



## Some New Records of Pentatomid Bugs (Pentatomidae: Heteroptera) of Sindh, Pakistan

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**Abstract:** The present study deals with some records of true bugs belongs to family Pentatomidae from adjacent of Tando Jam, Sindh, Pakistan. Two new records as *Bolaca obscura* and *Bagradaaibeillei* reported first time from Pakistan. Six species of Pentatomidae briefly redescribed with male and female genitalia, metasternum with ostiole peritreme also illustrated.

**Keywords:** Heteroptera, Taxonomy, Sindh;

### I. INTRODUCTION

Family Pentatomidae, derived from Greek *pentem* meaning five and *tomos* meaning section, are a family of insects belonging to order Hemiptera including some of the stink bugs and shield bugs and the idiomatic term “stink bug” is also applied” (Chinery, 1993) The Pentatomidae is one of the major families of Heteroptera, overall the order comprises 36,096 species described from all over the World, of them 4,123 number of species are placed under family Pentatomidae. The largest families of heteropteran Reduviidae and Miridae consists of largest number of described species (Antônio, *et al.*, 2000). The family consists of 8 subfamilies including; Podopinae, Serbaninae, Pentatominae Cyrtocorinae, Discocephalinae, Asopinae, Edessinae and Phyllocephalinae (Schuh and Slater, 1995). “Among these subfamilies Pentatominae contains members that feed on plants. The general features include 5 segmented antennae, scutellum short, usually, tarsi 3 segmented.

They expose odor by means of scent glands, nymphs of some stink bugs are located at the dorsal side of the abdomen (Imms, *et al.*, 1977). Body characteristics include; well developed forewing with four to twelve veins, three to four segmented tarsi, antennae usually with five segments, abdomen half covered by scutellum (Konstantinov and Gapon, 2005).

The structure of the male genitalia is actively used in the taxonomy of Heteroptera, and of shield bugs in particular. “This complex of characters is used not only for distinguishing closely related species, but also in the supergeneric classification” “In all Heteroptera, the aedeagus consists of three main parts: phallobase, theca, and endosoma” “The phallobase is formed of a pair of strong and usually strongly sclerotized basal

plates, which fuse ventrally in all the bugs, forming a horseshoe-shaped sclerite without any traces of initially paired structure”

From Pakistan after fauna of British India numerous authors contributed their studies on pentatomidae, some authors added; Abbasi and Ahmad added some new species in two genera of Halyini (Abbasi and Ahmad, 1971) (Abbasi and Ahmad, 1976) In 1971, they included a new species, *spinosus* in the genus *Orthoschizops*, with special reference to metathoracic scent gland and female genitalia and on this basis considered the genus somewhat specialized (Ahmad, 1979) in the revisional study of the superfamilies Coreoidea and Pentatomoidea from Pakistan, Azad Kashmir and Bangladesh keyed sixteen genera of Halyini. (Ahmad, and Afzal, 1986) added one monotypic genus *Lodosocoris*, to accommodate their type species *L. azhari* from Pakistan. (Ahmad, and Afzal, 1986) finally described his undescribed species from Pakistan and Kashmir with special reference to metathoracic scent complex, and male and female genitalia, and gave a key to world species highlighting cladistic relationship of their new species with the included taxa (Ahmad, *et al.*, 2003).

To the importance of the family present work is framed to conduct, as to document to local pentatomid fauna of Tandojam, certainly was helpful to enrich our knowledge on identification of bugs. This research is part of Ph.D. dissertation of the first author.

### 2. MATERIAL AND METHODS

*Place of work:* For present studies Pentatomid bugs were collected from various localities of Tandojam.

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Further examination and identification was carried out at insect systematic laboratory, department of Entomology, Sindh Agriculture University Tandojam.

**Method of collection:** Pentatomid bugs were collected through traditional hand net, pooter and on light traps from various localities of Tandojam.

**Methods of Killing and preserving:** Collected specimens were killed in a killing bottle with potassium cyanide, necessary information is provided on label.

