

Lestodiplosis oomeni sp. n. (Diptera: Cecidomyiidae), a predator on the carinate tea mite, *Calacarus carinatus* (Green) (Acarina: Eriophyidae) and on other mites on tea plants in Indonesia

by

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ABSTRACT. — Adults and larvae of *Lestodiplosis oomeni* sp. n. are described from material collected by Dr. P. A. Oomen in W. Java, Indonesia. Larvae feed on phytophagous mites attacking tea plants (*Camellia sinensis* L.), especially the carinate tea mite, *Calacarus carinatus* (Green), the pink tea mite *Acaphylla theae* (Watt) and the scarlet tea mite, *Brevipalpus phoenicis* (Geijskes). Preliminary observations in W. Java indicate that *C. carinatus* is the preferred host of *L. oomeni* both in the field and in laboratory cultures.

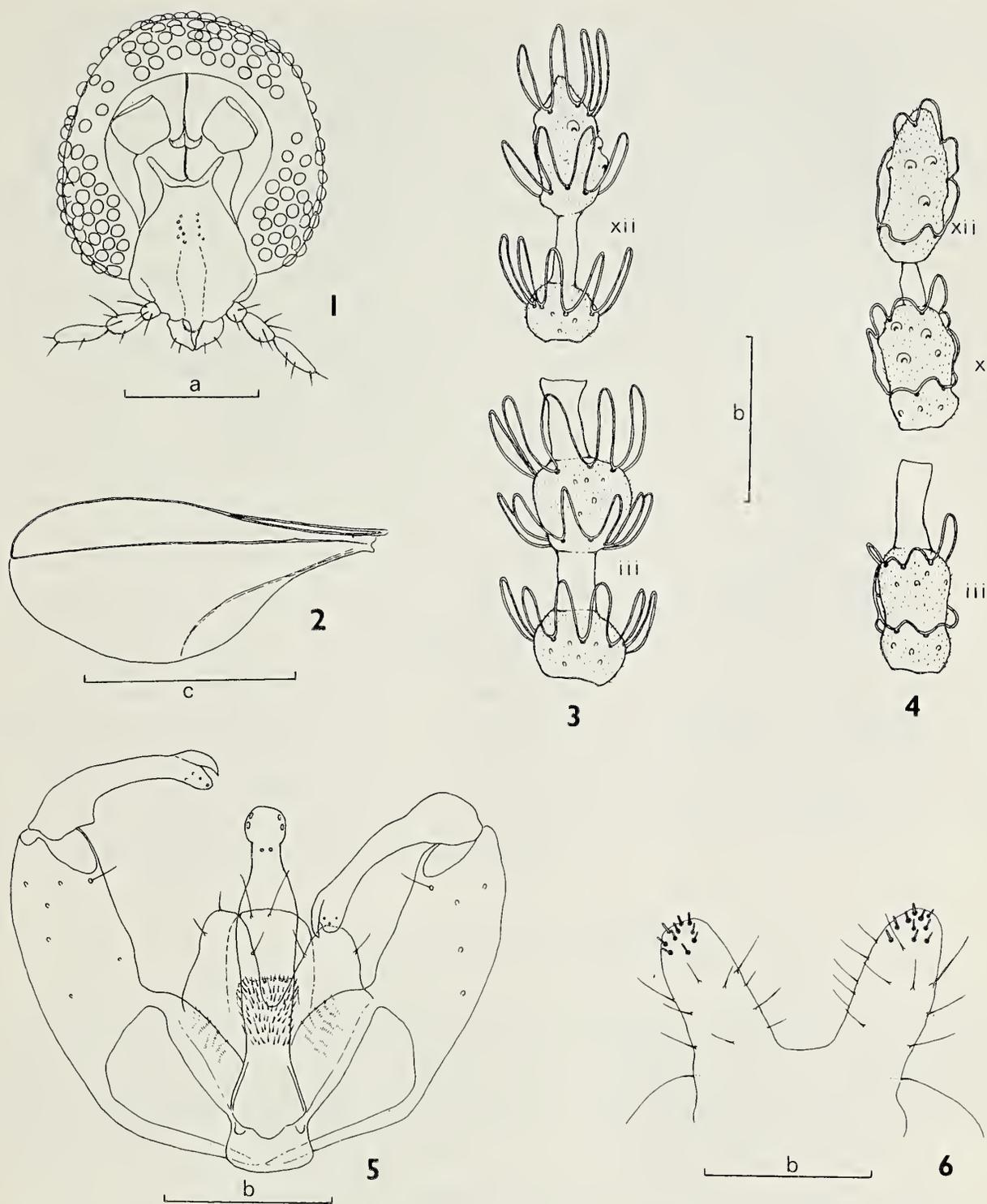
INTRODUCTION

During field studies on the ecology of phytophagous mites on tea plants, *Camellia sinensis* (L.), in Indonesia, Dr. Pieter A. Oomen discovered predaceous larvae of a cecidomyiid feeding on the carinate tea mite (= purple tea mite), *Calacarus carinatus* (Green) and on other tea mites, especially pink tea mites, *Acaphylla theae* (Watt) [Eriophyidae] and scarlet tea mites, *Brevipalpus phoenicis* (Geijskes) [Tenuipalpidae]. Larvae and reared adults of this cecidomyiid were submitted to me and, after consultation with Dr. R. J. Gagné, USDA Systematic Entomology Laboratory, Washington D.C., USA, I concluded that this predator is a new species of *Lestodiplosis*, which is described below.

Dr. Oomen has studied this species in W. Java on tea estates and at the Research Institute for Tea and Cinchona at Gambung. His observations on its biology indicate that larvae occur in low numbers on the undersides of mature leaves of tea plants infested by *B. phoenicis* and in higher numbers (up to 15 larvae per leaf) on leaves infested by *C. carinatus*. In the laboratory larvae fed on eggs, juvenile and adult stages of *C. carinatus*, *A. theae* and *B. phoenicis* and also fed incidentally on Psocoptera and on juvenile *Amblyseius deleoni* (Muma & Denmark) [Phytoseiidae]. *C. carinatus* seemed to be the preferred host, both in the laboratory and in the field, and the cecidomyiid is probably an efficient predator on this pest, although its efficiency may be reduced through frequent parasitisation by an unidentified species of Ceraphronidae [Hymenoptera]. In laboratory cultures larvae were maintained for a month or more, but proved difficult to rear as many larvae escaped and few pupated.

Lestodiplosis oomeni sp. n.

