

A New Species of Myrocheine Genus *Ennius* Stål (Pentatomidae: Pentatominae) from Nigeria With Reference to its Male Genitalia and its Phylogenetic Relationships*

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Abstract.- A new species of myrocheine genus *Ennius* Stål from Nigeria in the Ethiopian region is described with special reference to its metathorecic scent auricle and male genitalia including inflated aedeagus and in this light its phylogenetic relationships within its genus is also briefly discussed.

Keyword: Myrocheini, Pentatomidae, Pentatominae, *Ennius neomorio*, new species.

INTRODUCTION

The stink bug genus *Ennius* was described by Stål (1861) under his tribe Myrocheini to accommodate the species *Sciorois ater* Dallas (1851) which became its type species by original designation. Stål (1865) placed *Ennius* as a subgenus under his *Paramecocoris*. Walker (1867) followed Dallas (1851) in the usage of the generic name for *ater*. Stål (1876) resurrected his subgenus *Ennius* to generic status different from *Paramecocoris* and in this stand he was followed by Lethierry and Severin (1893), Kirkaldy (1909), Villiers (1949, 1952 and 1954), Leston (1952), Schouteden (1963) and Linnavuori (1982). During a revision of the tribe Myrocheini Stål, at world level, the present authors borrowed a large number of determined and undetermined specimens from Natural History Museum, London (BMNH), by the courtesy of Mr Mick Webb In-charge, Hemiptera Section of that Museum with an aberrant male specimen from Nigeria which appeared

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isolated in its genus with lateral margins of pronotum straight, lateral lobes of pygophore in ventral view prominently hump like, its ventroposterior margin strongly sinuate, medially notched, U shaped, head and membrane of hemelytra in male black and rest of the body above pale ochraceous.

MATERIALS AND METHODS

Authentically determined and undetermined specimens of *Ennius* Stål were borrowed by the courtesy of incharge Hemiptera section, Department of Entomology and by the authorities of Natural History Museum London. The techniques of Ahmad and Kamaluddin (1985) and Ahmad and Afzal (1979, 1989) for illustrations and measurements and for inflation of aedeagus of male genitalia that of Ahmad (1986) and Ahmad and McPherson (1990, 1998) were followed. For relaxing, the pinned dry specimen, after removing the label, was plunged into boiling water in a beaker, for 4-5 minutes. The specimen was then slipped off the pin. The genital capsule (Pygophore) was removed from the relaxed specimen under a binocular microscope, using very fine watch maker forceps. The genital capsule (Pygophore) was then placed in 10% KOH and was

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warmed at 40°C for 5-10 minutes in a cavity block. The genital capsule (Pygophre) was removed in tap water (room temperature) in a depression dish and was washed thoroughly. The fine forceps were used to hold the basal plate (attaching aedeagus to capsule) and then with the help of forceps the opening of phallosome was widened very carefully and the vesica was pulled out gently. This was done very carefully because the distal tip of vesica is very delicate and breaks off quickly. All the measurements are in millimeters and all the photographs were taken using Nikon binocular stereo microscope SMZ 800.

RESULT

Genus *ENNIUS* Stål

Ennius Stål 1861: 199; 1876: 52, 53; Lethierry and Severin, 1893: 110; Kirkaldy, 1909: 206; Gillon, 1972: 322; Gross, 1975: 220; Linnavuori, 1982: 68, 72.

Paramecocoris (*Ennius*) Stål, 1865: 112.

Body medium sized (8.6 mm -11.3 mm); elongate; generally light brown with brown or dark brown punctures; head broader than long; paraclypei longer than clypeus and enclosing the later; antennae with basal segment equal or shorter than head apex, second antennal segment longer than third but shorter than fourth; labium reaching or passing beyond mesocoxae; pronotum with lateral margins straight or slightly convex, anterior angles slightly toothed, humeral angles subround; scutellum long and round at apex; metathoracic scent gland ostiole small with large peritreme.

Male genitalia

Pygophore quadrangular, lateral lobes prominent, dorsomedian surface deeply concave, ventromedian surface slightly notched; paramere some what F-shaped with curved blade; aedeagus with large conjunctival appendages, paired.

Female genitalia

Posterior margin of first gonocoxae convex; ninth paratergites small and not reaching posterior margin of fused eighth paratergites.

Comparative note

This genus is most closely related to *Munshiana* Ahmad and Kamaluddin, *Stysicoris* Ahmad and Kamaluddin, *Dorpius* Distant and *Myrochea* Amyot and Serville in having antennae with second segment distinctly longer than third in length but it can easily be separated from the same in having second antennal segment slightly longer than third and metathoracic ostiolar complex with peritreme large, anteriorly curved.

