

***Ceratina (Lioceratina) velthuisi* sp. nov. from Burma  
(Hymenoptera Apoidea Xylocopinae)**

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**Abstract**

A new species of the genus *Ceratina*, subgenus *Lioceratina*, from Burma is described and dedicated to Prof. Hayo H. W. Velthuis (University of Utrecht, The Netherlands) at the occasion of his jubilee. While this new species is only known from a single female, the decision to describe it is mainly based on several conspicuous cuticular features and the location of the holotype out of the previously known distribution limits of the subgenus.

**Keywords** : Hymenoptera, Apoidea, *Ceratina*, subgenus *Lioceratina*, new species.

**Introduction**

The oriental subgenus *Lioceratina* VAN DER VECHT (1952) is known from India, Thailand, Indonesia, Philippines, and Taiwan (HIRASHIMA, 1971). Six species are recognised by VAN DER VECHT : *Ceratina ridleyi* COCKERELL, 1910; *C. flavopicta* SMITH, 1858; *C. pictifrons* SMITH, 1861; *C. flavolateralis* COCKERELL, 1916; *C. canarensis* COCKERELL, 1919; *C. kosemponis* STRAND, 1913. The first four species and the new one described here are closely related. In those species only, the clypeus and propodeal triangle of the females are wholly finely imbricate (or coriaceous) (Fig. 1). In the others species of the subgenus, only the median part of the clypeus is imbricate. The identification key to world subgenus is provided by MICHENER (2000) and TERZO & RASMONT (submitted).

By the way of this paper, the authors want to pay homage to Prof. Hayo H. W. Velthuis. They thank him for his so fruitful scientific career and his great kindness.

Prof. H. Velthuis was born in 1936. He studied biology at the universities of Utrecht, Leiden and Wageningen. After he obtained his doctors degree (1971)

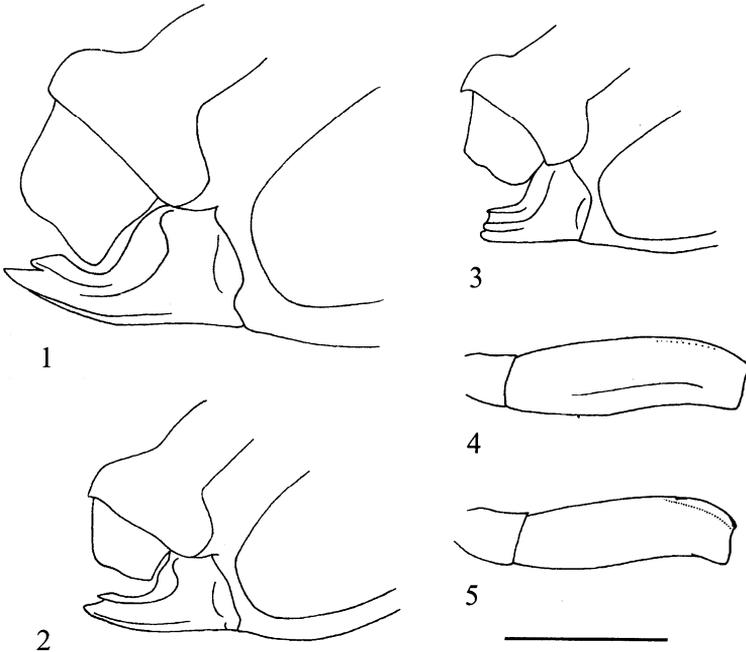
on "The mode of action of honey bee queen substances", he stayed for one year at the Departamento de Genética in Ribeirão Preto, University of São Paulo, with Prof. KERR. Here he became acquainted with live Carpenter bees and stingless bees, which fascinated him tremendously and which made him change his interest towards the evolution of sociality, focussed on the ascending series carpenter bees, bumble bees, stingless bees and honeybees. Concerning the carpenter bees, apart from his papers on mating behaviour, he studied, in Israel, with Dan GERLING (Tel Aviv University), the facultative sociality of *Xylocopa sulcatipes* and *X. pubescens*. His co-workers were Yvonne Wolf, Jan van der Blom, Roland Stark, and Katja Hogendoorn (the last two prepared a thesis on the subject). With Dr Hogendoorn he wrote a review of the reproductive skew of the carpenter bees (HOGENDOORN & VELTHUIS, 1999), in which their work on *Xylocopa* and that on the small carpenter bees, genus *Ceratina*, by SAKAGAMI & MAETA (1995) was compared with the existing theory on division of reproduction in these primitively social bees. He published also a review on the general biology of *Xylocopa*, with Dan Gerling and Abraham Hefetz (GERLING, VELTHUIS & HEFETZ, 1989). He retired this year from the Laboratory of Applied Physiology of The University of Utrecht.

*Ceratina (Lioceratina) velthuisi* spec. nov.

*Material.* Holotype : ♀, Burma, Kachin State, Kambaiti (25°25'N 98°06'E), 8.VI.1904, leg. R. Malaise, Nationaal Natuurhistorisch Museum of Leiden. Labels : "N. E. BURMA \ Kambaiti 7000 ft. \ 8/6 1904 \ R. MALAISE"; red "*Ceratina velthuisi* \ Terzo & Rasmont \ HOLOTYPE".

*Derivatio nominis.* This new species is dedicated to Prof. Hayo Velthuis (University of Utrecht, The Netherlands) on the occasion of his jubilee.

