

Pyrrhocoris group (Hemiptera : Pyrrhocoridae : Pyrrhocorinae) with description of a new genus and a new species from Indo-Pakistan subcontinent and their relationships*

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Summary

The *Brancuccina* Ahmad and Zaidi, *Courtesius* Stal, *Dermatinus* Stal, *Lodosiana* Ahmad and Abbas, *Pyrrhocoris* Fallen and *Scantius* Stal are studied and revised along with description of new genus and two new species from Indo-Pakistan subcontinent with special reference to their metathoracic scent gland ostioles and male and female genitalia. The above taxa are keyed presently and included in a newly recognized *Pyrrhocoris* group of the subfamily *Pyrrhocorinae* and their relationships within *Pyrrhocoridae* is briefly discussed.

Introduction

Ahmad and Zaidi (1985a and 1985b) have recently revised *Courtesius* Stal and described *Brancuccina bhutanensis* of *Pyrrhocoridae* from Bhutan with special reference to their male and female genitalia. The present first author during his visit (August-October, 1984) to Natural History Museum Basel, Switzerland; British Museum, Natural History London and United States National Museum Washington, got an opportunity to examine the holotypes and many authentically determined specimens of the taxa including the type species of *Dermatinus* Stal, *Pyrrhocoris* Fallen and *Scantius* Stal, by the courtesy of Dr. R. Brancucci, Mr. W. R. Dolling and Dr. T. J. Henry and Dr. R. C. Froeschner respectively of the above museums.

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A series of specimens of *Scantius aegyptius* (Linnaeus) were also examined by the courtesy of Professor Dr. N. Lodos of Ege University, Izmir, Turkey who generously loaned them to the present authors. These represented a new genus which was named *Lodosiana* in the honour of Dr. N. Lodos to acknowledge his valuable contributions on the systematics of Heteroptera.

The above taxa appear to form a taxonomic group presently referred to and described as *Pyrrhocoris* group equal in status to a tribe (but not formally named) within the subfamily Pyrrhocorinae. The above taxa are redescribed with description of the genus *Lodosiana* and new species *Dermatinus pakistanensis* & *Scantius neopallens* with special reference to metathoracic scent gland ostioles and male and female genitalia. A key to genera of *Pyrrhocoris* group is given and in the above light the relationships of the included taxa are briefly discussed.

For description, measurements, diagrams and for inflation of aedeagus the methods of Ahmad and Abbas (1984) were generally followed. All the measurements are in millimeters and the diagrams to the given scale. Length was measured from the tip of the clypeus to the tip of the abdomen; width of the head was measured between the outer margins of the compound eyes; pronotal width was measured at the widest areas of the humeral angles.

Pyrrhocoris group Gr. n.

Body small 5-11; head wider than long or almost as wide as long, without a median sulcus; basal antennal segment shorter than head length; 3rd antennal segment always shortest; labium reaching to mesocoxae, basal labial segment reaching or not reaching but never passing beyond the posterior margin of head; pronotum anteriorly slightly narrowed or trapezoidal; fore femora incrassate with a series of spines; membrane of the hemelytra rarely complete, usually incomplete; metathoracic scent gland complex well-developed or ill-developed; apical margin of corium truncated, rounded or subrounded but never elongated.

Male genitalia; pygophore with dorsal surface deeply concave, dorso-lateral lobes projected at the inner margin, median projection sometimes present, slightly sclerotized.

Female genitalia; 1st gonocoxae broad, almost covering entire terminalia, medioposteriorly bifurcated or normal; spermatheca with proximal end of the duct never opening into distal duct.

Comments. Distant (1904) grouped in his generic key those pyrrhocorid genera in which brachyptery prevails viz *Courtesius*, *Dermatinus*, *Pyrrhocoris* and *Scantius*. Presently no representative *Dermatinus* & *Courtesius* have been appear winged and the new genus *Lodosiana* does not appear to have incomplete hemelytra, at least in our collection but the representatives of all the above genera have a shorter basal antennal segment which is usually shorter than head length in addition to a large number of characters listed under description of this group, under the section «morphology» and «biology and immature systematics».

Key to the genera of *Pyrrhocoris* group Gr. n.

