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中国小基瓢虫属 *Diamus* 研究

(鞘翅目: 瓢虫科)

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本文回顾了小基瓢虫属 *Diamus* 分类研究的历史沿革以及中国该属的研究简况, 描述了小基瓢虫的分布情况及鉴别特征。对保存于华南农业大学、中国农业大学、中国科学院动物研究所、德国慕尼黑动物博物馆的一些标本及作者近年来采集的标本进行了研究, 共鉴定出我国小基瓢虫属昆虫3种, 其中包括2新种, 即产于河北的长叶基瓢虫 *D. longilobus*, sp. nov. 和产于广东的膨囊基瓢虫 *D. tumefactus*, sp. nov., 给出了种类检索表, 每种都附以详细的特征图。新种模式标本存北京市农林科学院植保环保研究所。

关键词 鞘翅目 瓢虫科 小基瓢虫属 新种 中国

THE CHINESE SPECIES OF DIOMUS MULSANT (COLEOPTERA: COCCINELLIDAE)

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Abstract The present paper gives a brief review of Chinese *Diomus* Mulsant, provided with the diagnosis of the genus and the key to Chinese species. Three species are known from China, of which two species were described as new to science: *D. longilobus* and *D. tumefactus*.

Key words Coleoptera, Coccinellidae, *Diomus*, new species, China

Introduction

The *Diomus* was described by Mulsant (1850) as a subgenus of *Scymnus* Kugeln. Weise (1895) elevated it to generic level. Subsequent authors have either considered it a valid genus (Chapin 1933; Gordon 1976; Pang et Gordon 1986; Chazeau 1993), a subgenus of *Nephus* (Iablokoff-Khnzorian 1976; F ürsch 1987b), or a subgenus of *Scymnus* (Korschefsky 1931; Mader 1955; Bielawski 1973). However, most authors now recognised *Diomus* as distinct genus (Chazeau et al 1989; 1990).

The genus is widely distributed all over the world. Up to now about 119 species (plus 3 subspecies) have been recorded, and the majority of them were known from South Pacific and Latin America. Four species were listed from Africa (F ürsch 1987a) and two species (plus 2 subspecies) from Palaearctic Region (F ürsch 1987b). However, many species described long ago as member of *Scymnus* actually belong to *Diomus* (Chazeau 1993).

The *Diomus* was less studied in China. Ohta (1929) described *Diomus futahoshii* from Taiwan and Miyatake (1957) synonymized it with *Cryptogonus orbiculus*. Pang et Gordon (1986) added a new species *D. brunsuturalis* from Hainan Island and Pang et Huang (1986) described another species *D. brachysiphonius* from Fujian. Yu (1995) considered the latter as a synonym of the former, after examining the types of both species. The present paper describes two new species, provided with the key to species of China.

Materials

The sources of material for this study are the following institutions (acronyms used in the following text): AS: Institute of Zoology, Academia Sinica, Beijing; IPEP: Institute of Plant & Environmental protection, Beijing Academy of Agricultural & Forestry Science, Beijing, China; CAU: Insect Collections of China Agricultural University, Beijing, China; SCAU: Insect Collections of South China Agricultural University, Guangzhou, China; ZSM: Zoologische Staatssammlung München, München, Germany.

Genus *Diamus* Mulsant

Scymnus (*Diamus*) Mulsant 1850: 951; Korschefsky 1933: 116; Mader 1955: 955

Nephus (*Diamus*): Labkoff-Khnzorian 1976: 377; F ürsch 1987b: 68

Diamus: Weise 1895: 144; Chapin 1933: 95; Gordon 1976: 319; Pang et Gordon 1986: 192

Type species: *Coccinella thoracicus* Fabricius (by subsequent designation of Korschefsky 1931).

