

REDESCRIPTION OF A SERIOUS CAYSTRINE STINK BUG BAMBOO PEST *HIPPOTISCUS DORSALIS* STÅL (HEMIPTERA: PENTATOMIDAE) ALONG WITH ITS GENUS AND THEIR PHYLOGENETIC RELATIONSHIPS

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ABSTRACT

Hippotiscus Bergroth along with its type species *H. dorsalis* Stål, a serious caystrine bamboo pest in China is redescribed with special reference to its metathoracic scent auricle and male and female genitalia and in this light their phylogenetic relationships are also briefly discussed.

Key words: Heteroptera, Pentatominae, Caystrini, *Hippotiscus dorsalis* Redescription, Phylogenetic relationships

INTRODUCTION

Stål (1869) described *dorsalis* under his (1867) genus *Plexipus* but it was a preoccupied name and therefore Bergroth (1891) renamed it to *Hippota*. Unfortunately this name was also preoccupied and finally Bergroth (1906) provided a replacement name *Hippotiscus* for this taxon. Xu *et al.* (1991a and 1991b) and Yu *et al.* (1999) have reported this species as a serious pest of bamboo from China but they continued to place this species under the preoccupied generic name *Hippota*, the same combination which was used by Distant (1902). Rider *et al.* (2002) pointed out this erroneous combination of this pest in the applied literature and clarified the situation.

This species appears to be widely distributed in Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hunan, Jiangxi, Sichuan, Xizang and Zhejiang in China but is also known from Deccan (Hyderabad in South India) (Atkinson 1888; Distant 1902; Rider *et al.* (2002). After Stål (1869 and 1876) only Atkinson (1888) and Distant (1902) in the past and in the recent years Ahmad and Kamaluddin (1989) have redescribed this species but on mostly colour features and none have included detailed morphometrics and characters of genitalia. To fill these gaps the present studies were under taken.

MATERIALS AND METHODS

Male holotype of *H. dorsalis* was studied by the courtesy of the authorities of Natural History Museum Stockholm, Sweden and other determined specimens of both sexes of related caystrine species were examined by the first author at the Natural History Museum, London (BMNH) by the courtesy of Mr. Mick Webb incharge Hemiptera section, Department of Entomology. The male genitalia was studied following the technique of Ahmad (1986) and Ahmad and McPherson (1990, 1998) and the female genitalia was studied following the technique of Ahmad and Afzal (1979).

RESULTS

Hippotiscus Bergroth

Plexipus Stål 1867: 505; 1869: 226; 1876: 55,71; Atkinson 1888: 18;

Hippota Bergroth 1891: 214; Distant 1902:131-132; Gross 1975: 220; Hsiao *et al.* 1977:99,157

Hippotiscus Bergroth 1906:2; Distant 1908: 437; Kirkaldy 1909: 42; Ahmad & Afzal 1979: 2; Ahmad & Kamaluddin 1989: 170, 173-174,182.

Body oblongate; head broader than long, rounded at apex, lateral margins laminate, angulate in front of eyes; antennae with basal segment about reaching to head apex; labium not extending beyond mesocoxae; pronotum more than twice broader than long, lateral margins convex; scutellum with apex subrounded; mesosternum carinate; metathoracic scent gland ostioles with large apertures, peritreme elongated, anteriorly directed and with well developed evaporatoria; connexiva not exposed at repose.

Male genitalia:

Pygophore quadrangular, lateral lobes prominent, ventroposterior margin concave.

Female genitalia:

Ninth paratergites distinctly passing beyond medially fused posterior margin of 8th paratergites, first gonocoxae with posterior margins convex.

Type species: *Hippotiscus dorsalis* Stål

Comparative note:

This genus appears to be isolated among its tribe Caystrini in having basal antennal segment long about reaching apex of head, second antennal segment comparatively longer but scarcely as long as third and its second abdominal venter convexly elevated in the centre, although its unspinose.

***Hippotiscus dorsalis* Bergroth**
(Figs. 1-5)

Plexipus dorsalis Stål 1869: 226-227; 1876: 71 Atkinson 1888: 18-19

Hippota dorsalis Bergroth 1891:214; Ahmad & Afzal 1979: 2; Ahmad & Kamaluddin 1989: 170,173-174,182; Rider *et al.* 2002:40

Hippotiscus dorsalis Bergroth 1906: 2

Colouration:

Body brownish-ochraceous with thick black punctures, base of pronotum and scutellum transversely rugulose, connexiva black, lateral margins blackish.

Head:

Anteocular region slightly longer than remainder of head; paraclypei longer than clypeus but not distinctly enclosing the latter; antennae with basal segment about reaching head apex, second segment scarcely as long as third, fifth segment longest, length of antennal segments I 0.6, II 1.3, III 1.3, IV 1.3, V 1.9, 5th segment longest; labium (Fig. 2) not extending beyond mesocoxae; length of anteocular region 1.1mm, length remainder of head 0.9mm, width of head including eyes 3.0mm.

Thorax:

Pronotum more than 2.25x broader than its length, anterior margins wider than head width, anterior angles sub rounded, lateral margins convex, humeral angles sub rounded, length of pronotum 3.4mm, width 8.1mm; scutellum longer than broad, apical lobe sub rounded and much shorter than corium, length of scutellum 5.8mm, width 4.7mm; metathoracic scent ostiolar complex (Fig. 3) with peritreme elongated, lobe like, with anterior margin concave and posterior margin convex; mesosoternum carinate; veins of membrane of hemelytra simple; distance base scutellum-apex clavus 3.2mm; apex clavus-apex corium 4.0mm; apex corium-apex abdomen including membrane 1.9mm; apex scutellum-apex abdomen including membrane 3.8mm.