Distribution

Ethiopian region.

Type species

Sciocoris ater Dallas 1851.

Ennius neomorio, new species

(Fig. 1A-E)

Colouration and general shape

Body brownish with brown punctures, head black, pronotum with half upper portion having dense black punctures and lower portion light brown, scutellum, clavus and corium light brown with brownish black punctures; eyes blackish brown; ocelli pinkish; membrane of hemelytra black; body narrowly elongate.

Head

Broader than long; antecular distance longer than remainder of head; paraclypei longer than clypeus and enclosing the later, lateral margins convex, paraclypeal lobe angulate in front of eyes, apex of head truncate; antennae with basal segment about equal to head apex, second segment longer than third but shorter than fourth, fifth longest, length of antennal segments I 0.5, II 0.9, III 0.7, IV 1.3, V 1.4, antennal formula $I < 3 < 2 < 4 < 5$; labium passing beyond mesocoxae, second labial segment longest, fourth shortest, length, of segments I 1.0, II 1.2, III 0.8, IV 0.7, labial formula $4 < 3 < 1 < 2$; antecular distance 1.0, remainder of head 0.8, width of head 2.2; interocular distance 1.5; interocellar distance 0.7.

Thorax

Pronotum 2 x broader than its length, anterior margin about equal to head width, anterior angles subrounded, humeral angles rounded, lateral margins

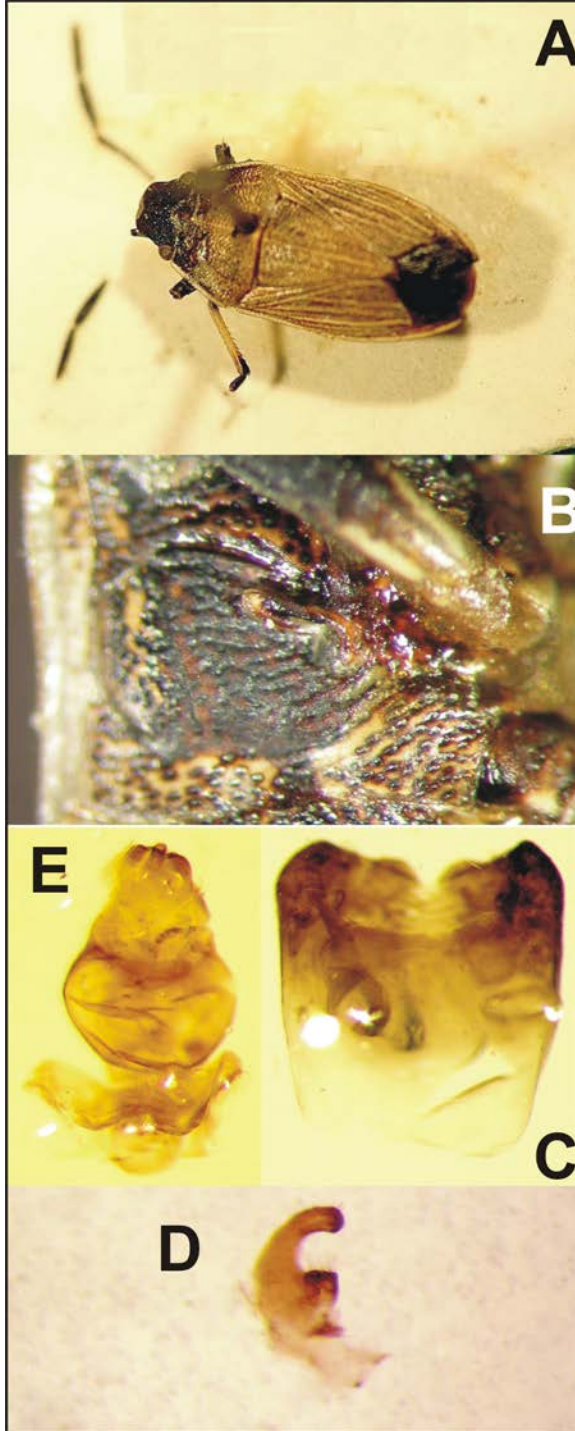


Fig. 1. *Ennius neomorio* new species.; A,

Dorsal view; B, Metathoracic scent auricle, ventral view; C, Pygophore, dorsal view; D, Paramere, inner view; E, Inflated aedeagus, dorsal view.

more or less straight, length of pronotum 1.8, width 3.6; scutellum long, subrounded at apex, length of scutellum 3.2, width 2.3; metathoracic scent gland ostiole (Fig. 2) small with long peritreme; distance base scutellum-apex clavus 3.0; apex clavus-apex corium 0.8; apex corium-apex abdomen including membrane 1.2; apex scutellum-apex abdomen including membrane 1.8.

