

A NEW SPECIES OF LADY-BIRD BEETLE (*COL. COCCINELLIDAE*)  
FEEDING ON *ADELGES* SPP. (*HEM. ADELGIDAE*) IN  
NORTH-WESTERN INDIA

BY

A. P. KAPUR & (Miss) V. SUDHA RAO

---

During the course of a survey of the natural enemies of *Adelges* species (*Hemiptera* : *Adelgidae*) in Himachal Pradesh, north-western India, a number of lady-bird beetles (*Coleoptera* : *Coccinellidae*) were collected by Dr. V. P. RAO and the junior author, both of the Indian Station of the Commonwealth Institute of Biological Control, Bangalore. One of the coccinellids collected proved to be a new species of *Adalia* MULSANT and is described below.

*Adalia simmondsi*, sp. n.

Body rather elongate-oval, moderately convex (Fig. 1, A). Head reddish-testaceous except the black vertex and the median and lateral parts of the frons (Fig. 1, C, D, E); the latter markings sometimes meet anteriorly so as to enclose a pair of oval testaceous spots (Fig. 1, B); eyes grey to dark grey; antennae mostly brown with the club usually dark brown. Pronotum pale ochreous to ochreous, with usually five black spots or markings which are variable in size and outline (Fig. 1, A-E); two of these spots lie a little in front of the transverse median line and three close to the posterior margin of pronotum; the anterior two and the two lateral posterior spots lie as if in a semicircle, while the median posterior spot lies opposite the scutellum; this last spot is much reduced in some examples (Fig. 1, B) while in some others it is increased and the spot becomes confluent with the anterior spots which are also enlarged (Fig. 1, E). Sometimes small light fuscous areas as well as a few black dots are also seen on the sides of the pronotum but these are very irregular in shape and size. Scutellum light brown. Elytra uniformly light brown, or pale testaceous. Underside with the lateral margins of the thoracic epipleurae and the entire elytral epipleurae pale ochreous; the thoracic sterna as well as the median parts of the first three abdominal sterna piceous to

dark brown, the lateral parts of the first three abdominal sterna and the remainder of the abdominal sterna testaceous, legs brown except for the fuscous to dark brown median parts of femora and tibiae.

Head with relatively sparse, rather fine and impressed punctation and having a few delicate brownish hairs near the anterior and ocular margins; eyes clearly visible from above and finely faceted; labrum rectangular, twice as wide as long, smooth, with a few very fine punctures and brownish setae; mandible (Fig. 2, B) bifid at the apex and with distinct basal tooth; antennae (Fig. 2, A) eleven segmented

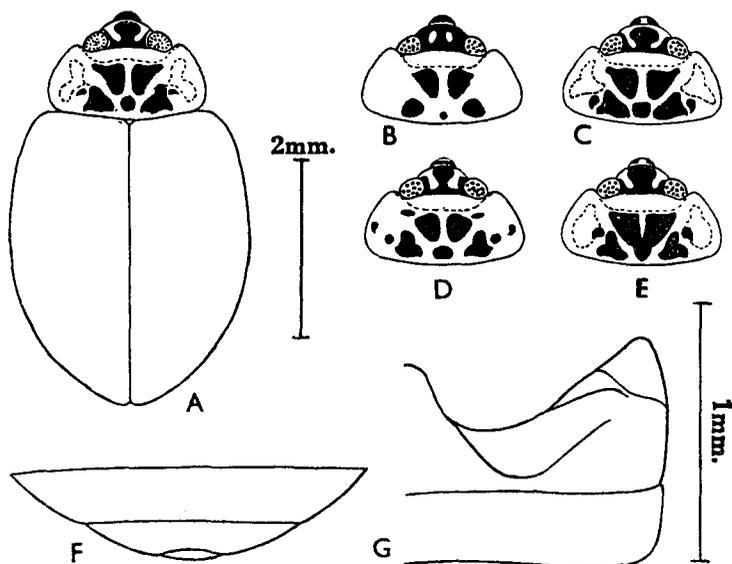


FIG. 1. — *Adalia simmondsi*, sp. n. A: outline of the beetle; B-E: outlines of the head and pronotum showing variation in pattern; F: apical abdominal sternites of the male; G: a portion of the basal sternites of the abdomen showing the abdominal line (2 mm. scale for figs. A-E; 1 mm. scale for figs. F and G.)

