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Notes on the *Carinodulini* with a description of a new Oriental genus
and species*
(*Coleoptera: Coccinellidae: Sticholotidinae*)

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ABSTRACT. *Carinodulina burakowskii* gen. et sp. n. (*Coleoptera: Coccinellidae, Sticholotidinae*) is described from Thailand. The diagnostic characters of the tribe *Carinodulini* are reexamined and evaluated.

Key words: entomology, new species, Thailand, *Coleoptera, Coccinellidae, Carinodulini*.

INTRODUCTION

Sticholotidinae received very little attention from the students of *Coccinellidae* due to their inconspicuous facies and a generally small size. There are still many new and important taxa to be discovered or reexamined all over the tropical and subtropical parts of the World (see GORDON 1977, 1991, 1994; MIYATAKE 1994). This group of the smallest known coccinellid beetles is almost certainly polyphyletic, and the only character used to define the tribe (not expanded last maxillary palpomere) is plesiomorphic (ŚLIPIŃSKI & PAKALUK 1992). Relationships between currently recognized tribes of *Sticholotidinae* are yet to be resolved, and need more complete and detailed studies. These studies should include apparently related groups of *Endomychidae*, which appear to be more closely related to some sticholotidines than these to other groups of coccinellids proper.

An expedition carried out by the Natural History Museum of Geneva (D. BURCKHARDT & I. LÖBL) to Thailand revealed an important member of *Carinodulini*,

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a tribe known so far from Mexico (an undescribed species has been seen from Baja California, S.A.Ś, personal observation) only. This is not surprising since most of the *Sticholotidinae* tribes, and many genera are pantropical in their distribution. The newly discovered member of *Carinodulini* externally resembles its Mexican relative, but its genitalia (with clearly articulated parameres and a very simple median lobe) comes closer to the endomychid subfamilies *Anamorphinae* or *Acritosomatinae*.

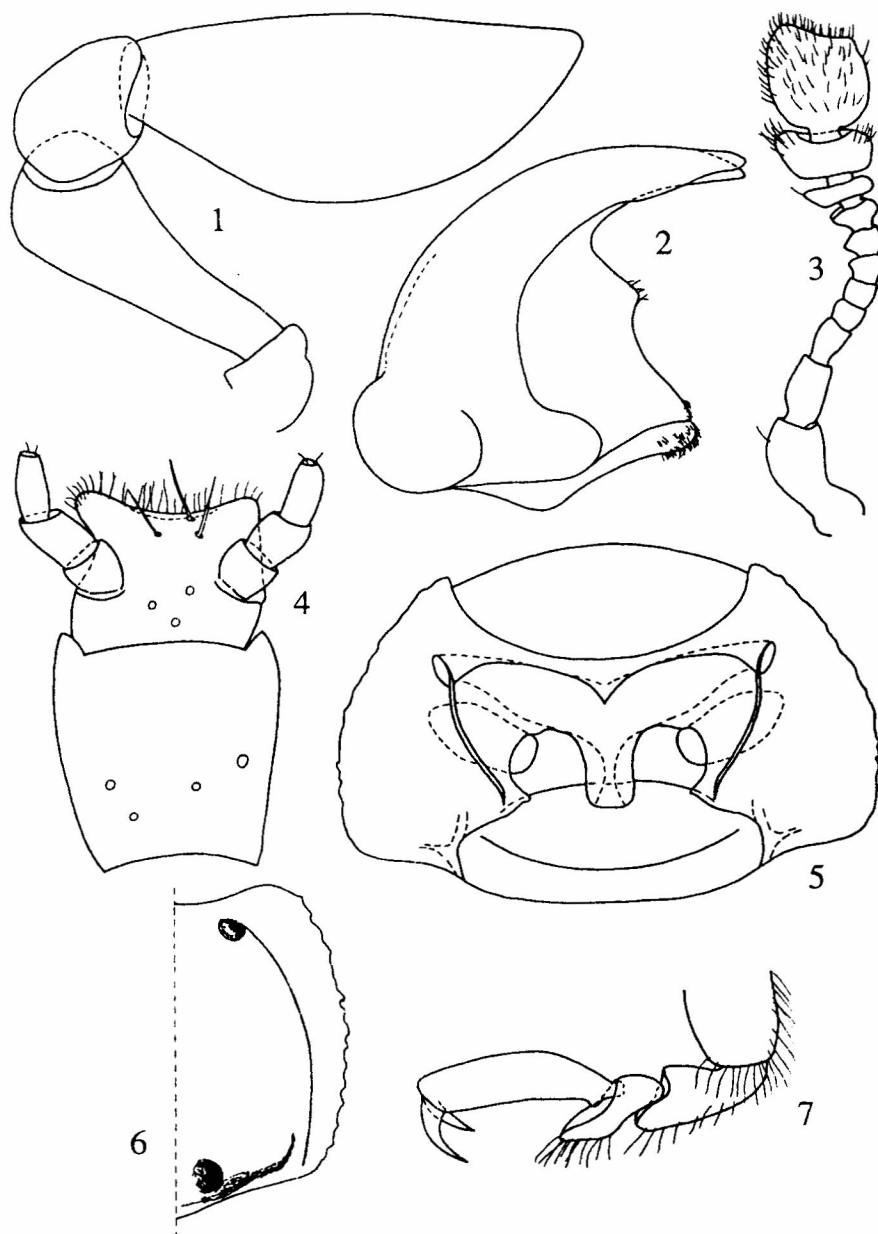
We are indebted to Dr. Ivan LÖBL (MHNG - Muséum d'Histoire Naturelle de Genève) for the loan of specimens. Dr. Tarun K. PAL (Calcutta) and Piotr WĘGRZYŃCZAK kindly commented on an earlier draft of this paper. Two paratypes are retained in the collection of the Museum and Institute of Zoology (IZPAN).