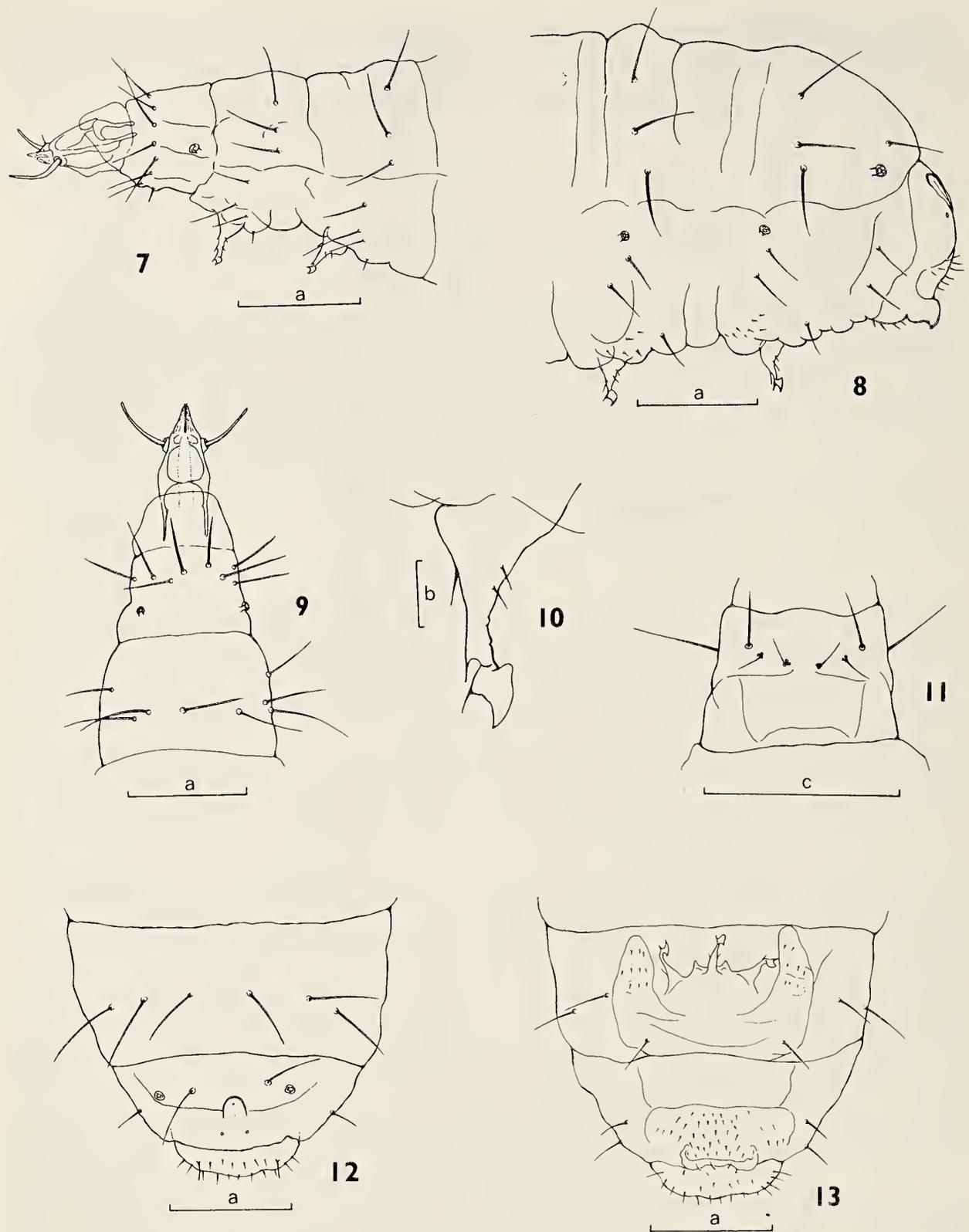
Adults (figs. 1-6): Maxillary palps 3-segmented; antennae with twelve flagellomeres in both sexes, male flagellomeres with trifilar circumfila and female flagellomeres with short-looped circumfila, linked longitudinally; occiput with short postvertical peak, not extending above eye; eye-bridge 4-5 facets deep; ommatidia relatively large, sparse near antennal insertions; 11-14 fronto-clypeal setae, \bar{x} (δ) = 12 (n = 4), \bar{x} (φ) = 12 (n = 3). Wing length (arcus to apex) 0.8-1.0 mm, \bar{x} (δ) = 0.8 (n = 4), \bar{x} (φ) = 1.0 (n = 3); wing venation with R5 almost reaching wing apex and Cu simple, not forked. Thorax with 2-3 mesepimeral (sub-alar) setae. Male terminalia with internal base of gonocoxite slightly enlarged and with rows of microtrichia; gonostyle relatively short and curved; hypoproct undivided and with a setulose area in basal half; aedeagus with a distinct waist below the globular tip. Female terminalia with slightly quadrate cerci and with a small cluster of short modified setae disto-ventrally.



Figs. 1-6. *Lestodiplosis oomeni* sp. n. 1, male head (antennae omitted); 2, male wing; 3, male flagellomeres; 4, female flagellomeres; 5, male terminalia (holotype); 6, ♀ terminalia, ventral view of cerci. Scale-lines: a = 0.1 mm, b = 0.05 mm, c = 0.5 mm.