with the club compact, the preapical segments of the latter distinctly broader than long. Pronotum in the middle twice as wide as long, moderately emarginated anteriorly, the anterior and posterior angles rounded, lateral margin moderately curved, the basal margin straight; punctation relatively sparse, fine and impressed and almost comparable to that on the head. Scutellum triangular, small, but clearly visible, with three or four fine punctures. Elytra with the basal margin straight, shoulder-boil indistinct, lateral margin slightly curved externally; punctation relatively coarser and closer and more impressed than that on the pronotum. Underside with the prosternum arched and without any keel-lines; the abdominal lines (Fig. 1, G) evenly curved

and complete; the sixth or the last visible abdominal sternite in the male (Fig. 1, F) narrowly emarginate at the apex, entire in the female; the tarsal claws (Fig. 2, C), each provided with a basal tooth. The male genitalia (Fig. 2, G, F) with the basal piece (*bp*) nearly as wide as long, the median lobe (*ml*) fairly wide at the base, gradually narrowing towards the apical four-fifths of its length, after which, when viewed from the side, it tapers abruptly to a pointed apex; viewed from below the apical one-fifth is narrow and has a rounded apex; parameres (*p*) about five-sixths the length of the median lobe, slightly curved in the

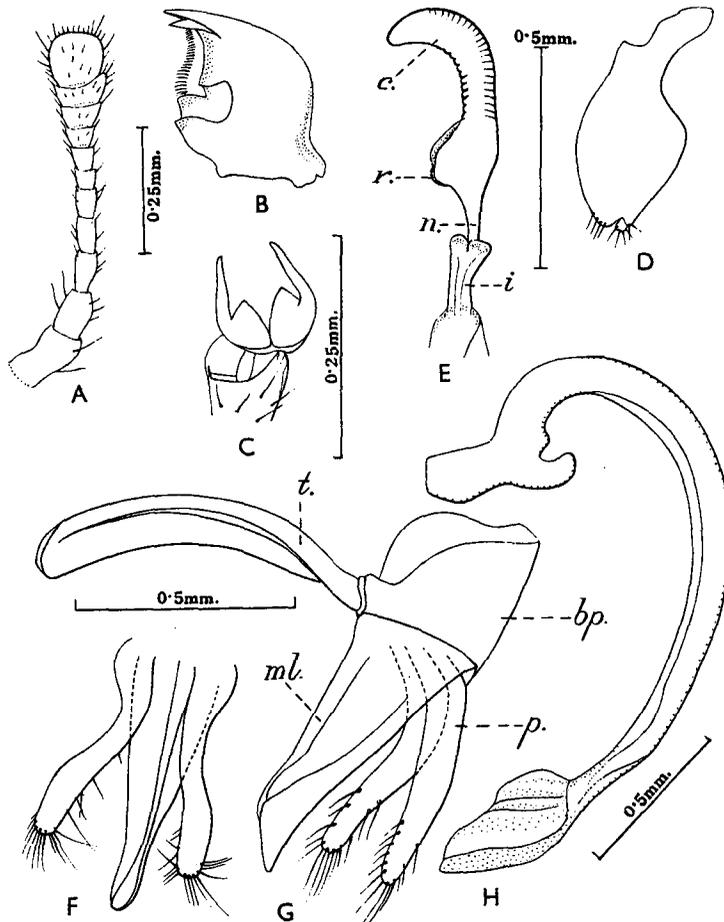


FIG. 2. — *Adalia simmondsi*, sp. n. A: antenna; B: mandible; C: tarsal claws; D: female genital plate; E: spermatheca (*c*, cornu; *r*, ramus; *n*, nodulus; *i*, infundibulum); F: a near-front view of the median lobe and parameres; G: a lateral view of the male genitalia except siphon (*t*, trabes; *bp*, basal piece; *ml*, median lobe; *p*, parameres); H: siphon (Scales placed nearest to or commonly between the figures concerned.)

middle and gradually narrowing slightly towards the apex, provided with a few long setae on the apical half of their length; trapes (t) well developed, a little longer than the median lobe, siphon (Fig. 2, H) strongly curved near the siphonal capsule, moderately so in the median half, with a narrow portion or constriction at the distal four-fifths of the length, the apical part beyond the constriction mostly membranous and expanded, the inner arm of the siphonal capsule distinctly shorter than the outer. The female genital plates (IX sternite) roughly elongate oval, nearly twice as long as wide in the middle, each plate with a rounded papilla bearing a few setae at the apex, the apical margin of the plate also provided with a number of setae (Fig. 2, D); spermatheca (Fig. 2, E) with the cornu (c) moderately curved distally, the ramus (r) short and blunt, the nodulus (n) narrow at the base, the infundibulum (i) well chitinized.