Tribe *Carinodulini*

This tribe was established by GORDON, PAKALUK & ŚLIPIŃSKI (1989) for an aberrant sticholotidinae coccinellid discovered in Mexico. The main distinguishing character used for this tribe was an obvious submarginal carina extending from the base to the apex of pronotum. Yet a similar character to a various degree is found in the tribes *Sukunahikonini* and *Microweiseini*. It is beyond the scope of the present paper to discuss the phylogenetic significance of this character, but this may well be of a phylogenetic significance. Recent examination of several specimens of *Hikunasukuna monticola* SASAJI (1967) from Taiwan (MHNG) allowed us to compare the condition of pronotal carinae and other characters between the *Carinodulini* and that genus. This examination calls for an emendation of the diagnosis of the *Carinodulini* as compared to the *Sikunahikonini* and *Microweiseini*.

Diagnostic features of the *Carinodulini* include:

- pronotal submarginal carina strong and well separated from lateral margin, which is crenulate to almost denticulate and double;
- last maxillary palpomere large and knife-shaped;
- antenna 11-segmented, long and bearing 2-3-segmented loose club with terminal antennomere distinctly larger than penultimate one;
- prosternum long in front of coxae with anterior and lateral carinae meeting antero-laterally; prosternal process narrow, parallel-sided;
- abdomen with five visible ventrites; I - the longest about as long as metasternum with *Lithophilus*-type femoral lines; ventrites I-II incompletely fused; ventrite V rounded apically and only slightly longer than IV; ventrite VI exposed at apex;
- median lobe of male tegmen strongly reduced; siphonal capsule not developed.



1-7. *Carinodulina burakowskii* sp. n.: 1 - maxillary palp; 2 - mandible; 3 - antenna; 4, labium; 5 - prothorax, ventral view; 6 - lateral portion of pronotum showing submarginal carina and pits; 7 - protarsus

Carinodulina gen. n.

Type species: *Carinodulina burakowskii* sp. n.

ETYMOLOGY

The name refers to the genus *Carinodula*, and the gender is feminine.

DIAGNOSIS

Carinodulina strongly resembles *Carinodula* GORDON et al., 1989 in general body form, and a possession of all diagnostic characters of the *Carinodulini*. The principal differences between these genera are possession by *Carinodulina* of 3 pairs (2 dorsal, 1 ventral) of prothoracic pits, 3-segmented tarsi, male genitalia with articulated parameres and short median lobe.

DESCRIPTION

Body elongate-oval, externally resembling endomychid *Mycetaea*.