**Imaging:** Habitus was imaged with the help of camera fitted on microscope HT (20X and 40X).

**Identification:** The specimens were compared with the pertinent literature and further were compared with the specimens at Insect Museum, department of Entomology. **Method of preparing genitalia:** The male genitalia was dissected by removing and boiling the pygophore in 10% KOH for 25-30 minutes following the methods described by Ahmad (1986).

### 3. RESULTS AND DISCUSSION

Hemiptera, Linnaeus 1758  
Heteroptera, Latreille 1810  
Pentatomorpha, Leston, Pendergrast  
and South wood 1954  
Pentatomoidea Leach 1815  
Pentatomidae, Leach 1815  
Pentatominae, Leach 1815  
Strachiini, Mulsant and Rey, 1866  
Pentatominae Leach, 1815

#### Family Pentatomidae Leach, 1815

Head usually conical, anteriorly much narrower than pronotum; antennae five jointed which gives family name Pentatomidae, emit unpleasant odour which is offensive nature, labium four jointed, reaching hind coxae, sometimes extending on to seventh abdominal sternum; pronotum sub-hexagonal, front more or less decline; scutellum medium or large size, hemelytra with corium broad and subtriangular, membrane with numerous veins; tibiae never spinose; metathoracic scent gland ostioles always present.

#### Genus *Bolaca* Walker, 1867

*Bolaca* Walker, 1867: 251.

*Amyntor* Stal, 1868: 519. (syn. By Distant, 1900)

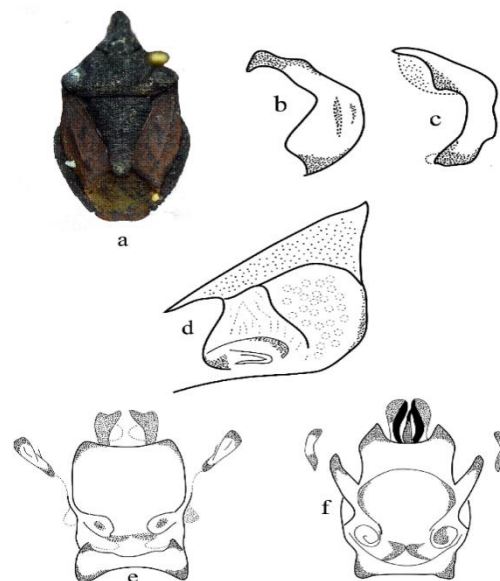
Type species: *Bolaca unicolor* Walker, 1867

Body ovate, depressed, head as long as broad, paraclypei longer than clypeus, antennae with basal joint robust, labium reaching hind coxae, pronotum with lateral margin spinosely produced, connexivum extended beyond corium, abdomen dilated.

#### *Bolaca obscures* Stal, 1867 (Plate 1) New record

**Measurement:** Male length 21.00 mm

**Coloration:** General color dark brown with piceous markings.



**Plate 1. *Bolaca obscures* Stal, 1867 a. habitus b. parameres dorso-lateral view c. parameres ventro-lateral view d. meta sternum with ostiole peritreme e. aedeagus dorsal view f. aedeagus ventral view**

**Head:** Head longer than broad, paraclypei narrower anteriorly, shorter than clypeus, clypeus rounded apically, eyes piceous brown, head with dense, coarse, inconspicuous punctations, labium reaching hind coxae. **Pronotum:** Pronotum with antero-lateral margins broadly rounded, distinct, sides crenulate, humeral angle distinct, spinosely produced, anterior margin depressed with levigated spots, disc with coarse, deep inconspicuous punctations; scutellum triangularly produced, depressed, surface with wrinkled punctations, corium fine but dense punctations, membrane smoky with brown.

**Abdomen:** Abdomen convex beneath, sternites blackish brown.

**Material examined:** 3 males, Pakistan, Sindh Province, District Tando M Khan, village Sheikh Bhirkio, 8.vii.2016, leg. Mir Sohail.

