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REDESCRIPTION OF *DELEGORGUELLA VENTRALIS* (GERMAR) (HETEROPTERA:PENTATOMIDAE): THE OLDEST LITTLE KNOWN SPECIES OF THE GENUS *DELEGORGUELLA* SPINOLA WITH SPECIAL REFERENCE TO METATHORACIC SCENT AURICLE AND MALE AND FEMALE GENITALIA WITH A NOTE ON ITS GENUS AND THEIR CLADISTIC RELATIONSHIPS

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ABSTRACT

The Myrocheine stink bug genus *Delegorguella* Spinola with its oldest, little known species *Delegorguella ventralis* is redescribed in detail with special reference to its metathoracic scent auricles and male and female genitalia and in this light their phylogenetic relationships are also briefly discussed.

Key words: Heteroptera, Pentatominae**,** Myrocheini, *Cimex ventralis* Germar Redescription, Phylogenetic relationships,

INTRODUCTION

The genus *Delegorguella* was described by Spinola (1850) for his only species *elliptica* Spinola (1850) which became its type species by monotypy. In the mean time *Paramecus* was described by Fieber (1851) to accommodate his only species *P. ruficornis* which became the type species of this genus by monotypy. Stål (1853) Knowing that it was a preoccupied name in the order Coleoptera changed it to *Paramecocoris* but for some unknown reason, Stål (1861, 1865, 1876) confused his own proposed generic name with *Delegorguella* with which probably he was not familiar, which is obvious by the placement of the species in the two genera. Kirkaldy (1909) aggravated this situation by designating the type species *elliptica* which was also the type species of *Delegorguella*, of the Stål's newly proposed generic name *Paramecocoris* for the preoccupied name *Paramecus* although Stål's *Paramecocoris* should have the same type species as that of *Paramecus* Fieber.

Stål (1876) placed his *Paramecocoris* (infact confused with modern concept of the genus *Delegorguella*) under his tribe Myrocheini with his remark, "Myrochea et genera quaedam affinia " group. Stål (1858) describing his *marginiventris* placed it under *Paramecus* which erroneously he treated independent of *Paramecocoris* Stål (1853) (which he himself proposed for this preoccupied name) considering the later equivalent to the modern concept of *Delegorguella.* Stål (1865) finally placed his *marginiventris* under the correct generic name *Caystrus* Stål the type genus of an altogether a different tribe Caystrini Ahmad and Afzal (Zahid and Ahmad, 2005).

Presently the oldest and little known species of *Delegorguella* i.e. *Cimex ventralis* Germar (1838) is redescribed with special reference to its metathoracic scent auricle and male and female genitalia known from Angola, Ethiopia, Guinea, Ivory Coast, Mozambique, Somalia, South Africa, Tanzania and Zimbabwe in the Ethiopian region and is compared with *D.pallida* (Dallas) and *D.phalerata* (Stål) also known from different parts of Ethiopian region (i.e. Cameroon, Congo, Kenya, Nigeria, South Africa and Tanzania and Congo, Ghana, Guinea Bissau, Ivory Coast, Rawanda, South Africa, Sudan and Uganda respectively).

MATERIALS AND METHODS

Authentically determined one male and one female specimens of both sexes of *Delegorguella ventralis* were borrowed by the courtesy of Mr. Mick Webb incharge Hemiptera section Department of Entomology and by the authorities of Natural History Museum London (BMNH). The techniques of Ahmad and Kamaluddin (1985) and Ahmad and Afzal (1979, 1989) for measurements were followed and for examination of female genitalia and for inflation of aedeagus and examination of male genitalia that of Ahmad (1986) and Ahmad and McPherson (1990 and 1998). The male genitalial parts were preserved in a microvial in a drop of glycerine and pinned with the specimen.

