

A New Caystrine Stink Bug Genus *Neoriazocoris* to Accommodate *Caystrus punjabensis* Ahmad and Kamaluddin (Hemiptera: Pentatomidae) and its Phylogenetic Relationship*

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Abstract. - Presently a new generic name *Neoriazocoris* is proposed to accommodate *C. punjabensis* Ahmad and Kamaluddin and this species is more closely related to *Riazocoris* than to *Caystrus* Stål. It has been redescribed in detail. The generic relationship of the new genus is briefly discussed.

Keywords: Caystrini, Pentatomidae, Pentatominae, *Neoriazocoris*, *C. punjabensis*.

INTRODUCTION

Ahmad and Kamaluddin (1989) described *punjabensis* under the genus *Caystrus* Stål on the basis of an unique specimen from Tounsa, Punjab. Ahmad (1979, 1980) listed it under an undescribed genus *Neocaystrus* in addition to another species of *Caystrus* (unknown to him) from Rawalpindi, Punjab, lodged at Common Wealth Institute of Biological Control Rawalpindi CIBC, Another undescribed caystrine species was listed by Ahmad (*op.cit.*) under the then an undescribed genus *Riazocoris* [(later described by Ahmad and Afzal (1979) to accommodate *R. nigra* Ahmad and Afzal was described by its authors in (1979) from various localities of Sindh and another species by the name of *R. pakistanica* from various localities of Sindh and Punjab, which is still undescribed but Ahmad and Kamaluddin (1989) also described *R. punjabensis* Ahmad and kamaluddin was described by its authors in (1989) from various localities of Punjab]. Recently Zahid (2006) in his unpublished Ph. D. thesis under *Riazocoris punjabensis* Ahmad and Kamaluddin (1989) listed as synonym *pakistanica*. Ahmad (1979) in addition to his manuscript name *Neocaystrus punjabensis* Ahmad has listed by its author in (1979) from Tounsa,

Punjab as noted above, under *Caystrus*, *Odius obscures* Distant (1901) from various localities of Sindh in addition to original locality of Burma.

Presently reviewed here is the unique specimen from Tounsa, Punjab designated as holotype by Ahmad and Kamaluddin (1989) for their new species *C. punjabensis*. *C. punjabensis* is indeed most closely related to the species of *Riazocoris* and not to *Caystrus* in the characters of labium much longer at least reaching to metacoxae, sometimes reaching to third abdominal sternum (as in the unique specimen of *N. punjabensis*) and scutellum atleast slightly constricted posteriorly demarcating apical lobe in *R. nigra*, *R. punjabensis* and *N. punjabensis* but not in *Caystrus spp.* in which the labium is usually much shorter not at all or hardly reaching or distinctly short of metacoxae and scutellum smoothly narrowing apically without clearly demarcating apical lobe with a constriction. The present species however is remarkably different from that of *Riazocoris*, in having generally of dark brown or drab colour, not shining black as in *R. nigra* and *R. punjabensis* and labium much longer distinctly passing beyond metacoxae and reaching to third abdominal sternum in contrast to much shorter labium in *R. nigra* and *R. punjabensis* which if at all, reaches only to metacoxae. For this unique species we here by propose a new generic name *Neoriazocoris* and redescribe here *N. punjabensis* on *Desmostachya bipinnata* and discuss here the phylogenetic relationship of the new genus within its tribe Caystrini Ahmad and Afzal.

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MATERIALS AND METHODS

Holotype and authentically determined, specimens of *C. obscurus* (Distant) were examined by the courtesy of Mr. Webb incharge Hemiptera Section, Department of Entomology and the authorities of Natural History Museum London (BMNH), by present first author in his visit to that museum during 2005. Determined specimens of *C. obscurus*, holotypes of *R. nigra* and *R. punjabensis* in addition to many specimens of these species were studied by present authors, lodged at Natural History Museum, Department of Zoology, University of Karachi, Pakistan. The techniques of Ahmad and Kamaluddin (1985) and Ahmad and Afzal (1979, 1989) for measurements, illustrations and for dissection of male genitalia including inflated aedeagus and female genitalia that of Ahmad (1986) and Ahmad and McPherson (1990, 1998) were followed. Female genital plate including spermatheca were illustrated in different views and then the components of the genitalia were transferred into a microvial with a drop of glycerine and pinned with the insect. All the measurements are in millimeters and all the illustrations are to the given scales.

