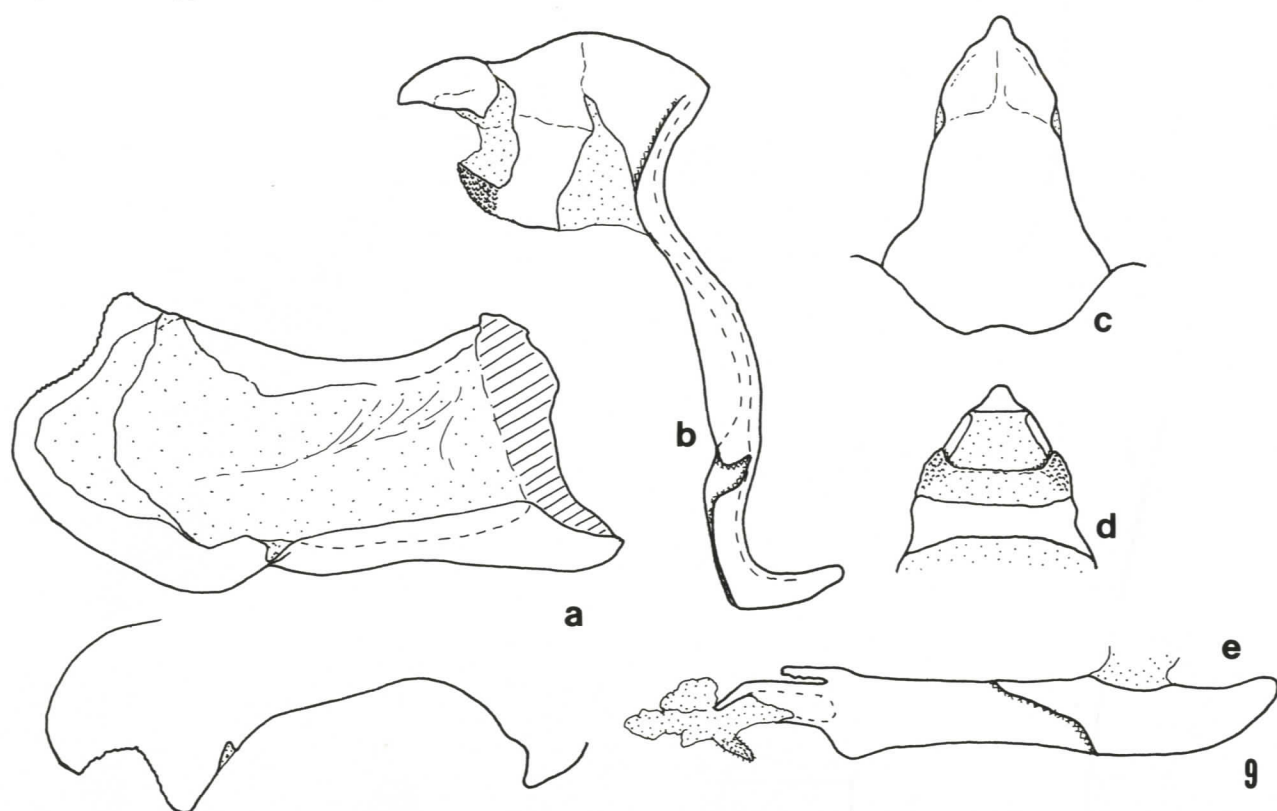


Fig. 9. Male genitalia of *C. kehelatha*: a) left valva (top, lateral view; bottom, dorso-lateral view); b) lateral view of tegumen and vinculum; c) dorsal view of tegumen; d) ventral view of tegumen; e) aedeagus (top, lateral view; bottom, dorsal view).



Fig. 10-11. Final instar larva of *C. minor* on the food plant.