RESULTS

Genus *Delegorguella* Spinola

Delegorguella Spinola 1850: 73; Stål 1876: 127.
Paramecocoris Stål, 1861: 199; 1865: 111-112; 1876: 52, 53; Lethierry and Severin 1893: 110; Kirkaldy 1909: XXXIII, 1 (*Paramecocoris = Delegorguella* Spinola 1850, nec *Caystrini*); Kirkaldy 1909: 206; Jeannel 1913: 38; Hesse 1925: 19; Van Duzee 1929: 92; Linnavuori 1975: 31; 1982: 68, 71, 72.

Body of moderate size; oblongate; generally ochraceous with brownish punctures; head distinctly broader than long; paraclypei longer than clypeus and enclosing the later; antennae with basal segment never reaching to head apex, second antennal segment equal to third but slightly shorter than fourth; labium reaching to mesocoxae; pronotum more than 2x broader than its length, anterior angles slightly toothed or subrounded, humeral angles subrounded, posterolateral margins somewhat straight, lateral margin slightly convex, anterior margin wider than head width; scutellum broad and rounded at apex; abdomen distinctly exposed at repose; metathoracic scent gland ostioles small, peritreme of moderate size.

Male genitalia:
Pygophore with lateral lobes prominent, dorsomedian surface concave, ventromedian margin usually slightly notched; parameres slightly F-shaped, apex broad and usually rounded; inflated aedeagus with dorsal and ventral pairs of membranous conjunctival appendages.

Female genitalia:
Posterior margin of first gonocoxae deeply concave; ninth paratergites large, just reaching posterior margin of fused eighth paratergites.

Comparative note:
This genus is most closely related to *Erachtheus* in having labium reaching to mesocoxae and antennae with second and third segments subequal in length but it can easily be separated from the same in having antennae with fourth segment longer than third and paramere with apex of blade unilobed, dilated.

Distribution:
Ethiopian region.

Type species: *Delegorguella elliptica* Spinola 1850.

Delegorguella ventralis (Germar)

(Figs. 1-7)

Cimex ventralis Germar 1838: 181.
Sciocoris ventralis Herrich-Schaffer, 1844: 87; Dallas 1851: 134; Dohrn 1859: 10; Walker 1867: 174.
Paramecocoris ventralis, Stål 1861: 199, 200-201; 1865: 114-115; 1876: 53; Letheirry and Severin 1893: 110; Distant 1898: 296; Schouteden 1910: 80.
Delegorguella ventralis, Jeannel 1913: 38; Lehman 1922: 133; Hesse 1925: 19; Linnavuori 1982: 22; Dolling *et al*., 1999: 98.

Colouration and general shape:

Body ovate; generally with brownish punctures; pronotum light brown, clavus, corium and membrane of hemelytra dark brown; eyes light brown; ocelli pinkish; ovate.

Head:
Distinctly broader than long, anteocular distance equal or slightly broader than remainder of head; paraclypei longer than clypeus and enclosing the later, lateral margins convex; paraclypeal lobe slightly rounded in front of eyes, apex of paraclypei convex; antennae with basal segment much shorter than head apex, second segment longer or equal to third but shorter than fourth, fifth longest, length of antennal segments I 0.5, II 0.8 (0.8-1.0), III 0.8, IV 0.9 (0.9-1.1), V 1.2 (1.2-1.6), antennal formula 1< 2< 3< 4< 5; labium reaching mesocoxae, second labial segment

longest, fourth shortest, length of segments I 1.1, II 1.2, III 1.0, IV 0.8; anteocular distance 1.0, remainder of head 0.9 (0.9-1.0), width of head 2.6 (2.6-2.7); interocular distance 1.7(1.7-2.0); interocellar distance 1.0.

Fig. 1-7. *Delegorguella ventralis*; 1. Dorsal view. 2. Metathoracic scent auricle, ventral view 3. Pygophre, dorsal view. 4.Paramere, inner view. 5. Inflated adeagus, dorsal view. 6. Inflated adeagus, ventral view. 7. Female terminalia, ventral view.