RESULTS

NEORIAZOCORIS New genus

Caystrus Ahmad and Kamaluddin 1989: 171 (nec Stål 1861)

Body moderate, elongated, generally drab, without a metallic sheen, dark brown with thickly black punctures; head broader than long, paraclypei shorter than clypeus, latter dorsally raised, lateral margins of paraclypei slightly sinuate and anteriorly rounded with convex margin paraclypeal lobe just above the eyes rounded; antennae with basal segment never reaching to head apex, second segment equal to third, fifth longest, antenniferous tubercles visible from above; labium passing much beyond hind coxae, reaching to third abdominal venter; pronotum more than 2 x broader than its length, lateral margins slightly sinuate, anterior angles, spinously toothed, directed laterad;

scutellum elongate with apical lobe, apex having distinctly round, not acute, apical lobe slightly marked by a constriction; mesosternum sulcate; metathoracic scent auricle much shorter with markedly subacute apex, having posterior margin convex, round, beyond ostiole reaching to much less than ½ of evaporatoria, ostiole with ovate opening, evaporatoria distinct; hemelytra with ¾th of costal margin apically curved, outer margin of corium without pale elongate lines and median large ovate spot absent, concealing entire connexiva, later without shining black patches and apical portion of tergum entirely concealed by hemelytral membrane.

Female genitalia

Female terminalia with first gonocoxae having a knob on posterior angle somewhat triangular, larger than eighth paratergites, fused posterior margin of the later medially, shallowly u-shaped; ninth paratergites elongate, plate like, distinctly passing beyond fused posterior margins of eighth paratergites; spermatheca with prominent proximal and distal flanges, bulb with two elongate, thin finger like tubular processes, not or hardly passing beyond distal flange, proximal spermathecal duct about 2 x longer than distal spermathecal duct.

Comparative note

This genus is most closely related to *Riazocoris* in having labium reaching at least to metacoxae, sometimes passing much beyond to third abdominal segment and second antennal segment equal, subequal, or slightly shorter than third but it can easily be separated from the same in having labium passing much beyond metacoxae, reaching to third abdominal sternum, apical margin of scutellum distinctly round, not subacute and clypeus distinctly longer than paraclypei, dorsally raised.

Distribution

Pakistan: Punjab. (Oriental region)

Type species

Neoriazocoris punjabensis (Ahmad and Kamaluddin).

Neoriazocoris punjabensis (Ahmad and
Kamaluddin)
(Figs. 1A-D)

Caystrus punjabensis Ahmad and Kamaluddin 1989:
171

Colouration and general shape

Mostly as described by Ahmad and Kamaluddin (1989). Generally drab looking, dark brown with thick black punctures, except thin lateral portions of pronotum, thin collar, 2/3rd of median anterior longitudinal line of head and a short median thin longitudinal line of pronotum, an eye-shaped patch on each side of this line, a median longitudinal line upto basal lobe, and a spot on each basal angle of scutellum; basal portion of 5th antennal segments and large median portions of first gonocoxae and eighth paratergites pale; eyes brownish black; ocelli reddish brown; membrane of hemelytra smoky; body generally oblongate, length distinctly more than maximum width of pronotum;

Head

Distinctly broader than its length, antecular distance slightly shorter than remainder of head, paraclypei shorter than clypeus, latter dorsally raised, lateral margins slightly sinuate and anteriorly rounded with convex margin, paraclypeal lobe just above the eyes rounded; antennae with basal segment shorter than head apex, length of antennal segments I 0.5, II 0.9, III 0.9, IV 1.4, V 1.7, antennal formula $1 < 2 = 3 < 4 < 5$; labium passing much beyond hind coxae reaching to 3rd abdominal venter, length of labial segments I 0.8, II 1.4, III 1.3, IV 0.9; labial formula, $1 < 4 < 3 < 2$; length of antecular region 0.8; posterior of head including eyes 0.9; width of head 2.6.

