

SYSTEMATICS OF *CERATONEURA* INDIGIRAULT (HYMENOPTERA : EULOPHIDAE), A PEST OF SWEET PEPPER AND BRINJAL IN INDIA

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Abstract: The eulophid *Ceratoneura indi* Girault which damages the flowers and developing ovaries of sweet pepper and brinjal is redescribed since the original available description is inadequate for the easy identification. The male of the species which was hitherto unknown is described for the first time.

Key words: *Ceratoneura indi*, eulophid, species description, systematics.

INTRODUCTION

The species *Ceratoneura indi* was described by Girault (1917) from the flower bud of *Sesbania aegyptiaca* Poir from Coimbatore (South India). Since then, Rohwer (1921) reported this species under the name *Ceratoneura indica* from unidentified galls from Coimbatore. Boucek (1988) synonymised *Ceratoneura indica* with *Ceratoneura indi* and in this paper, ovaries and flower buds of *Capsicum* and galls of *Solanum melongena* were shown as hosts of this species in Madhya Pradesh, Maharashtra and Karnataka. Etienne and Delvare (1987) reported this species from the fruits of *Solanum aethiopicum* L. in Senegal. In Bangalore we observed this species damaging flowers and ovaries of sweet pepper (*Capsicum* sp.) and brinjal (*Solanum melongena* L.). Affected flowers and fruits dropped off and incidence of this pest was observed from June to December in Bangalore.

Since the original description of *C. indi* is quite inadequate for easy identification, a detailed redescription is provided here. The male of this species was hitherto unknown and hence a first description of the male is also given.

MATERIALS AND METHODS

The adults of *Ceratoneura indi* were collected when they emerged from flowers and ovaries

of sweet pepper and brinjal. The figures were drawn using the drawing tube of Wild M3Z stereozoom and enlarged using KB enlarger of model B2M. The terminology used is well known from the current chalcidological literature. The abbreviations used are : ICAR = Indian Council of Agricultural Research, New Delhi; USNM = United States National Museum of Natural History, Washington D.C.; MH = Maharashtra; MP = Madhya Pradesh; KN = Karnataka, TN = Tamil Nadu; QD = Queensland; F = female; M = male; F1-F4 = funicular segments 1-4; *m* = marginal vein; *sm* = sub-marginal vein; *st* = stigmal vein; *pm* = post marginal vein.

RESULTS AND DISCUSSION

Ceratoneura indi Girault (Fig. 1-7)

Ceratoneura indi Girault, 1917. *Descrip. Hym. Chalci. Observ.* 10.F. India, Coimbatore (USNM)

Ceratoneura indica Rohwer, 1921. *Ann. Mag. Nat. Hist.* 1 : 127, F. India, Coimbatore (USNM) - Boucek (1988) synonymised.

Paratype female: Length 2.0 mm. Head, thorax, abdomen and ovipositor sheath black; scape, pedicel and ring segments of antenna brownish yellow; funicular segments and club brownish black; all legs except coxae pale

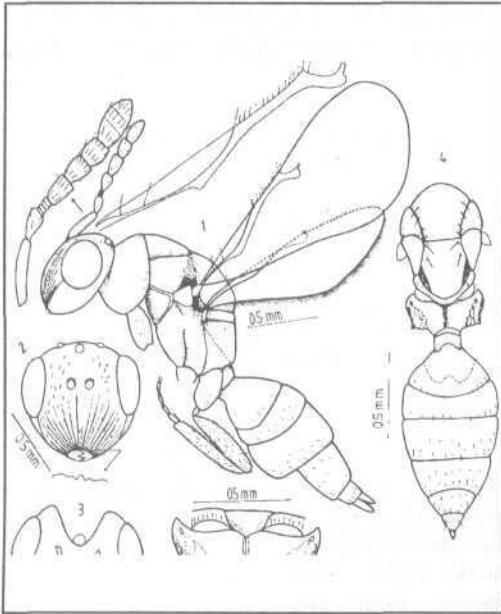


Fig 1-5. *Ceratoneura indi* Gir. female. 1. Body side view; 2. Head of female; front view; 3. Head, dorsal view; 4. Thorax and gaster, dorsal view; 5. Propodeum