Thorax:

Pronotum more than 2 x broader than its length, anterior margin distinctly broader than head width, anterior angles subrounded, humeral angles broadly rounded, lateral margins distinctly convex, length of pronotum 2.6 (2.6-2.7), width 5.8 (5.8-6.5); scutellum broad and rounded at apex, length of scutellum 4.3 (4.3-4.8), width 3.9 (3.9-4.1); metathoracic scent gland ostiole (Fig. 2) canal like with peritreme large; distance base scutellum-apex clavus 3.1 (3.1-3.3); apex clavus-apex corium 2.0 (2.0-2.8); apex corium-apex abdomen including membrane 2.0 (2.0-2.7); apex scutellum-apex abdomen including membrane 2.0 (2.0-3.8).

Abdomen:

Convex beneath; connexiva much exposed at repose; membrane of hemelytra shorter than abdomen; total length 10.8 (10.8-13.3).

Male genitalia:

Pygophore (Fig. 3) longer than broad, lateral lobes prominent, dorsomedian margin concave, ventroposterior margin depressed but straight; parameres (Fig. 4) somewhat F-shaped outer margin of blade sinuate, apex of blade inwardly round; inflated aedeagus (Fig. 5 and 6) with thecal appendages, ventral membranous conjunctival appendages large-wing-like, vesica shorter than penial lobe, dorsal membranous conjunctival appendages short.

Female genitalia:

Posterior margin of seventh abdominal venter medially deeply concave, u-shaped (Fig. 7) ; first gonocoxae with posterior margin deeply concave, apices round, lobe-like, inner margins straight, posteriorly wide apart; ninth paratergites large, outwardly slightly bilobed, reaching posterior margins of fused eighth paratergites; second gonocoxae with posterior margin concave; proctiger with posterior margin straight.

Material examined:

One male South Africa, Nugela, Usambara, "Distant Coll." 1911, 383, loged at BMNH; 1 female, Ethiopia: det. G.M. Black "15-8-1965"leg. R.U. Hung, 182, lodged at BMNH.

Comparative note:

D. ventralis resembles *D. pallida* and *D. phalerata* in general shape and colouration but *D. pallida* appears pale brown and *D. phalerata* is with dense brown punctures on the upper surface and with longitudinal impunctate pale lines in contrast to body with brownish punctures, pronotum light brown, clavus, corium and membrane of hemelytra dark brown, eyes light brown and ocelli pink without longitudinal impunctate lines.

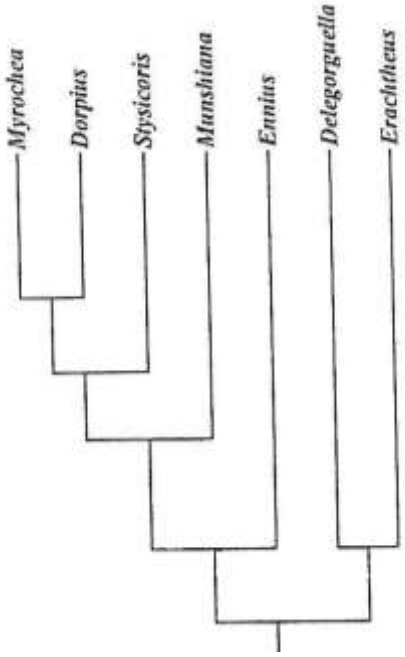

Fig.8. Cladogram showing phylogenetic relationship of *D*elehorguella with related genera.

DISCUSSION

Linnavuori (1975:146) illustrated the metathoracic scent auricle of *D. pallida* (Dallas) with ostiole unmarked and apex of peritreme acute but not sharply pointed. In the present photograph (fig.2) the peritreme of *D. ventralis* is with a prominently marked, canal like ostiole and its apex is sharply pointed. However the auricle of both the species appear of moderate size.