Thorax

Pronotum distinctly less than 2.25X broader than its length, lateral margins slightly sinuate, anterior angles spinously toothed, laterally directed, length 2.2, width 4.9; scutellum longer than broad with rounded apical lobe, length 3.6, width 2.6; metathoracic scent gland auricle (Fig. 1B) much shorter with markedly subacute apex having posterior margin convex, round beyond ostiole

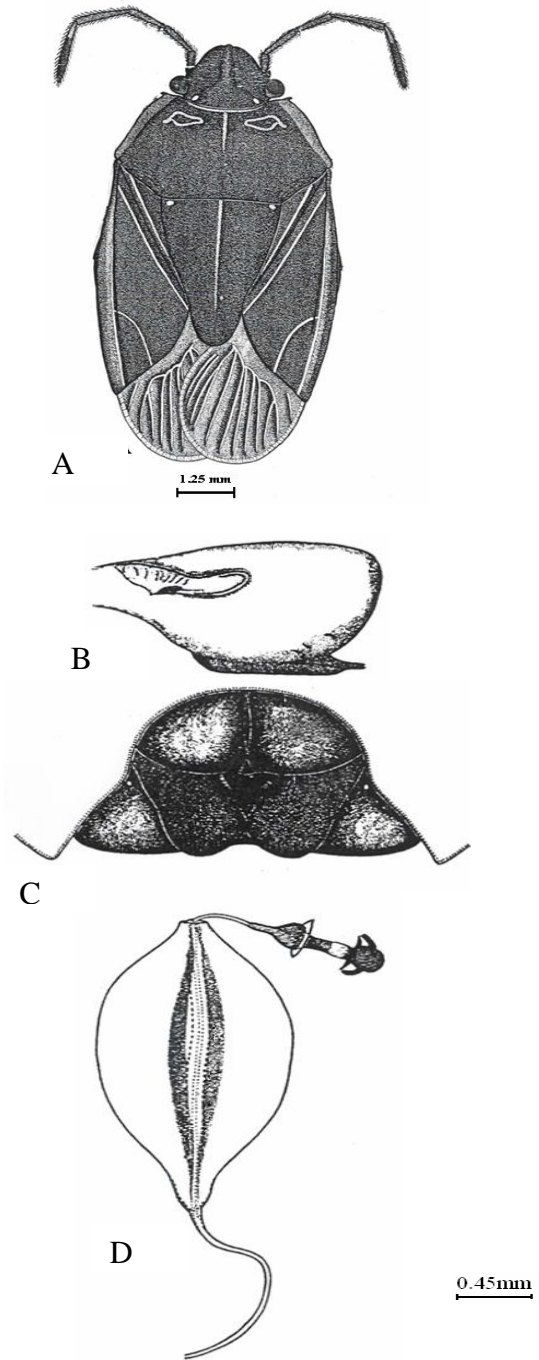


Fig. 1. *Neoriazocoris punjabensis*: A, dorsal view; B, metathoracic scent auricle, ventral view; C, female terminalia, lateral view; D, spermatheca, lateral view.

reaching to much less than 1/2 of evaporatoria, ostiole with ovate opening, evaporatoria distinct;

membrane of hemelytra slightly passing beyond abdomen; distance base scutellum- apex clavus 2.69; apex clavus-apex corium 2.1; apex corium-apex abdomen including membrane 3.8.

Abdomen

Posterior margin of 7th abdominal sternum medially U-shaped, deeply concave, markedly constricted at the lateral junction of eighth and ninth paratergites, lateral angles triangular, lobed-like; connexiva hardly exposed at repose; total length of female 10.5.

Female genitalia

Terminalia (Fig. 1C) having first gonocoxae with a knob on each side of posterior angle, much larger than 8th paratergites, medially fused posterior margin of the latter distinctly medially concave, shallowly U-shaped; 9th paratergites posteriorly, medially round; spermatheca (Fig. 1D) with spermathecal bulb having two elongate, tubular finger-like processes, of more or less equal size hardly reaching beyond distal flange, sclerotized median duct highly dilated at both ends, median swelling elongately oval; proximal spermathecal duct about 2x longer than distal spermathecal duct.

Material examined

Holotype female, Pakistan, Punjab: Tounsa, on *Desmostachya bipinnata* L. 22-3-1989, leg. Mohammad Rahim, in NHMUK.

Comparative note

This new species at the moment is the only species of its genus and is known by its generic characters and could easily be separated from the two known specific taxa of *Riazocoris* Ahmad and Afzal by the characters noted under the comparative note of its genus and under "discussion" with reference to its phylogenetic relationships.