Abdomen

Convex beneath, connexiva laterally exposed at repose, abdomen shorter than membrane of hemelytra; total length 8.6 mm.

Male genitalia

Pygophore (Fig. 1C) as broad as long, quadrangular, lateral lobe prominent, dorsomedian surface concave, ventro-posterior margin concave; paramere (Fig. 1D) F-shaped, outer margin of blade convex, apex of blade rounded; aedeagus (Fig. 1E) with large thecal appendages, vesica equal to penial plates, with pair of large ventral membranous conjunctival appendages.

Material examined

One male Nigeria: Mando, Swamp, Kaduna, 13. VII. 58; P. Hanney, B.M. 1961. 723, lodged at BMNH.

Comparative note

This species is most closely related to *E. morio*, (Dallas) *E. longulus* (Germar) and *E. monteironis* Distant in having more colourful body with at least lateral margins of pronotum narrowly and broad regions in middle and hind tibiae pale and lateral lobes of pygophore in ventral view not round, and ventroposterior margin not smoothly concave but it appears isolated in its group in having lateral margins of pronotum more or less straight, lateral lobes of pygophore in ventral view prominently hump like, ventroposterior margin strongly sinuate, medially notched, and membrane of hemelytra black.

DISCUSSION

The Ethiopian genus *Ennius* Stål appears to form a distinct clade (Fig. 2) within the tribe Myrocheini Stål with *Kyrtalus* Vanduzee, *Neococalus* Bergroth, *Humria* Linnavuori, *Erachtheus* Stål, *Delegorguella* Spinola, *Munshiana* Ahmad and Kamaluddin, *Dorpius* Distant and *Myrochea* Stål in having elongate body and paraclypei much longer than clypeus and enclosing it in front. It however within its above group forms a subclade with the genera, *Munshiana*, *Stysicoris*, *Dorpius* and *Myrochea* in having second antennal segment distinctly longer than third. The genus *Ennius* appears to be entirely isolated and playing out group relationship with the rest of its subclade in having second antennal segment only slightly longer than third and metathoracic scent complex with peritreme long and anteriorly curved.

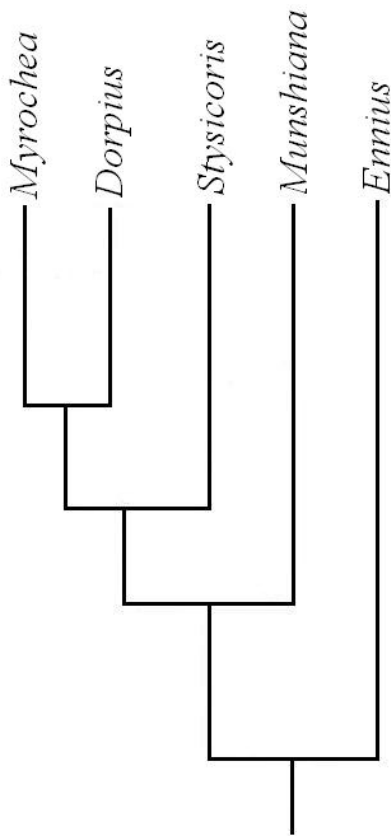


Fig. 2. Cladogram showing phylogenetic relationship of *Ennius* with related genera.

The presently described new species appears to form a cluster of species with *morio*, *longulus* and *monteironis* in having the apomorphies of colorful body with at least lateral margins of pronotum narrowly and broad regions in middle and hind tibiae pale. The newly described species *neomorio* however appears entirely isolated in this cluster with lateral margins of pronotum more or less straight, lateral lobes of pygophore in ventral view prominently humplike, ventroposterior margin strongly sinuate medially notched, U shaped and head and membrane of hemelytra in male contrastingly black with rest of the body above pale ochraceous.