Linnavuori (1982, 92f) illustrated the paramere of *D. phalerata* (Stål) with remarkably prominently long and sharp inner process and apex of blade acute but in the present species the inner process of paramere is short thumb-shaped and the apex of the blade is round thumb-shaped. Linnavuori (1982) also illustrated the pygophore of *D. phalerata* (93, b, c) with thin dorsal lobes and ventromedian margin notched but in the present species not only this notch is absent but the dorsal lobes are prominently round.

D. pallida appears pale brown (1982: 71)and *D. phalerata* is with dense brown punctures on the upper surface and with longitudinal impunctate pale lines in contrast to body generally with brownish punctures, pronotum light brown, clavus, corium and membrane of hemelytra dark brown, eyes light brown and ocelli pinkish without longitudinal impunctate lines.

Dlegorguella appears (Fig. 8)to be most closely related to *Erachtheus* Stål playing sister group relationship with it in having antennae with second segment some what reduced in length in *Delegorguella* and *Erachtheus* shows synapomorphic condition and *Erachtheus* plays out group relationship with the other clade comprising *Myrochea* Stål, *Dorpius* Distant, *Stysicoris* Ahmad and Kamaluddin, *Munshiana* Ahmad and Kamaluddin and *Ennius* Stål in having basal antennal segment shorter than head apex but not reaching ½ of paraclypei and paramere F-shaped.

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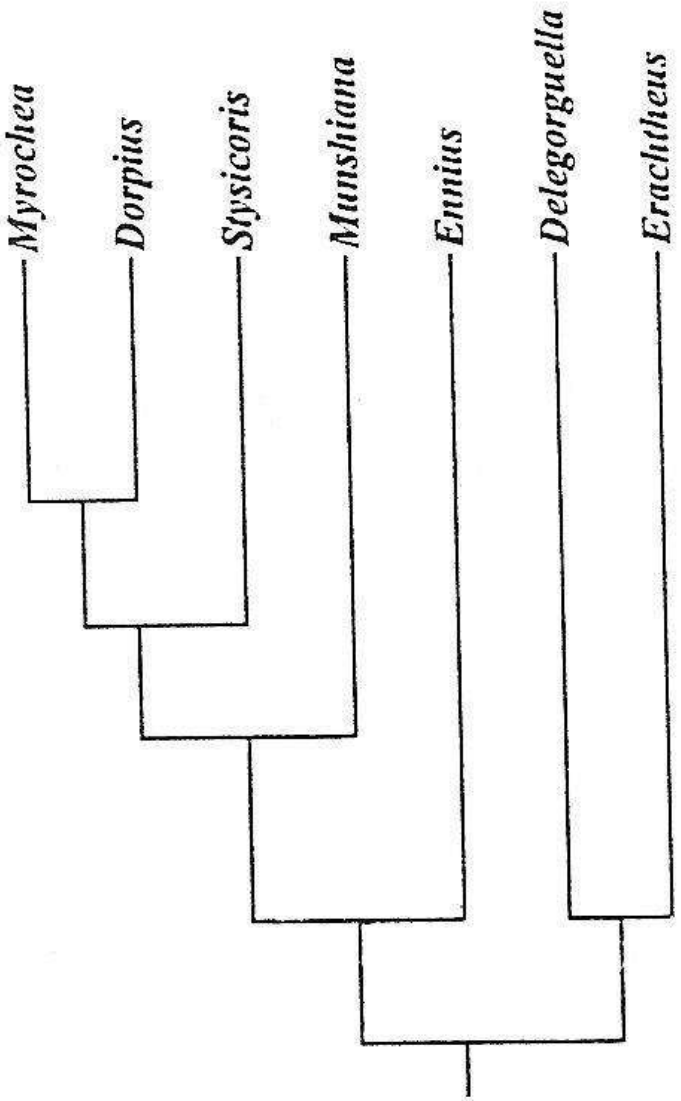

Fig. 8. Cladogram showing phylogenetic relationship of Delegorguella with related genera