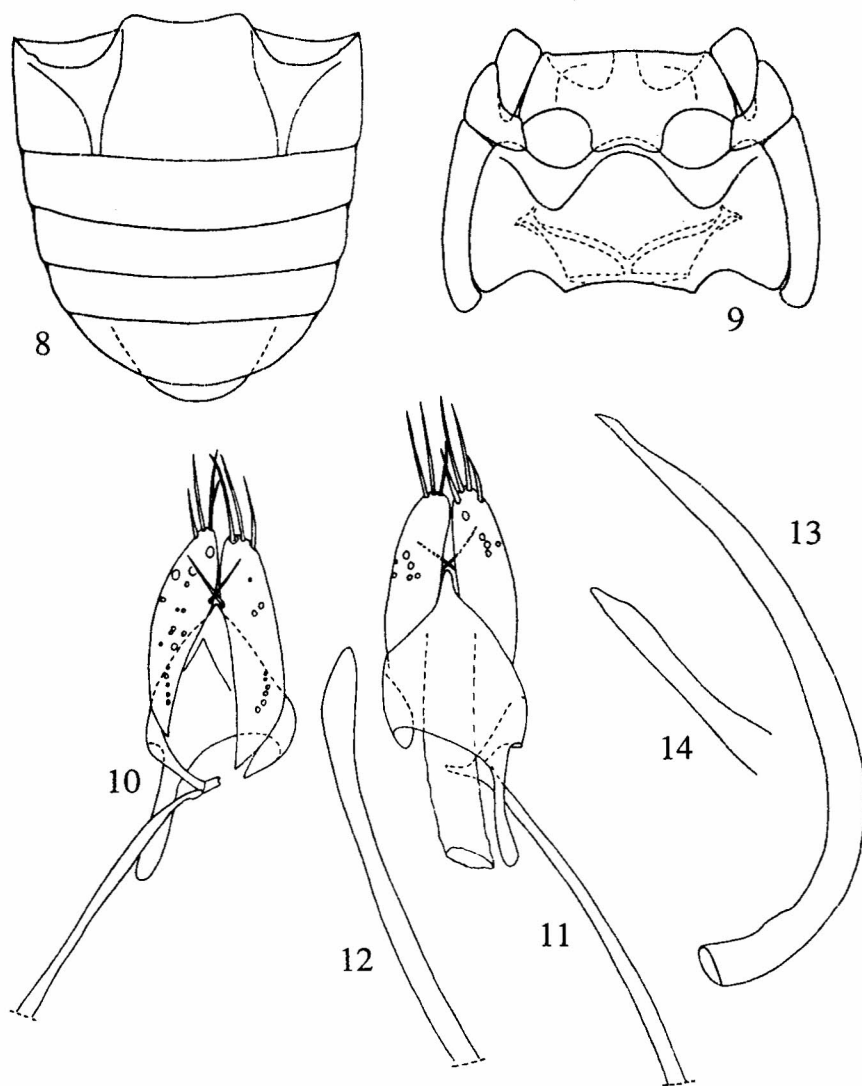
Head deflexed, exposed, much narrower than pronotum with clypeal region somewhat produced anterad, its anterior margin weakly emarginate; tentorium without corpotentorium, arms approximate near middle and then strongly diverging anterad; eyes small, coarsely faceted, each with 18-22 coarse ommatidia; gular sutures indistinct, converging anterad. Antenna (fig. 3) 11-segmented, five apical antennomeres slightly asymmetrical, last three form large and densely setose club. Mouth-parts (figs 1, 2, 4) very similar to *Carinodula* but mandible with molar lobe and prostheca further reduced, mentum about as long as wide, and terminal maxillary palpomere more strongly elongate (2.4 x as long as wide).

Pronotum transverse, with lateral edge double and distinctly crenulate; submarginal carina entire, beginning from anterior pit to posterior angle; pronotal base weakly rounded with two subbasal pits close to hind angles (fig. 6). Prosternum (fig. 5) with intercoxal process slightly narrower than width of coxal cavity, coxae approximate; anterior and lateral carinae well-developed, meeting antero-laterally at distinct pits.

Mesosternal process about as wide as coxa, flat. Metasternum about as long as first abdominal ventrite, with complete femoral lines; metendosternite as in fig. 9. Elytron coarsely, irregularly punctured; epipleuron oblique, flat, tapering posteriorly, disappearing at about middle of abdomen.

Legs long, slender; tarsi 3-segmented with apical tarsomere bearing weak tooth at base (fig. 7).

Abdomen with 5 completely visible sterna, sixth one only partially visible (fig. 8); ventrites I-II incompletely fused, the first one bearing characteristic femoral lines. Male genitalia (figs 10-13) with tegmen strongly asymmetrical at base, median part of tegmen reduced, parameres articulated, setose; median lobe 0.65 x as long as abdomen, relatively simple and well-sclerotized. Female genitalia not studied.



8-14. *Carinodulina burakowskii* sp. n.: 8 - abdomen, ventral view; 9 - pterothorax, ventral view; 10-11 - tegmen; 12 - trapes, apical part; 13 - median lobe, 14 - apex of median lobe

Carinodulina burakowskii sp. n.

This species is named after Dr. Bolesław BURAKOWSKI, to whom this volume is dedicated.

DESCRIPTION

Length 0.9 mm. Wingless. Body about 1.90 x longer than wide; pronotum 0.60-0.63 x as long as wide; elytra 1.20-1.24 x as long as wide, and 2.20-2.30 x longer than pronotum.

Color light brown, appendages lighter in color; eyes black. Vestiture of semirecumbent, yellowish hairs, about as long as width of scutellum, barely visible under 15 x magnification. Pronotum widest at posterior third, sides arcuate and more strongly narrowing anteriorly than posteriorly; edges somewhat serrate. Pronotal punctures about 0.5 x as large as elytral ones, all about 0.3-0.4 diameters apart; interspaces smooth, strongly shiny. Scutellum transverse, broadly rounded posterad. Male genitalia as in figs 10-13. Female unknown.

TYPES

Holotype male: Thailand, NE Bangkok, Khao Yai Nat. Park, Khao Khieo, 1150 m, (sample no. 29), BURCKHARD-LÖBL, 28.XI.85 (MHNG).

Paratypes: same data as holotype (2, IZPAN, one completely dissected on slide); Thailand, NE Bangkok, Khao Yai Nat. Park, 750-850 m, (sample no. 29a), BURCKHARD-LÖBL, 26.XI.-3.XII.85 (1, MNHG).

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