#### Genus *Bagrada* Stal, 1862

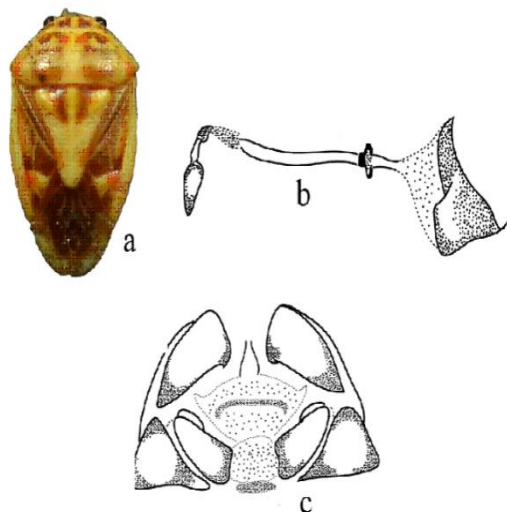
Type species: *Bagradahilaris* (Burmeister)

Head somewhat triangular almost vertically deflected, paraclypeae scarcely longer than clypeus, converging forwards, apices rounded, fused or separated, reflexed, entire, sinuate, antenniferous tubercles visible from above, first two segments short, eyes prominent, stylate; pronotum anteriorly and laterally deflected, lateral margins slightly reflexed; scutellum distinctly broad and long, apical lobe sub-acute; mesosternum carinate; metathoracic scent gland ostioles with reduced peritreme.

***Bagradaabeillei* Puton, 1881 (Plate 2) New record**

**Measurement:** Female length 7.00 mm

**Coloration:** Body narrowly elongate, sub ovate, general color brown with dominant pale yellow and reddish markings somewhere.



**Plate 2. *Bagradaabeillei* Puton, 1881 (Plate 2) a. female habitus b. female terminalia c. female genital capsule**

**Head:** Head broader than long, broadly triangular shaped, paraclypei distinctly angulae, meet apically, apex straight, clypeus narrower than paraclypei, pointed anteriorly, widened posteriorly, very few punctures on apex of paraclypei, some wrinkled on clypeus and paraclypei, clypeus anteriorly light reddish, paraclypeus pale yellow, ocelli light brown, at base of vertex, eyes well projected laterally, black.

**Pronotum:** Pronotum broader than long, hexagonal, anterior margin straight with entire angles, lateral margin obliquely straight, humeral angle sub conical produced, disc anteriorly declined, posterior well convex, anterior with two rounded brown faciae, with two reddish round spots between them, these fasciae leading posteriorly to make broad, brown faciae medially, a reddish spot near humeral angle, posterior half part with coarse and dense punctures; scutellum triangular shaped, with apex lobately produced, two elongated brown spots at base medially, two oblique reddish markings before apex, pale yellow with dense, coarse punctures, clavus not reaching apex of scutellum, corium broad, with one third brown, apically reddish and brown spots, membrane hyaline.

**Abdomen:** Abdomen scarcely convex beneath, connexivum yellow, repose laterally.

**Material examined:** 1 female, Pakistan, Sindh Province, District Tando M Khan, village Sheikh Bhirkio, 8.vii.2016, leg. Mir Sohail.

**Genus *Plautia* Stal, 1865**

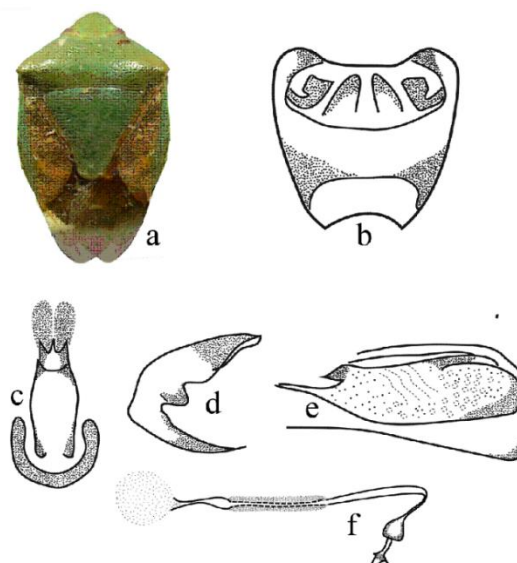
Type species: *Cimexfimbriatus* Fabricius, 1787 (= *Pentatomacrossota* Dallas, 1851), by subsequent designation (Distant, 1902).