Diagnosis: Scymnini with postcoxal line extending down and joining hind margin of first abdominal sternite

Description: Scymnini with antenna 10- or 11-segmented; apical segment of maxillary palpus securiform. Prosternum with 2 fine, complete carinae extending to anterior margin of prosternum. Postcoxal line extending down and joining hind margin of 1st abdominal sternum. First abdominal sternum fused to 2nd medially. Tarsi 3-segmented. Male genitalia with basal lobe (median piece) symmetrical or asymmetrical; siphon short, stout or extremely long and slender

Distribution: Worldwide

Discussion: Pang et Gordon (1986) discussed the different definition of *Diamus* by Chapin (1933) and Gordon (1976). They considered that there are certainly 2 genera involved and probably more, and the correct resolution of the question depends first on examination of the type species of *Coccinella thoracica* and secondly on a study of the genus "*Diamus*" worldwide. The Chinese species of *Diamus* are the same as those from Africa and South Pacific Region in having 11-segmented antennae, and differ from the *Diamus* defined by Gordon (1976), which has 10 antennal segments

Key to species of China

1. Pronotum brown or dark brown with lateral sides or margins yellowish brown; median piece of tegmen symmetrical, slightly shorter than lateral lobes 2
- Pronotum entirely brown, or with a black base, small or large; elytra brown, or with a black triangle marking at base, or elytral black with brown apex; median piece of tegmen slightly asymmetrical, distinctly longer than lateral lobes; body length 1.30~1.45mm, width 0.80~0.95mm *D. brunsuturalis*
2. Hind margin of abdominal sternite VI of male widely and slightly emarginate; lateral lobes of tegmen broad in lateral aspect, with a few setae at apex; body length 1.00~1.25mm, width 0.70~0.90mm *D. tumefactus*, sp. n.
- Hind margin of abdominal sternite VI of male rounded, nearly straight in the middle; lateral lobes of tegmen slender in lateral view, with many setae at apex; body length 1.20~

1. 35mm, width 0.85~0.95mm *D. longilobus*, sp. n.

1. *Dianus brunsuturalis* Pang et Gordon (Fig. 1)

Dianus brunsuturalis Pang et Gordon 1986: 192, Fig. 25

Dianus brachysiphonius Pang et Huang 1986: 59, Fig. A - D.

Type locality: Hainan Island, South China

Material examined: Type material: 1♂, holotype, Hainan Island, VI-1973, Pang, X. (SCAU); 1♂, holotype of *D. brachysiphonius* Shaowu (Fujian Province), 20-VIII-1984, Pang, X. (SCAU).