*Description.* Female (holotype). Structure : front wing 7.3 mm, 6-7 hamuli, see key for the other cuticular characters. Colour pattern : body black extensively decorated with yellow as follows. Head : mandible yellow except apex which is ferruginous to black; labrum yellow; clypeus and paraclypeal areas yellow except on clypeal suture; paraclypeal yellow markings narrowly and shortly extended along inner edge of eye until upper level of antennal pit; supraclypeal area with a transverse triangular spot; two very small spots on each side of frontal carina at mid length between antenna and median ocellus; gena with a long strip along outer edge of eye, extending on malar area but not on vertex; gena also with a large spot just behind base of mandible. Mesosoma : pronotum almost wholly yellow, black at the junction between collar and lateral lobes; mesocutum with only the four usual lines which are very narrow; scutellum and axillae almost wholly yellow; subscutellum with an apical transverse and broad strip; tegulae yellow; ventral side of pro- and mesopleura wholly yellow to ferruginous; legs wholly yellow to ferruginous or dark at base. Metasoma : terga 1 to 5 mostly yellow excepted lateral black spot on terga 1 to 3 and with broad median transverse black band on terga 4



Figs 1-5. 1 : *Ceratina ridleyi*, head; 2 : *Ceratina flavopicta*, head; 3 : *Ceratina velthuisi* spec. nov., head; 4 : *Ceratina ridleyi*, left hind trochanter and femur in frontal view; *Ceratina velthuisi* spec. nov., left hind trochanter and femur in frontal view. Scale = 1 mm.

and 5; tergum 6 mostly black with apex ferrugineous; sterna 1 to 3 wholly yellow; sternum 4 mostly yellow with two broad lateral black spots; sterna 5 and 6 almost wholly black to ferrugineous. Male : unknown.

**Key**

The key to species of VAN DER VECHT (1952) is modified as follows :

Females.

- 9. Mandibles very short (Fig. 3), hardly longer than antennal scape; hypostomal carina very weak, without basal corner; eyes slightly convergent below; laterobasal angle of front coxa rounded, not flattened and curved; dorsum of hind femur with a strong apical longitudinal carina (Fig. 5); propodeum without yellow marking; gena mostly black, with a narrow yellow band along outer edge of eye ..... *C. velthuisi* spec. nov.
- Mandibles normal, much longer than antennal scape (Figs 1-2); hypostomal carina with a basal corner; eyes slightly divergent below; laterobasal angle of front coxa flattened and curved posteriorly; dorsum

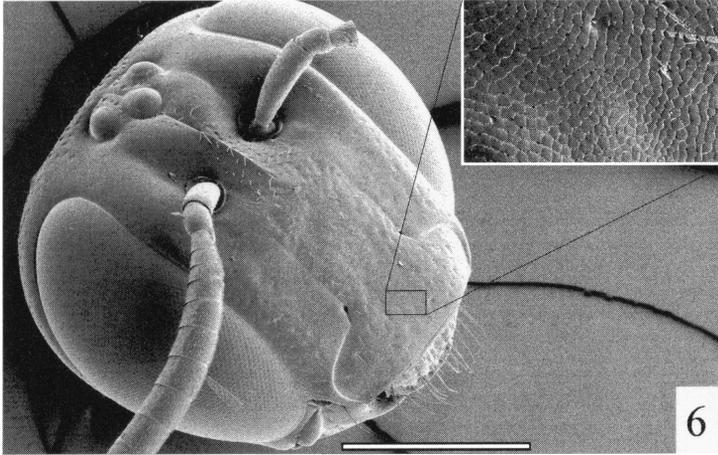


Fig. 6. *Ceratina flavopicta* Smith, head of female and detail of imbricate punctuation on clypeus. Scale = 1 mm.

of hind femur with a sharp subapical longitudinal angle but not carinate (Fig. 4); propodeum with large yellow markings; gena all yellow or nearly so . . . . . 9bis

9bis. Thorax brownish black, richly marked with yellow. Inner side of mandibles rectangularly bent (Fig.1). Abdomen black with three interrupted yellow bands that are formed partly by lateral posterior margin of terga 1 and 2, partly by interrupted bands on pregradular areas of terga 2-4. Length 10-12 mm. Malaya, Sumatra, Java . . . . .  
 . . . . . *C. ridleyi* Ckll.

- Thorax orange-yellow, the following parts black : mesoscutum (except for the usual four yellow lines), basal area of propodeum and sometimes also hypo-epimeral areas of the mesopleura. Inner side of mandibles regularly arcuate (Fig. 2). Abdomen orange-yellow with transverse black bands, the anterior segments sometimes only with dark lateral spots. Length 8-11 mm. Malaya, Borneo, Java. (For specimens from Celebes see *C. pictifrons* Sm.) . . . . . *C. flavopicta* Sm.

**Discussion**

The decision to describe this single female of *Ceratina* as a new species is mainly based on several conspicuous cuticular features such as the carina on hind femur, the weak hypostomal carina, the rounded lateral lobe of front coxae, and the very short mandibles, while the others four related species (*C. rydleyi*, *C. pictifrons*, *C. flavolateralis* and *C. flavopicta*) share an unkeeled hind femur, a strong hypostomal carina, a flattened and posteriorly curved basal lobe of front coxa, and a long mandible. The new species *C. velthuisi*

seems to be quite phylogenetically isolated from this group of four species, but not so far as *C. kosemponis* and *C. canarensis* which don't share the imbricate punctuation on the whole surface of the clypeus and the propodeal triangle as the rest of the species of the subgenus *Lioceratina*, including the new one.

The record of this single female in the North of Burma is at the northern limit of the subgenus *Lioceratina* while *C. kosemponis* occurs in Taiwan (HIRASHIMA, 1971). The others species of the subgenus are all oriental and subtropical.

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