Larvae (figs. 7-13): Final instar 1-1.5 mm long; sternal spatula absent; antennae relatively long and curved forwards; dorsal and ventral collar papillae and thoracic sternal papillae not detected, probably absent; inner and outer lateral thoracic papillae each consisting of two papillae without and one papilla with a relatively long seta and inner pleural papilla seta almost as long as dorsal papilla setae; dorsal and pleural papillae all with relatively long setae; anal segment with many short setulae and microtrichia from which the terminal papillae and setae are not clearly differentiated. Meso- and metathorax each with two prolegs and abdominal segments 1-7 each with three prolegs; all prolegs with unusual hatchet-like end and with small setulae on shaft of proleg and around base.

Material examined: Holotype slide No. 19136 ♂ and paratype slides Nos. 19135 ♂, 19137



Figs. 7-13. *Lestodiplosis oomeni* sp. n., last instar larva. 7, head and thorax, lateral; 8, last three abdominal segments, lateral; 9, head, pro- and mesothorax, dorsal; 10, abdominal proleg, lateral; 11, prothorax, ventral; 12, last two abdominal segments, dorsal; 13, last two abdominal segments, ventral. Scale-lines: a = 0.1 mm, b = 0.1 mm, c = 0.01 mm.

♀, 19138 ♀, Indonesia, Gambung (Bandung), from tea bushes infested by purple mite, P. A. Oomen collected 22.XII.1977; paratype larvae on slides Nos. 19119, 19120, 19121, 19122, 19130, 19131, 19132, 19133, 19134, 19252 and 19250 ♂, with similar data but collected on 16.XII.1977; paratype slides Nos. 19125 ♀♀, 19126 ♂, 19127 ♂, 19128 ♀, 19129 ♀♀, 19152 ♀, Indonesia, Pasir Nanka, reared from purple mite on tea, P. A. Oomen collected 11.XI.1977 and paratype slides Nos. 19123 ♀, 19124 ♂, Indonesia, Tambakan, Tankuban

Prahu Mt., predators on purple tea mite, P. A. Oomen collected 18.VI.1977. Holotype 19136 ♂ and paratype Nos. 19119, 19122, 19124, 19126, 19128, 19130, 19131, 19132 and 19137 deposited in the British Museum (Natural History); paratypes Nos. 19250, 19251, 19252 deposited in the United States National Museum, Washington, and all other paratypes deposited in the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.

Comments: The genus *Lestodiplosis* Kieffer is cosmopolitan, and larvae of all known species are predators on Acarina, Insecta or other small invertebrates. Generic characters of larvae and adults have been summarised by Harris, 1966 and Gagné, 1973 but most of the hundred or so nominal species are inadequately described and many undescribed species must exist in virtually all parts of the world. A major generic revision of *Lestodiplosis* and of associated genera is needed but is unlikely to be undertaken within the foreseeable future. *Lestodiplosis oomeni* agrees with the current working definition of *Lestodiplosis* in most of the larval and adult characters described here, but differs from all species known to me in the unusual structure of the larval pseudopods, the absence of distinct terminal papillae and setae on the anal segment of the larva and the detailed structure of the male terminalia, especially the form of the aedeagus and the presence of a basal setose area under the hypoproct. Adults of an identical or similar species from India are in the British Museum (Natural History) collection (CIE Coll. A.12709). They were reared from larvae preying on purple tea mites on tea at Nilgiris, Madras in 1961 and represent one of the three unidentified predaceous Cecidomyiidae recorded by Rao, Datta & Ramaseshiah, 1970 in their detailed account of the predators on tea mites in India. Unfortunately, the specimens that I have seen are in very poor condition and I have not been able to form a definite opinion on their specific identity. Dr. Oomen collected a second predaceous species of Cecidomyiidae on tea mites at Rongga Estate, W. Java, and it seems likely that there is a complex of predaceous cecidomyiid species associated with tea mites both in India and Indonesia. Future elucidation of this complex will require careful field collecting and observation backed by thorough taxonomic examination of good preserved material of larvae, pupae and reared adults.

ACKNOWLEDGEMENTS

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