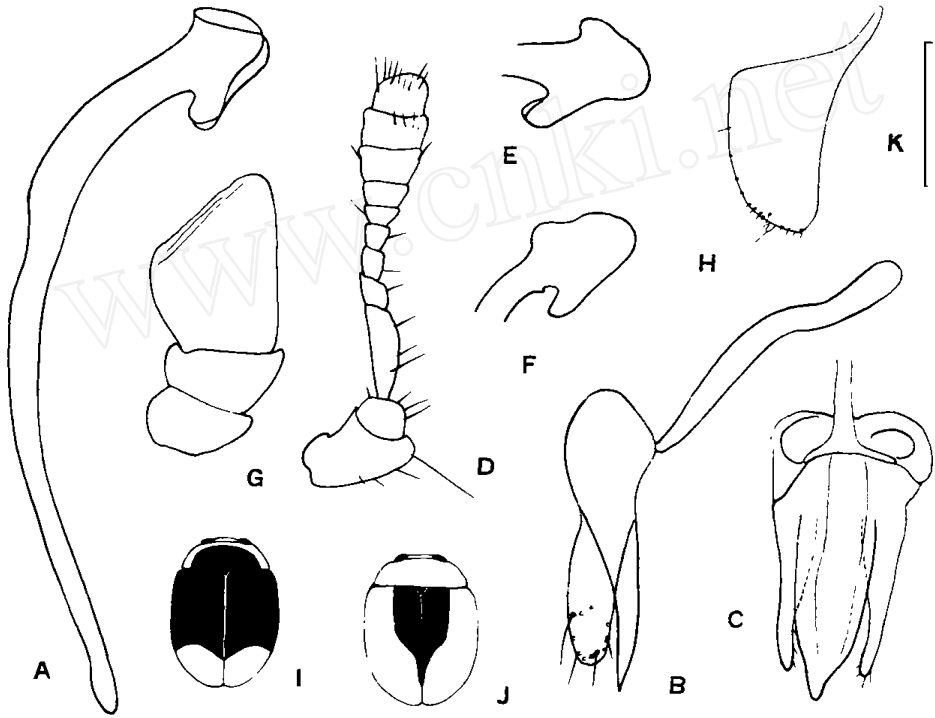


Fig. 1 *Dianus brunsuturalis* Pang et Gordon

A. siphon; B. tegmen, lateral view; C. tegmen, ventral view; D. antenna; E, F. siphonal capsule; G. maxillary palpus; H. hemisternite; I, J. outline of body; K. scale for A~H. (scale marker = 0.1mm)

Other material: 2♂ 1, Ruyang (Guangdong), 12-VI-1993, Tong, X. (IPEP); 1, idem, 10-VI-1993, Yu, G. (IPEP); 1, idem, 8-VI-1993, Yu, G. (IPEP); 1♂ 9, idem, 12-VI-1993, Yu, G. (IPEP); 1♂ 2, Taipei (Taiwan), 3-IV-1977, J. Klapperich (ZSM, but 1 in SCAU); 1, 5-IV-1977, Wulai (Taiwan), J. Klapperich (ZSM); 1♂, Hangzhou (Zhejiang), 29-VIII-1989, Yu, G. (SCAU); 1♂, Wanxian (Sichuan), 25-VI-1989, Ren, S. (SCAU); 1, Zhouzhi (Shaanxi), 17-VIII-1962, Yang, J. (CAU); 2♂ 1, Beijing, 6-IX-1994, Yu, G. (IPEP); 16 exs, Beijing, 29-VIII-1994, Yu, G. (IPEP); 1, Wanxian (Sichuan), 26-IX-1994, Yao, J. (AS).

Distribution: China (Hainan, Guangdong, Fujian, Taiwan, Zhejiang, Sichuan,

Shaanxi, Beijing).

Discussion: The present species is widely distributed in China, and it varies in coloration, from entirely brown body to a black triangular marking at base of elytra, to black elytra with brown apex and pronotum brown with black base. The median piece of male tegmen is slightly asymmetrical, and siphonal capsules have variation in shape, even from the same location, as Fig 1-E and 1-F from Ruyang, Guangdong

2 *Diamus longilobus*, sp. n (Fig 2)

Etymology: The species is named after the comparatively long lateral lobes of tegmen

Type material: ♂, holotype, North China: Beidaihe (39° 8' N, 119° 4' E, Hebei), 10 - VIII - 1994, Yu, G (IPEP); paratype: 1♂, idem. (IPEP).