Head declivous moderately, distinctly shorter than width including eyes, paraclypeae scarcely sinuate, anteriorly narrowed, rounded at apex, equal to clypeus or shorter than clypeus; pronotum anteriorly deflected; scutellum comparatively longer; mesosternum with longitudinal carinae, metasternum carinate, metathoracic scent gland ostioles with conspicuous triangular aperture, evaporatoria completely defined, membrane longer than apex of abdomen.

***Plautiacrossota* (Dallas, 1851) (Plate 3)**

**Measurement:** Male length 8.5 mm

**Coloration:** Body dull green, hemelytra pale with dense brown punctures.



**Plate 3. *Plautiacrossota* (Dallas, 1851) a. habitus b. pygofer ventral c. aedeagus ventral view d. paramere ventral view e. meta sternum with ostiole peritreme f. female terminalia h. delete**

**Head:** Head broadly triangular anteriorly, paraclypeus angulate laterally, slightly shorter than clypeus, dark green with dense, fine punctations, margins black, clypeus slightly produced anteriorly, light green with scarce punctures, inner margin with thin black fascia distantly from apex to base, apex subrounded; antennae with 3rd and 4th segments subequal, 2nd segment longer than 1st segment; labium passing hind coxae.

**Pronotum:** Pronotum with antero-lateral margin entire, broadly truncate internally, lateral margin oblique, marked with black patch reaching middle of humeral angle, humeral angle rounded, hind margin

sinuate medially, anterior margin depressed, convex posteriorly, anterior margin with coarse but not dense punctures, humeral angle with scarce punctures, posterior margin less punctate; scutellum dark green with dense, coarse punctures, depressed medially, apically lobate; clavus and corium pale with dense, coarse brown punctations, corium with red elongated fascia before apex, membrane hyaline, apically brown with dark brown veins.

**Material examined:** 3 males, Pakistan, Sindh Province, District Tando M Khan, village Sheikh Bhirkio, 8.vii.2016, leg. Mir Sohail.

**Genus:** *Adria* Stål 1876

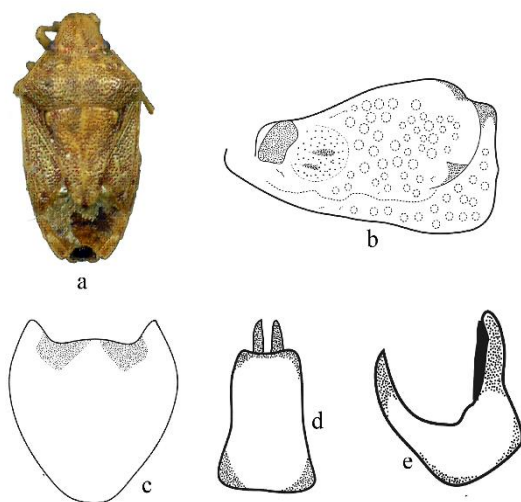
Type species: *Adria parvula* (Dall.)

Body elongate, ovate, head distinctly more than twice wider than long, labium reaching posterior coxae, anterior margin of pronotum markedly sinuate, meso and metasternum slightly sulcate, metathoracic scent gland ostioles with reduce peritreme.

***Adria parvula* Dallas, 1851 (Plate 4)**

**Measurement:** Male length 7.00 mm

**Coloration:** Body generally testaceous to ochraceous



**Plate 4. *Adria parvula* (Dallas, 1851) a. habitus b. pygofer dorsal view c. aedeagus dorsal view d. paramere lateral view e. meta sternum with ostiole peritreme**

**Head:** Head deflected anteriorly, lobately produced, paraclypei slightly longer than clypeus, not meeting from above, clypeus narrow, elongated, flat with apex sinuate; eyes rounded, convex, black, antennae with antenniferous tubercles not visible from above, Labium reaching the posterior coxae, surface with coarse, deep and dense punctures.