Length 3.8 — 4.3 mm., width 2.6 — 2.8 mm.

**HOLOTYPE.** — A male from India : Kalatop Forest, district Chamba, Himachal Pradesh, « feeding on Adelgid on silver fir », 7.VII.1960. (V. P. RAO and V. S. RAO coll.), in the Zoological Survey of India, Calcutta (Z.S.I.), Registered No.14437/H4.

**ALLOTYPE.** — A female with the same data as the holotype except the date of collection which is 22.1.1959; in Z.S.I., Registered No.14438/H4. Abdomen dissected and mounted in Canada balsam between two coverslips with a card pinned through the same pin which also bears the specimen. Other paratypes, both male and female, four, with the same data as the holotype and two as that of the allotype, in Zoological Survey of India and in the Commonwealth Institute of Biological Control, Indian Station, Bangalore. Additional material consisting of some dissected parts of the species also mounted in Canada balsam on slides.

**REMARKS.** — The species belongs to the genus *Adalia* MULSANT because of the following characters : the tarsal claw is provided with a basal tooth, the scutellum is distinctly visible, the antennal club is compact and its preapical segment is broader than long, the prosternum is arched and devoid of keel lines and the abdominal lines are evenly curved and complete; the upper surface is distinctly punctate, the elytral punctures being relatively coarser than those on the head and pronotum. On account of the relatively coarser elytral punctures, the species is easily distinguished from other species of *Adalia* found in India and in the neighbouring palaeartic area, except *Adalia indica* CROTCH (1874) (1) in which the elytra are also more or less coarsely punctate. However, the latter is a smaller species which is oval in outline and is also distinguished by its colo-

(1) CROTCH, G. R. 1874. A Revision of the coleopterous family *Coccinellidae*, pp. 101-102, London.

ration. The head in *A. indica* is pale ochreous; the pronotum is uniformly black in the middle half except along the narrow anterior margin, and is ochreous on each side; the line separating the black and the ochreous lateral area being roughly sigmoid; the scutellum is also black.

The male genitalia in the two species are also distinct. In *A. indica* the inner arm of the siphonal capsule is as long as the outer, whereas in *A. simmondsi* the inner arm is much smaller; the median lobe is narrower than that in *A. simmondsi*, especially when both are viewed laterally. By these characters the two species can be easily distinguished. Another species of *Adalia* often found in northern hilly tracts of India is *Adalia tetraspilota* (HOPE) but this is easily distinguishable by its relatively finer elytral punctures, the largely black pronotum (only the narrow lateral border is ochreous) and the red elytra bearing four (or sometime two) black spots across the middle of the elytra.

As stated above, *A. simmondsi* has been found to feed on *Adelges* species on silver fir in Himachal Pradesh. In this connection it may be pointed out that *Aphidoidea* appear to be very common hosts of a number of *Adalia* species in Europe and elsewhere (*vide* SCHILDER & SCHILDER, 1928) (2).

#### RÉSUMÉ

Les auteurs donnent la description d'une nouvelle espèce de *Coccinellidae* du genre *Adalia* MULSANT découverte par Dr V. P. RAO et Mlle V. S. RAO dans la station du C.I.B.C. de Bangalore où elle exerce son action prédatrice vis-à-vis d'un Aphide abiéticole du genre *Adelges*. *Adalia simmondsi* sp.n. est comparé en détail avec les autres espèces indiennes du genre : *A. indica* CROUCH et *A. tetraspilota* (HOPE).

(*Zoological Survey of India, Calcutta.*)

(2) SCHILDER, F. A. & SCHILDER. — 1928. Die Nahrung der Coccinelliden und ihre Beziehung zur Verwandtschaft Arten. — *Sonderdr. Arb. biol. Reichsanst. Land & For.*, 16, No. 2, pp. 257-258.