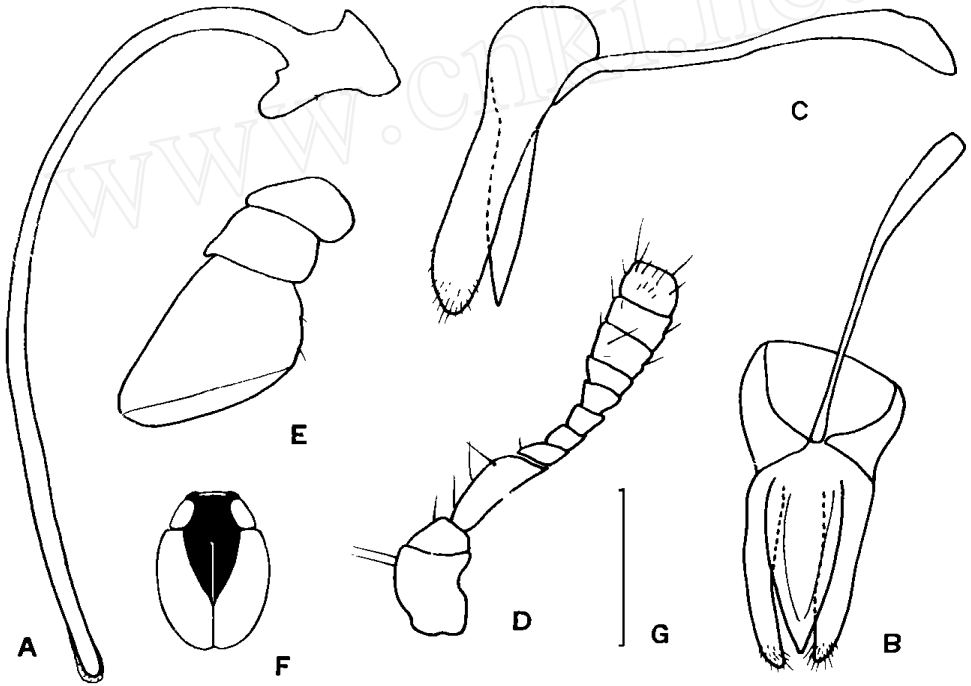


Fig 2 *Diamus longilobus* Yu, sp. n

A. siphon; B. tegmen, lateral view; C. tegmen, ventral view; D. antenna; E. maxillary palpus; F. outline of body; G. scale for A ~ E (scale marker = 0.1 mm)

Description: Elongate-oval, gently arcuate on sides, moderately convex above. Head light yellowish brown, pronotum dark brown with lateral 1/2 yellowish brown, prenatal margins reddish brown. Scutellum dark brown. Elytra brown with triangular dark brown sutural marking, extending to a little beyond 1/2 of elytral length, elytral margins reddish brown, and lighter apically. Undersurface yellowish brown, meso- and metathorax tea brown and basal areas of abdomen brown. Legs yellowish brown.

Inner margins of eyes arcuate and divergent posteriorly, interocular distance slightly larger than half as wide as head; frons closely and finely punctured. Apical margin of

pronotum almost straight, sides straight at basal $2/3$ and distinctly narrowing at anterior $1/3$, anterior corners nearly rectangular in profile; posterior corners slightly obtusely angulate; pronotum about 2 times as wide as long. Elytral sides gently arcuate from base to apical third, then broadly rounded to extreme apex, humeral calli indistinct; humeral corners obtusely angulate, surface rather finely and closely punctured. Pubescence fine, subdecumbent, yellowish white, directed posteriorly in general.

Prosternal carinae widely separated, parallel, reaching anterior margin, length about 1.8 times width. Postcoxal line extending to the hind margin of first abdominal sternite, area surrounded by the line finely punctured at basal half, smooth at posterior half. Hind margin of abdominal sternite VI rounded, but nearly straight in the middle.

Male genitalia: Median piece of tegmen relatively broad, widest at near base, tapering gently to a pointed apex in ventral aspect, lateral lobes with almost parallel sides at basal $3/4$, wider than median piece in lateral aspect, slightly longer than median piece. Siphon rather long, basal third curved, the remaining part almost straight; outer process of siphonal capsule robust and inner process small; apex of siphon with membranous surrounding.

Distribution: China (Hebei).

Discussion: This new species resembles *D. rubidus* Motschulsky, but differs from the latter by lateral lobes of tegmen slightly longer than median piece and lateral lobes comparatively slender.

3. *Dionus tumefactus*, sp. n. (Fig. 3)

Etymology: This species is named after the characteristic shape of siphonal capsule, namely, both inner and outer processes expanded terminally.

Type material: ♂, holotype, South China: Mashan (22° 7' N, 112° 9' E, Guangdong), 17- VI- 1994, Yu, G. (IPEP); 1 ♀, allotype, idem. (IPEP); paratypes; 33♂ 32 ♀, idem. (IPEP); 1 ♀, idem, 5- VI- 1993, Yu, G. (IPEP).

Description: Oval, moderately convex above. Head yellow with brown vertex; pronotum brown with lateral $1/3$ yellowish brown, pronotal margins reddish brown; scutellum darkish brown; elytra brown, with triangular blackish brown sutural marking, extending to $4/7$ of elytral length. Undersurface yellowish brown, meso- and metathorax blackish brown; legs yellowish brown.

