INT. J. BIO. BIOTECH., 2(1): 1-4, 2005.

BIODIVERSITY IN STINK BUG *CAYSTRUS NIGRIVENTRIS* GERMAR (PENTATOMIDAE: PENTATOMINAE: CAYSTRINI)

Imtiaz Ahmad[1], M. Zahid[2] and S. Kamaluddin[2]

[1]*Department of Zoology, University of Karachi, Karachi-75270*
[2]*Department of Zoology, Federal Urdu University of Arts, Sciences & Technology, Gulshan-e-Iqbal Campus, University Road, Karachi, Pakistan.*

ABSTRACT

Distant (1910) while transferring *Caystrus nigriventris* Germar for the first time in its appropriate genus *Caystrus* Stål synonymized *marginiventris* Stål with it and Linnavuori (1982) speculated that another species *C. trivalis* might only be a race of *S. marginiventris.* Presently not only *C. nigriventris* is redescribed but the above three species/forms are compared in table I and the genitalial characters of *C. marginiventris* and *C. trivalis* are compared in table II (in the male holotype of *nigriventris* the pygophore is missing).

Key-words: Biodiversity, stink bug, *Caystrus nigriventris*

INTRODUCTION

Germar (1838) described *nigriventris* under *Cimex* Linnaeus. Dallas (1851), Dohrn (1859), Stål (1866) and Walker (1867) listed *nigriventris* under *Sciocoris* Stål which is the type genus of another tribe *Sciocorini* Stål. Dohrn in the same year placed *nigriventris* under Phyllocephala of another subfamily Phyllocephalinae of Pentatomidae. Stål (1876) cited *nigriventris* under the original genus *Cimex* as incertaesedis possibly belonging to *Paramecocoris* Stål which also belongs to the tribe Caystrini. Lethierry and Scverin (1893) catalogued *nigriventris* under *Paramecocoris* with a question mark and Kirkaldy (1909) placed *nigriventris* under *Delegorguella* Spinola (also with a question mark) which belongs to another tribe Myrocheini Stål.

Distant (1910) for the first time rightly placed *nigriventris* in its present genus *Caystrus* Stål but at the same time synonymized *marginiventris* Stål with this species but this synonymy has not been accepted in the literature todate (Linnavuori 1972, 1974 and 1982). On the other hand Linnavuori (1982) himself speculated about another species i.e., *C. trivalis* (Gerstaecker) to be only a race of *C. marginiventris*. Presently we not only briefly redescribe *nigriventris* but also compare the external features of all the above three species i.e., *marginiventris, nigriventris* and *trivalis* in table I and genitalial characters of *marginiventris* and *trivalis* in table II (the male pygophore is missing in the holotype of *nigriventris*).

MATERIALS AND METHODS

Authentically determined specimens of both the sexes of *margiviventris* and *trivalis* were borrowed by the courtesy of the authorities of Natural History Museum Stockholm, Sweden and the male holotype of *nigriventris* was 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 aedeagi were inflated following the technique of Ahmad (1986), Ahmad and McPherson (1990, 1998) and the female genitalia including the spermatheca was studied following the technique of Ahmad and Afzal (1979).

RESULTS

Caystrus nigriventris Germar
(Figs.1B and 2B)

Cimex nigriventris Germar 1838: 181.
Caystrus nigriventris Distant 1910: 84; Linnavuori 1972: 400-401 and 409-410.

Colouration:

Body pale brown with fine punctures; antennae usually pale; connexiva entirely pale; venter blackish brown, lateral margins contrastedly pale with indistinct punctures, apical lateral angles of parasternites pale, basal angles indistinctly darkened; legs pale.

Body:

Body of moderate size (10.5 mm).

Head:

1.38 x as broad as long, proportion between antennal segments 15: 22: 28: ___ _____; labium short, extending to middle coxae.

Thorax:

Pronotum 2.43 x as broad as long, lateral margins straight; scutellum only 1.15 x as long as broad remarkably broad apically without impunctate middle line.

Genitalia:

Genitalia not available for studies.

Material examined:

Male holotype ST(s) ♂ (genital segment missing), South Africa: Spei. Bonae BMNH.

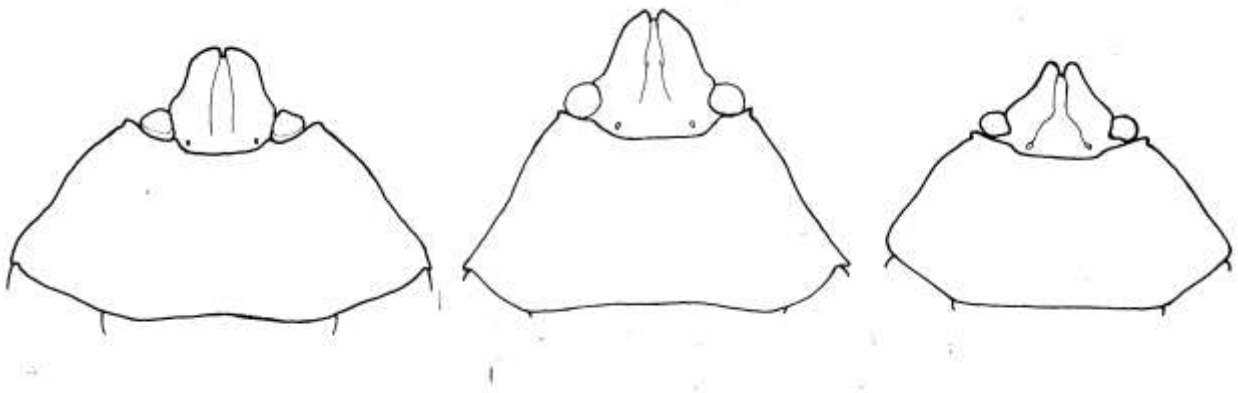
Comparative note:

It is most closely related to *C. trivalis* and *C. marginiventris*, with the former in scutellum only 1.15 x as long as broad (1.22 x as long as broad in *trivalis*) and with the later in having pronotum 2.43 x as broad as long (2.5 x as broad as long in *marginiventris*) but could easily be separated from both by having much smaller size i.e. 10.5 – 11.0 mm as compared to 12 – 13 mm length in *marviniventris* and 12.05 mm length in *trivalis* and in the short labium reaching only upto middle coxae as compared to upto hind coxae in *marginiventris* and *trivalis*.

Key to *nigriventris, marginiventris* and *trivalis*
(Figs 1 and 2)

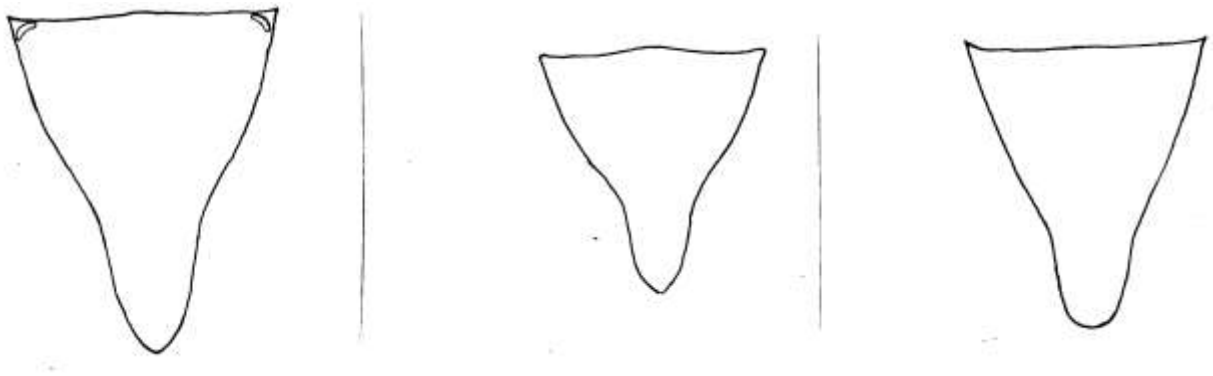
1. Labium short extending to middle caxae, body remarkably short, 10.5 to 11.0 mm long …… *nigriventris*
- Labium just reaching hind coxae body moderately long, 12.0 to 13.0 mm in length …… 2

2. Body pale ochraceous, pronotum 2.5 x as broad as long, scutellum 1.33 x as long as broad ….. *marginiventris*
- Body light brown, pronotum 2.25 x as broad as long, scutellum 1.22 x as long as broad …… *trivalis*



A **B** **C**

Fig.1. Head and pronotum. A. *Caystrus marginiventris;* B. *Caystrus nigriventris;* C. *Caystrus trivalis*



A **B** **C**

Fig.2. Scutellum. A. *Caystrus marginiventris;* B. *Caystrus nigriventris; C. Caystrus trivalis*

Table 1. Morphometric data of three species of *Cystrus*.

	C. marginiventris (Figs1A and 2A)	*C. nigriventris (Figs1B and 2B)*	*C. trivalis (Figs1C and 2C)*
1.	Body pale ochraceous with dense dark punctures	Body pale brown, with fine punctures	Body light brown with dense brown fine punctures.
2.	Antennae yellowish-brown	Antennae usually pale	Antennae light brown
3.	Connexiva with dense brown spotting	Connexiva completely pale	Connexiva light brown
4.	Lateral margins of venter yellow-brown, not contrastedly pale, with rather dense brown punctures, bordered by a narrow and irregular ivory band medially, venter otherwise blackish with pale irroration	Venter blakish brown, lateral margins contrastedly pale with indistinct punctures	Lateral margins of venter in ♂ yellowish brown with dark punctures, in ♀ dark brown and only slightly paler than other parts of venter
5.	Legs with minute brown dotting	Legs pale	Legs light brown
6.	Body of moderate size (12–13mm)	Body of smaller size (10.5 mm)	Body of moderate size (12.05 mm)
7.	Head 1.4 x as broad as long	Head 1.38 x as broad as long	Head 1.3 x as broad as long
8.	Proportion between antennal segments 0.5: 1.1: 1.35: 1.7: 1.85	Proportion between antennal segments 15: 22: 28: ?___ ?__	Proportion between antennal segments 0.6: 1.1: 1.4: 1.6: 1.8.
9.	Labium just reaching hind caxae	Labium short extending only to middle coxae.	Labium just reaching hind coxae
10.	Pronotum 2.5 x as broad as long lateral margins sinuate	Pronotum 2.43 x as broad as long, lateral margins straight	Pronotum 2.25 x as broad as long, lateral margins sinuate
11.	Scutellum only 1.33 x as broad as long with subround apex of apical loble	Scutellum only 1.15 x as long as broad, remarkably broad apically, without impunctate middle line	Scutellum only 1.22 x as long as broad with distinct apical lobe