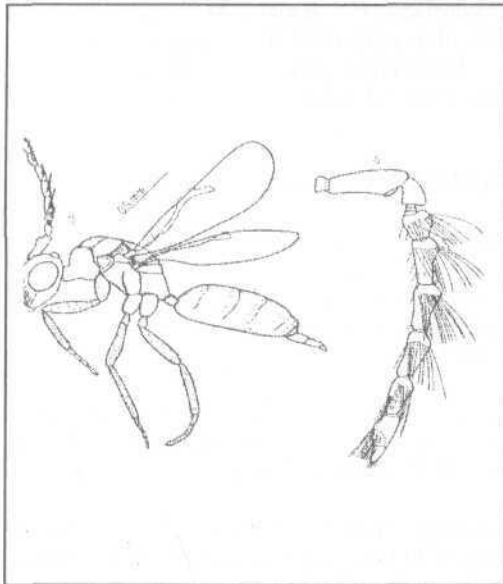


Fig 6&7. *Ceratoneura indi* Gir. male
6. Male antenna; 7. Body of male, side view

brownish yellow; apices of femora paler; wings hyaline, veins pale yellowish white.

Head: Transverse, broader than mesoscutum (head : mesoscutum; 41:33), mandibles with three teeth; malar groove a little shorter than scape length (16:19); clypeus and frons strongly longitudinally striate (Fig. 2) and with some scattered pale hairs; striae converging at clypeus; gena, vertex and temples minutely reticulate; occipital edge behind ocelli distinctly carinate as in Fig 3; OOL : POL 10:17; eyes bare, eye length 1.2x its breadth; combined length of scape and flagellum almost equal to dorsal breadth of head; scape reaching up to front ocellus, its length a little more than length of club (31:25); pedicellus and F1 almost subequal. F3 shorter than F1; antennal formula 11433.

Thorax: Length 1.3x its breadth; pronotum, mesoscutum and scutellum shagreened; in profile thorax moderately convex at posterior portion of scutellum; mesoscutum with four to five pairs of adnotaular bristles; scutellum with three pairs of bristles; posterior margin of pronotum bears about 10 bristles; mesoscutum length equal to length of scutellum; mesosternum with a longitudinal median groove; metanotum short; propodeum with a median longitudinal groove as in Fig 5, plicae distinct only on the posterior part and faintly irregular in the rest of the region; propodeum length (of median area) a trifle less than half length of scutellum (11:25); prepectus smooth; callus not hairy; fore, mid and hind legs with long, scattered pale yellow hairs; wings sparsely pubescent, *sm* 1.9x *m* with two dorsal bristles; *m* 1.9x *st*; *st* with a short uncus, *pm* absent; *m* with a row of bristles, first and last longer than those in between.

Gaster. Petiole broader than long and posteriorly a little broader than anterior portion; gaster broadly oval, longer than thorax, tergites mostly smooth with faint shagreening; each tergite with one or two rows of long pale hairs.

Male: Length ranging from 1.7-2 mm. It differs from female in the following characters:

Scape of antenna with a projection at its apical ventral half, scape length subequal to the length of eyes; all funicular segments except F1 distinctly longer than broad, pedicel length equal to length of F1, length and breadth of F1 equal, length of F2 and F3 2.1x its breadth, F4 2.2x its breadth; scape length subequal to the length of preceding two funicular segments. Each funicular segment with a dorsal whorl of long brown bristles which reach up to the beginning of next whorl; first segment of club with a basal partial dorsal and a median partial ventral whorl of bristles, second segment of club with a median ventral whorl of bristles.

Materials examined: Plesiotype F. INDIA, Karnataka, Bangalore, N.K. Krishnakumar, 1993; other materials: 12 F. and 2 M. with the same data as that of plesiotype.

Distribution: India (MH, MP, TN, KN), Senegal and Australia (QD).

Biology: The species is phytophagous causing galls and damaging flowers and fruits of sweet pepper and brinjal in Karnataka.

Discussion: The species differs from all other known species of *Ceratoneura* in having the following combination of characters: Length

1.7-2 mm; mostly black colour; petiole broader than long; occiput with distinct carina behind ocelli and gaster longer than thorax.

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