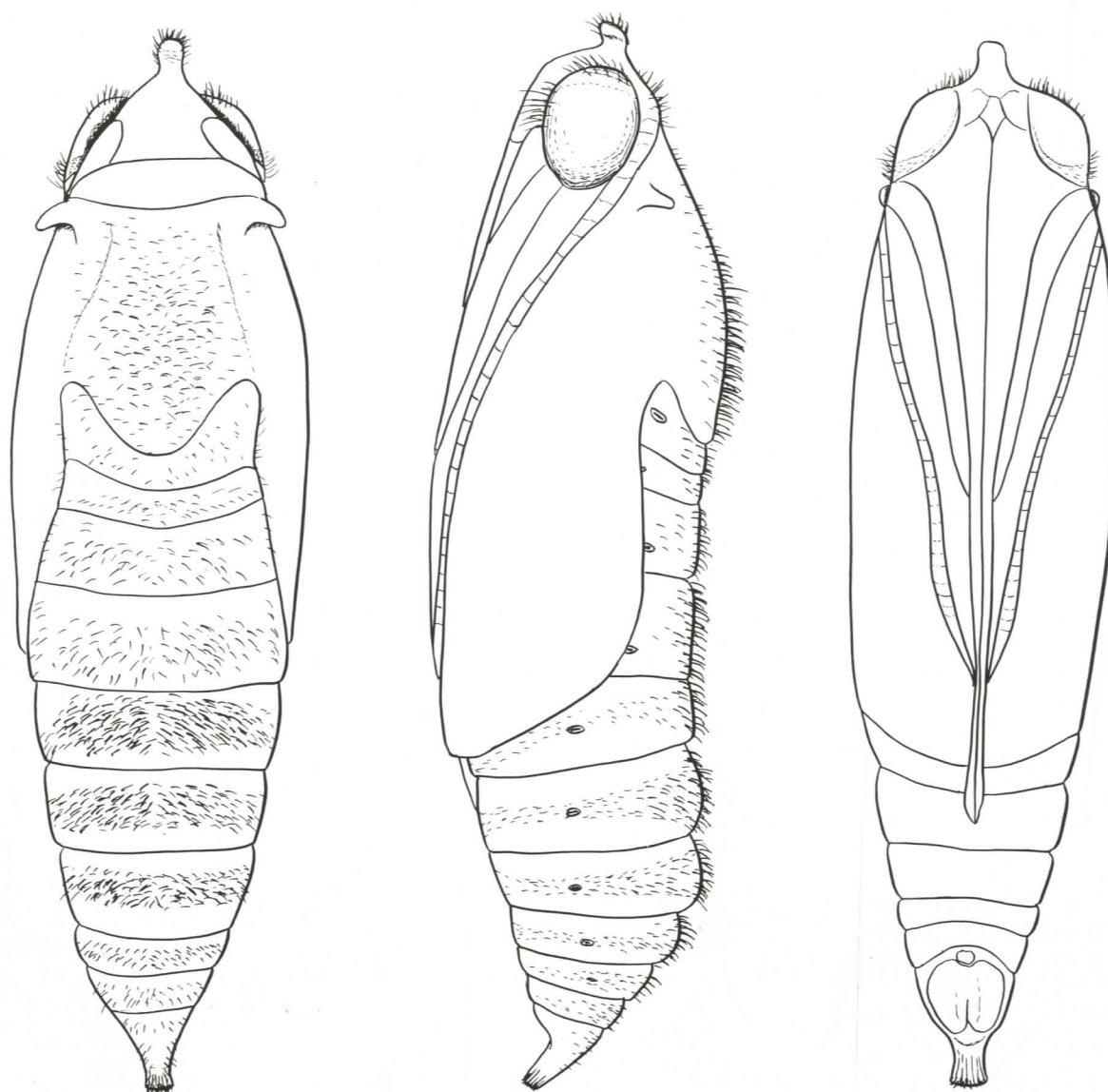


Fig. 12. Dorsal (left), lateral (middle) and ventral (right) view of the pupa of *C. minor*.

both *C. kehelatha* and *C. semperi*, the distal portion of the harpe is more or less projected and dorso-distal portion has triangular projection with serration inwardly (Figs. 8, 9).

IMMATURE STAGES

As we collected only one living mature larva of this species, the description of the larva is restricted to general features.

FINAL INSTAR LARVA (Fig. 10).— Head black, with bluish tinge; shape rounded in anterior aspect, but distinctly incised dorsomedially. Body reddish brown in ground color, broadly shaded with dark blue, with weak dorsal band; a pair of pale brown testes in 8th segment seen through the cuticle; shape cylindrical, narrowed from 9th segment towards posterior end, 9th and 10th abdominal segments dorsally flattened; body surface very smooth and somewhat polished, primary and secondary setae not visible by naked eyes.

PUPA (Fig. 12).— Length 25.4mm; height 6.9mm; width 7.1mm. Somewhat resembling a *Daimio* pupa, but with shorter and blunter cephalic projection. Color entirely brown. Body surface with numerous

short secondary setae which become harder and thickened dorsally.

Head: Head with short cephalic projection with its apex blunt; antenna about 0.83x as long as wing on the meson, broadened in posterior quarter, but tapering at apex; eye-pieces oval and enlarged, sculpturing occupying almost the posterior half of the entire eye-pieces; labial palpus appearing as a small diamond shaped sclerite; maxilla extending posteriorly beyond wings; the maximum width of maxillae about 0.76x the width of pupa at the point of wing base.

Thorax: Mesal length of prothorax about 0.21x as long as mesothorax, that of metathorax about 0.67x as long as the former; mesothorax with a pair of prominent lobes anterolaterally; posterior margin of mesothorax strongly convex; metathorax very slightly convex; prothoracic legs measured on meson, about 0.57x as long as wings; inner margins of pro- and mesothoracic legs rather smooth; wing weakly bulged ventrally; forewing extending near the caudal margin of 4th abdominal segment, ending in a broad rounded tip.

Abdomen: Abdominal segmentation between 8th and 9+10th distinct; ventral surface of 9+10th segment with a low ridge, circular in outline, which encloses a slit-like anal opening; cremaster rugose, more or less straight, but slightly broadened at distal end.

Habits.—The larva constructs the shelter formed from curled leaf of the foodplant (Fig. 11). Slight cuts are made from the edges toward the midribs at the base of the leaf. The larva eats mature leaves outside the shelter, resting along the midrib with the anterior portion of the body bending backwards. The pupation takes place inside the curled leaf.

Foodplant.—*Connarus semidecandrus* Jack (Connaraceae), a bush found at roadsides in the evergreen-forest near Mud Spring, Mt. Maquiling, Luzon.

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