**Pronotum:** Pronotum broader than long, anterior margin angulate with sharp angles, lateral margin

oblique, sinuate ahead of middle, humeral angles broadly rounded, posterior margin straight, disc little decline anteriorly, with two levigated spots, black, posterior half part with dense and coarse punctations; scutellum elongate, narrowly triangular, apex broadly rounded, surface with coarse, dense punctures, clavus narrow, corium broad with coarse, deep and dense punctures, membrane hyaline; legs dark brown, sternum piceous brown; peritreme highly reduced.

**Abdomen:** Abdomen convex beneath, pale yellow with dense dark brown punctures, connexivum repose laterally.

**Material examined:** 3 males, Pakistan, Sindh Province, District Tando M Khan, village Sheikh Bhirkio, 8.vii.2016, leg. Mir Sohail.

**Genus *Eysarcoris* Hahn, 1834**

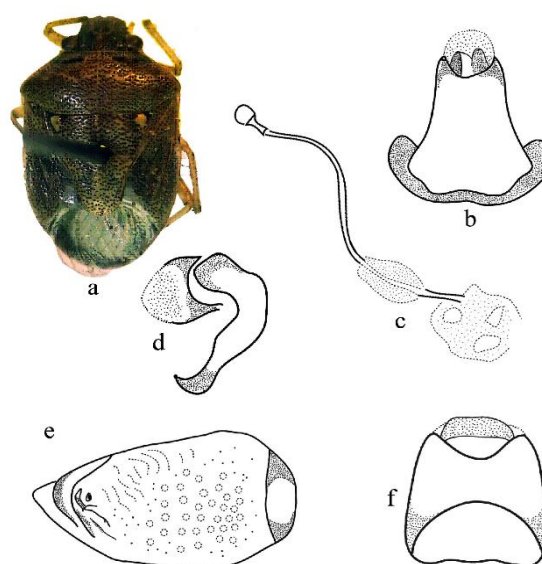
Type species: *Cimexperlatus* Fabricius, 1794

Head as broad as long, clypeus raised in the middle, labium comparatively short, just reaching posterior coxae. first labial segment extending beyond bucculae; anterior margin of pronotum medially, deeply emarginated, anterior angles well-defined, rounded, scutellum large, reaching almost near of abdomen, posteriorly narrowed and rounded, metathoracic scent gland ostioles small, oval, connexivum not exposed from above usually.

***Eysarcoris ventralis* (Westwood, 1837) (Plate 5)**

**Measurement:** Male length 6.00 mm

**Coloration:** Chest-nut brown to light brown.



**Plate 5. *Eysarcoris ventralis* (Westwood, 1837) a. habitus b. aedeagus ventral view c. female terminalia d. parameres lateral view e. meta sternum with ostiole peritreme f. delete g. delete h. delete i. delete j. pygofer dorsal view**



**Head:** Head small, broader than long, flat, clypeus and paraclypei form broad plate, black, a pale patch from base to frons medially, surface with dense, coarse and deep punctures, eyes chocolate brown, well protruded laterally; labium passing hind coxae.

**Pronotum:** Pronotum broad, hexagonal, anterior declivity well-defined, anterior margin entire, with a small spine laterally, lateral margin obliquely straight, humeral angle rounded, disc more convex medially, a broad quadrangular chocolate brown patch anteriorly, with a pair of levigated spots, median area pale yellow with wavy patch, covered with deep, fine punctures, hind margin chocolate brown with fine punctations; scutellum broadly triangular-shaped, apex tongue-like, depressed, two pale yellow spots at base laterally, contiguous punctures with transverse ridges, clavus narrow, corium broad with deep, fine punctures, membrane light brown, exceeding above abdomen; legs dark brown with hairs.

**Abdomen:** Abdomen convex beneath, pale yellow at sides with dense, deep punctures, a median broad patch black, from fore coxae to base of abdomen.

**Material examined:** 3 males, Pakistan, Sindh Province, District Tando M Khan, village Sheikh Bhirkio, 8. vii. 2016, leg. Mir Sohail.

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