REFERENCES

- AHMAD, I., 1986. A fool-proof technique for inflation of male genitalia in Hemiptera (Insecta). *Pakistan J. ent. Soc. Kar.*, 1: 111-112.
- AHMAD, I. AND AFZAL, M., 1979. Resurrection of the tribe Caystrini Ahmad and Afzal (Heteroptera, Pentatomidae, Pentatominae) with description of two new genera from Oriental region. *Annot. Zool. Bot. Bratislava*, **133**: 1-14.
- AHMAD, I. AND AFZAL, M., 1989. A revision of Myrocheini (Pentatomidae: Pentatominae) from Indo-Pakistan area. *Orient. Insects*, **23**: 243-267.
- AHMAD, I. AND KAMALUDDIN, S., 1985. A new genus for *Caystrus aethiopicus* (Distant) (Pentatomidae: Pentatominae: Myrocheini) with redescription of *Myrochea aculeata* (Westwood) and their relationship. *Annot. Zool. Bot. Bratislava*, **170**: 1-10.
- AHMAD, I. AND MCPHERSON, J., 1990. Male genitalia of the type species of *Corimelaena* White, *Cydnoides* Malloch and *Galgupha* Amyot and Serville (Hemiptera: Cydnidae: Coriomelaeninae) and their bearing on classification. *Ann. entomol. Soc. Am.*, **83**: 162-170.
- AHMAD, I. AND MCPHERSON, J. E., 1998. Additional information on male and female genitalia of *Parabrochymena* Lariviere and *Brochymena* Amyot and Serville (Hemiptera: Pentatomidae). *Ann. entomol. Soc. Am.*, **91**: 800-807.
- DALLAS, W. S., 1851. *List of the specimens of hemipterous insects in the collection of the British Museum*. Part 1. Trustees of the British Museum, London. pp. 1-368, pls. 1-11.
- GILLON, D., 1972. Les Hémiptères Pentatomides d'une savane préforestière de Côte-d'Ivoire. *Ann. Univ. Abidjan (E)* **5**: 265-371.
- GROSS, G. F., 1975. *Handbook of the flora and fauna of South Australia. Plant-feeding and other bugs (Hemiptera) of*

- South Australia. Heteroptera - Part I.* Handbooks Committee, South Australian Government, Adelaide, pp. 250.
- KIRKALDY, G. W., 1909. *Catalogue of the Hemiptera (Heteroptera) with biological and anatomical references, lists of foodplants and parasites, etc. Vol. I. Cimicidae.* Berlin, pp. 392.
- LESTON, D., 1952. Notes on the Ethiopian Pentatomoidea (Hemiptera).-VI. Some insects in the Hope Department, Oxford. *Annl. Mag. Nat. Hist.* **5**: 893-904.
- LETHIERRY, L. AND SEVERIN, G., 1893. *Catalogue général des Hémiptres. Pentatomidae*, Bruxelles, vol. 1, pp. 286.
- LINNAVUORI, R.E., 1982. Pentatomidae and Acanthosomatidae (Heteroptera) of Nigeria and the Ivory Coast, with remarks on species of the adjacent countries in West and Central Africa. *Acta zool. Fenn.*, **163**: 1-176.
- SCHOUTEDEN, H., 1963. Pentatomides de la Côte d'Ivoire - I. *Rev. Zool. Bot. Afr.*, **68**: 397-402.
- STÅL, C., 1861. Nova methodus familias quasdam Hemipterorum disponendi (Bidrag till Hemipterernas Systematik). *Ofvers. Kong. Svens. Vetenskaps-Akad. Forhand.*, **18**: 195-212.
- STÅL, C., 1865. *Hemiptera Africana. Vol. I. Norstedtiana*, Stockholm, pp. 256.
- STÅL, C., 1876. *Enumeratio Hemipterorum.* Bidrag till en Förteckning öfver alla hittills kända Hemiptera, Jemte Systematiska Meddelanden. *Kong. Sv. Vet.-Ak. Handl.*, **14**: 1-162. .
- VILLIERS, A., 1949. Mission P. L. Dekeyser et A. Villiers en Guinée et Cote d'Ivoire (1946). *Insectes (Premire partie). Inst. Fran. Afr. Noire, Cat.*, **5**: 1-90.
- VILLIERS, A., 1952. La réserve naturelle intégrale du Mt. Nimba. Fascicule 1. XIV. Hémiptres Héteroïptres terrestres. *Mém. Inst. Fran. Afr. Noire*, **19**: 289-309.
- VILLIERS, A., 1954. Hémiptres récoltés au Simandou (Guinée française) par M. Lamotte. *Bull. l'Inst. Fran. Afr. Noire*, **16**: 913-916.
- WALKER, F., 1867. *Catalogue of the specimens of heteropterous Hemiptera in the collection of the British Museum. Part II. Scutata.* E. Newman, London, pp. 241-417.

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