Abdomen:

Slightly concave beneath, connexiva not exposed at repose, abdomen much shorter than membrane of hemelytra; total length 15.0mm.

Male genitalia:

Pygophore (Fig. 4) as long as broad, lateral lobes prominent, lateral margins convex, ventro posterior margin concave.

Female genitalia:

Posterior margin of 7th abdominal sternum medially concave; first gonocoxae of moderate size with posterior margins convex, ninth paratergites distinctly passing beyond medially fused posterior margins of 8th paratergites (Fig. 5).

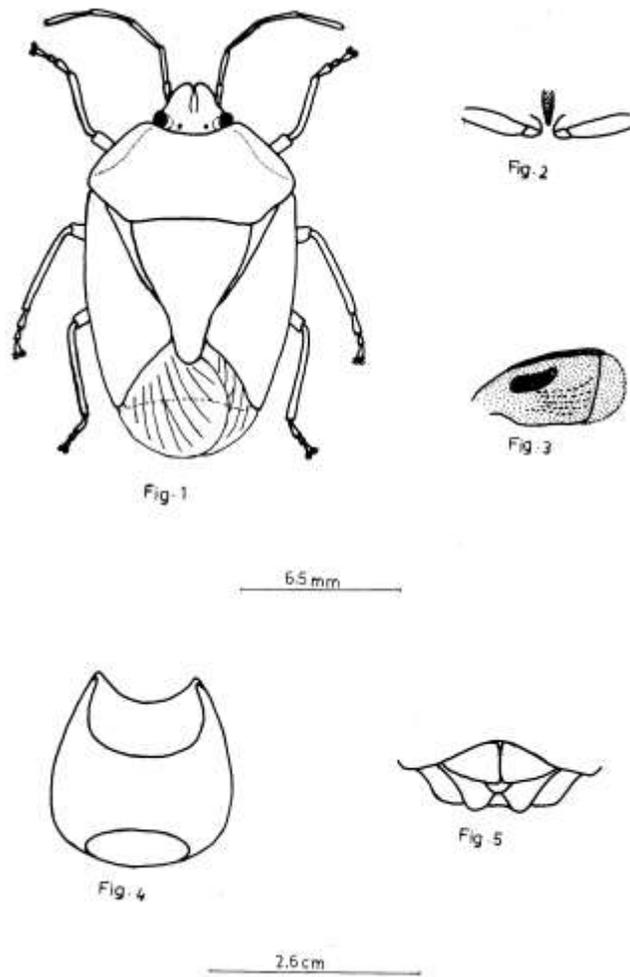


Fig. 1-5. *Hippotiscus dorsalis*; 1. Dorsal view ; 2.. Meso and metasternum with coxae showing the labium reaching; 3. Metathoracic scent auricle, ventral view; 4. Pygophre, dorsal view, 5. Female terminalia, ventral view.

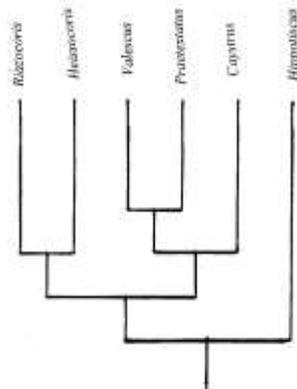


Fig. 6. Cladogram of the Caystrines genera presently included.

Material examined:

Holotype male India: Deccan, coll. Stål ,deposited at Natural History Museum Stockholm.

DISCUSSION

Ahmad and Zahid (2006 a) for the first time pointed out that Odiaria used by Atkinson (1888) after Stål's (1876) "Odius et affinia" based on generic junior homonym *Odius* Stal (*Caystrus* Stal being senior homonym for this taxon) could not serve as the stem for a family group name and therefore the use of Caystrini by Ahmad and Afzal (1979) (after Stal 1876) was the first usage of correct tribal name for the genera *Neodius* Bergroth (presently known as *Caystrus* Stal), *Heissocoris* Ahmad and Afzal, *Hippotiscus* Bergroth, *Praetextatus* Distant, *Riazocoris* Ahmad and Afzal and *Valescus* Distant. Among the above genera *Hippotiscus* appears the most advanced with autapomorphic characters of basal antennal segment long, reaching or about reaching apex of head, second segment of antennae comparatively longer but scarcely as long as the third and the hemelytra much longer and passing much beyond abdominal apex (Hsiao *et al.* 1977). Its second abdominal segment slightly convexly elevated in the centre although unspinose and mesosternum centrally carinate support the above conclusions similar to its wide distribution in the Oriental and Palaearctic region and its pest status on bamboo in China. In the remaining genera playing out group relationships with *Hippotiscus*. *Heissocoris* and *Riazocoris* appear to form sister group relationship with synapomorphies of long labium extending to hind coxae and humeral angles of pronotum somewhat produced, acutely pointed. Among the remaining genera *Praetextatus* and *Valescus* appear to play sister group relationship with each other having synapomorphies of lateral margins of head angulate in front of eyes, paraclypei longer than clypeus but not quite meeting or clearly cleft in front, pronotum with the anterior angles prominent in *Praetextatus* and broadly truncate and acutely angulate at their apices in *Valescus*. In the latter the lateral margins are also finely crenulate which also appears to be its autapomorphy. The hemelytra in the two genera also appear to have reduced a synapomorphy which expose sides of connexiva and slight portion of terminal abdomen in *Praetextatus* Distant Ahmad and Zahid (2006a) and exposing larger portion of terminal abdominal portion in *Valescus nigricans* Distant (Ahmad and Zahid (2006b). *Caystrus* appears to be their out group with anterior angles of pronotum subprominent and extending forward beyond the eyes, pronotum with the lateral margins strongly recurved with a faint central longitudinal line which is continued throughout the scutellum.

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