DISCUSSION

Distant (1910) although synonymised *marginiventris* with *nigriventris* but this synonymy has not been accepted as reported above. More over the present comparative note of *nigriventris* key to the three taxa and characters tabulated in Table I clearly separate *nigriventris* and *marginiventris* Linnavuori (1982) speculated that *trivalis* could only be a race of *marginiventris* but the present key, Table I, based on the external characters of the three included taxa and Table II based on the genitalial characters of *marginiventris* and *trivalis* clearly separate the two taxa.

Table 2. Genitetial characters of *Cystrus marginiventris* and *C. trivalis*.

	C. marginiventris		*C. trivalis*
1.	Inner processes of pygophore narrowed and more exposed	1.	Inner processes of pygophore broad and little exposed
2.	Proximal end of pygophore much narrower than in the middle	2.	Pygophore with lateral margins almost parallel sided
3.	Paramere with outer margin of blade hump-shaped in the middle and inner angle of the apex acute	3.	Paramere with outer margin of blade smoothly round and inner angle of the apex conical
4.	The penial plates are inwardly rounded and blunt	4.	The penial plates are inwardly acutely projected
5.	Ninth paratergites apically broadly rounded and not reaching fused posterior margins of eight paratergites	5.	Ninth paratergites apically narrowly rounded and passing beyond fused posterior margins of eighth paratergites
6.	Third finger like process on the spermathecal bulb is not branched or bifurcated	6.	Third finger like process on the spermathecal bulb is branched or bifurcated

REFERENCES

Ahmad, I. (1986). A fool-proof technique for inflation of male genitalia in Hemiptera, Insecta *Pak. J. Entomol. Soc. Kar*., 1: 111-112.

Ahamd, I. and M. Afzal (1979). Resurrection of the tribe Caystrini Stål (Heteroptera, Pentatomidae, Pentatominae) with description of two new genera from Oriental region. *Annot. Zool. Bot. Bratislava*, 133: 1-14.

Ahmad, I. and J.E. Mcpherson (1990). Male genitalia of the type species of *Corimelaena* White, *Galgupha* Amyot and Servile, and *Cydnoides* Malloch (Hemiptera: Cydnidae: Corimelaeninae) and their bearing on classification. *Ann. Entomol. Soc. Am*., 83: 162-170.

Ahmad, I. and J.E. Mcpherson (1998). Additional information on male and female genitalia of *Parabrochymena* Larivier and *Brochymena* Amyot and Servile (Hemiptera: Penatotomidae). *Ann. Entomol. Soc. Am*., 91: 800-807.

Dallas, W. (1851). *List of specimens of Hemipterous insects in the collection of the British Museum I*. Taylor & Francis, London p. 1-368.

Distant, W.L. (1910). Rhynchotal notes X. *Ann. Mag. Nat. Hist.*, , Ser.8 6: 77-100.

Dohrn, F.A. (1859). Catalogus Hemipterorum Herousgegeben von dem Entomologischen Werein. *Zu. Stettin*, 1859: 1-102.

Germar, E.F. (1838). Hemiptera, Heteroptera promontrii Bonae spei nodun descripta. *Silb. Rev. Ent*., 5: 181.

Kirkaldy, G.W. (1909). *Catalogue of the Hemiptera (Heteroptera). I*. Cimicidae. Berlin, 244-246.

Lethierry, L. and G. Severin (1894). *Catalogue generale des Hemipteres Tome II Mus Hist. Nat*. Belge. Brussels. 277p.

Linnavuori, R.E. (1972). Studies on African Pentatomidae. *Arg. Mus. Bocage*., 3: 395-434.

Linnavuori, R.E. (1974). Hemipterological studies. *Am. Natur Hist. Mus. Wein*., 78: 393-413.

Linnavuori, R.E. (1982). Pentatomidae and Acanthosomidae of Nigeria and the Ivory coast, with remarks on species of the adjacent countries in West and Central Africa. *Acta. Zool. Fennica*, 163: 1-177.

Stål, C. (1865). *Hemiptera africana I. – Holmiae*. 266 pp.

Stål, C. (1876). Enumeratio Hemipterorum. *K. Svensk. Vetensk. Akad. Handl*., 14: 1-162.

Walker, F. (1867). *Catalogue of the Heteropterous Hemiptera (Hemiptera-Heteropera) in the British Museum*. 1: 177.

(*Accepted for publication 20 November 2004*)