DISCUSSION

When Ahmad and Afzal (1979) replaced and resurrected the invalid tribal name *Odiaria* Stål

[because its type genus *Odius* Stål was preoccupied, changed it to *Neodius* by Bergroth (1891) which was later synonymised with *Caystrus* Stål by Distant (1910)] to Caystrini. They also described their monotypic caystrine genus *Riazocoris* to accommodate *R. nigra* from various localities of lower Sindh, Pakistan. Ahmad and Kamaluddin (1989) not only added their new species *R. punjabensis* to Pakistani fauna of Caystrini but also described their new and only species of *Caystrus* i.e., *C. punjabensis* from Tounsa, Punjab, Pakistan. The present second author Zahid (2006) in his unpublished Ph. D. thesis when revised the world species of *Caystrus* learnt that the present first author (1979) of *C. punjabensis* already established a new manuscript generic name i.e., *Neocaystrus* for his manuscript taxon *punjabensis* as noted above but his knowledge of *Caystrus* was mostly limited.

Infact *N. punjabensis* was more closely related to *Riazocoris* (with both the above species) because it shared with both taxa the synapomorphic characters of long labium which atleast reaches to metacoxae, scutellum not regularly gradually tapering apically but with a well marked apical lobe separated by a visible constriction and ninth paratergites much longer in the female ovipositor, distinctly passing beyond the medially fused posterior margin of eighth paratergites. In addition to above both caystrine genera appear endemic to Sindh and Punjab provinces of Pakistan. Probably only one species of *Caystrus* i.e., *C. obscurus* (Distant) has entered to Sindh through Balochistan as described earlier by Qadri (1968) and Zahid and Ahmad (2010). In Nuristan province of Afghanistan *C. nuristanus* Linnavuori is already known to occur. Probably *C. obscurus* has extended its distributional range to India and Burma (Distant 1901, 1902, 1918).

The unique presently described new generic taxon is however quite different from both the above specific taxa of *Riazocoris* in having the autapomorphics of remarkably longer labium which reaches the third abdominal sternum, metathracic scent auricle much shorter, reduced with markedly subacute apex, connexiva more or less entirely concealed (apparently without shining black patches), without short colourless corial patch on either side and general body coloration drab, dark

brown, not with a metallic sheen. The present unique taxon also appears advanced in having autapomorphies such as a marked knob on each posterior angle of first gonocoxae and spermathecal bulb with some what reduced only two fingerlike tubules more or less of equal size. The presently known Pakistani taxa belonging to the two sister group genera *i.e.*, *Neoriazocoris* and *Riazocoris*, however, appear most closely related to *Caystrus* which appears to play out group relationship with them in exhibiting (Fig. 2) shared synapomorphy having anteriorly convex margin of paraclypei. Probably the oblongate general appearance of all these Pakistani taxa including that of *Caystrus* sp. exhibit their another synapomorphy confirming this outgroup relationship of this later genus. This subclade consisting the above three generic taxa *i.e.*, *Caystrus* subclade appears to out group and sister group relationship with another subclade *i.e.*, *Parodius* Distant Zahid (2006) sharing with it the synapomorphy *i.e.*, second antennal segment distinctly shorter than fourth.

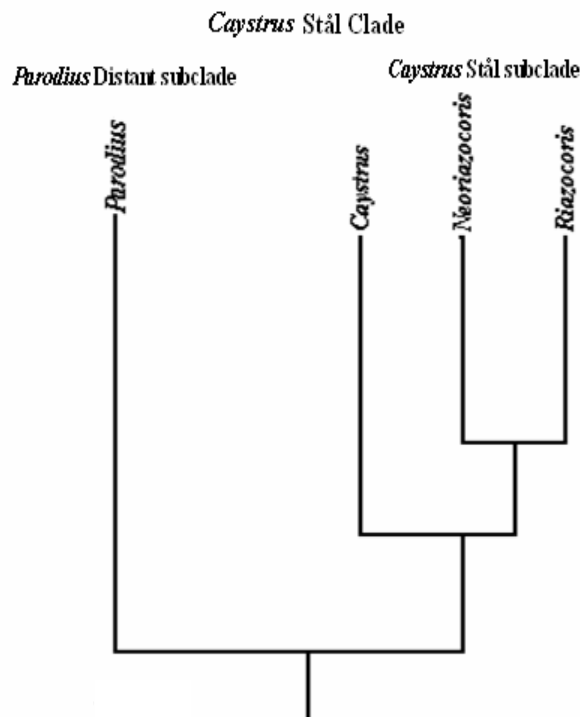


Fig. 2. Cladogram showing phylogenetic relationship of *Neoriazocoris* with related genera.

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