Interocular distance about half as wide as head, inner margins of eyes arcuate and divergent posteriorly, frons finely punctured. Pronotum about three times as wide as long, anterior margin of pronotum subtruncate, side nearly straight from base to apex; anterior corners nearly rectangular in profile, posterior corners slightly obtusely angulate. Elytral sides gently arcuate from base to apical fourth, then broadly rounded to extreme apex, humeral calli prominent, humeral corners obtusely rounded; elytral punctures coarser than those on pronotum.

Prosternal carinae widely separated, parallel, length about 1.8 times of width at base. Abdominal sternites finely and sparsely punctured. Hind margin of abdominal sternite VI widely and slightly emarginate.

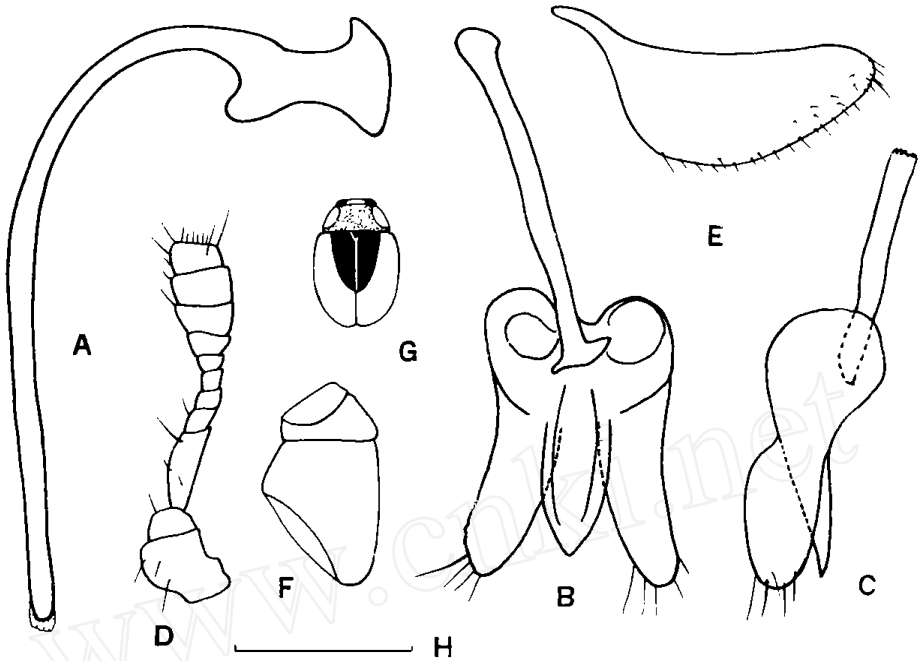


Fig 3 *Diamus tumefactus* Yu, sp. n.

A. siphus; B. tegmen, ventral view; C. tegmen, lateral view; D. antenna; E. hemisternite; F. maxillary palpus; G. outline of body; H. scale for A~F. (scale marker= 0.1mm)

Male genitalia: Siphus stout, relatively short, outer process of siphonal capsule stout, expanded apically and inner process small; basal 1/3 of siphus curved, and apical 2/3 straight; apex of siphus rounded, surrounded by membrane. Median piece of tegmen parallel at basal half, then tapering to a pointed tip in ventral aspect, and narrowing gently to a pointed tip in lateral aspect, shorter than lateral lobes; lateral lobes elongate oval and large in lateral aspect, with a few setae at apical margin.

Female genitalia: Hemisternite as figured.

Variation in coloration: The brown vertex of head may become dark brown, or the dark area extends to clypeus. Pronotum may be black, and only narrow lateral margins is brown. The sutural marking of elytra may enlarge, black in coloration, leaving a diagonally rectangular marking at each apex of elytron.

Distribution: China (Guangdong).

Discussion: The present species is similar to *D. rhodesianus* Pope 1957 of Africa, but easily separable from the latter by male genitalia (lateral lobes with a few setae, siphus with a rounded apex and characteristic siphonal capsule).

Acknowledgements: I thank the curators and collection managers and their respective institutions listed in the materials who kindly loaned me the specimens.

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