1. Body small, ranging from 5-11; 1st antennal segment distinctly shorter than the head length; fore femora incrassate
 *Pyrrhocoris* group Gr. n.
- Body large, ranging from 9-28; 1st antennal segment longer or equal to the length of head; fore femora slender or only slightly swollen *Dysdercus* group (Ahmad and Abbas MS)
2. Pronotum trapezoidal with lateral margins laminate; scent gland complex well developed 3
- Pronotum never trapezoidal, gradually narrowing anteriorly, lateral margins reflexed; scent gland complex ill-developed 4
3. Eyes laterally bulging, antecular distance shorter than posterior of head including eyes; basal antennal segment not equal to 3rd, in male blade of the paramere with pointed apex ... *Courtesius* Distant
- Eyes laterally not as above, antecular distance equal to posterior of head including eyes; basal antennal segment not equal to 3rd, in than 3rd; in male blade of the paramere bifurcated
 *Dermatinus* Stal
4. 1st labial segment reaching or nearly reaching to the posterior margin of head; apical margin of corium rounded or subrounded, never conically produced; mid-and hind femora dentate on the entire margin; male's everted aedeagus with prominent rounded sclerotized appendages, paramere with a thumb-like projection *Pyrrhocoris* Fallen
- 1st labial segment not reaching beyond the posterior margin of eyes; apical margin of corium truncated or conically produced, never rounded; mid-and hind femora with prominent spines at the

apices; male's everted aedeagus without rounded conjunctival appendages, paramere without a thumb-like projection

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5. Corium always with a rounded discal spot; anterior margin of pronotum prominently convex, black-patch on the anterior raised area reaching to posterior margin; scutellum and clavus always pitchy black; pygophore with posterior margin produced in the form of a tongue

Lodosiana Gen. n.

- Corium without a rounded discal spot; anterior margin of pronotum slightly convex, black patch on the anterior raised area never reaching to posterior margin; scutellum and clavus never pitchy black a pygophore with posterior margin never produced in the form of tongue

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6. Body ovate; 2nd antennal segment longer than basal; metathoracic scent gland ostiolar peritreme in males well developed; paramere f-shaped

Brancuccina Ahmad & Zaidi

- Body cylindrical; 2nd antennal segment shorter or equal to basal; metathoracic scent gland ostiolar peritreme obsolete in male, parameres sickle-shaped

Scantius Stal

Brancuccina Ahmad and Zaidi

Brancuccina Ahmad and Zaidi, 1985a (in press)

Type species : *Brancuccina bhutanensis* Ahmad and Zaidi

Courtesius Distant

Courtesius Distant, 1904, 114; Hussey, 1929, 70; Blote, 1933, 596; Ahmad and Zaidi, 1985b (in press)

Type species : *Courtesius illuminatus* Distant.

Dermatinus Stal

Dermatinus Stal, 1853, 260; 1854, 36; 1855, 36; 1861, 196; 1866, 4 & 12; 1870, 103 & 114; Distant, 1904, 115; Hussey, 1929, 68; Stehlik, 1965, 241.

Pyrrhocoris Walker, 1872, 167.

Type species : *Dermatinus limbifer* Stal

Body small, dark brown or black, head broader than long, eyes not embracing anterior margin of pronotum; basal and 3rd antennal segment, equal or subequal, 2nd and 4th equal or subequal; labium reaching to hind

coxae, basal labial segment passing posterior margin of head, longer than 2nd which is longer than 3rd, 4th shortest longer than 3rd; pronotum trapezoidal, lateral margin slightly reflexed or not; fore femora with ventro-anterior margin raised, with prominent spines near the coxae, metathoracic scent gland complex with well developed definite opening and prominent peritreme and evaporatoria; posterior margin of the corium reaching to middle of penultimate segment; 4th and 5th incisures of abdominal venter moderately curved without markings and reaching to the margins.

Male genitalia; pygophore distinctly broader than long, ventro-posterior margin sub-rounded or truncated; paramere with broad base, medially curved and ending into pointed bifurcated apex.

Female genitalia; not available.

Comments. *Dermatinus* appears closer to *Pyrrhocoris* Fallen in having remarkably shorter basal antennal segment than the head length in addition to other cephalic characters noted under «morphology» and fore femora incrassate but can be readily separated by the prominently raised peritreme and marked evaporatoria in the metathoracic scent gland complex in contrast to ill-developed peritreme and evaporatoria in those of *Pyrrhocoris*.

Dermatinus pakistanensis sp. n. (Fig. 1)

Colour; entire head except light ochraceous band on the posterior margin, entire antennae, entire pronotum, entire scutellum, entire clavus, entire corium, entire terga, entire venter, entire legs except apex of femora brownish black; ochraceous; entire body except connexiva and terga covered with minute hairs; head, pronotum, scutellum, clavus and corium finely punctate; tibiae and tarsi with small spines; foretibiae with a large flattened carinae at ventrolateral margin.

Structure; anteocular distance distinctly equal to posterior of head including eyes; length of head distinctly shorter than width; length 1.0; width 1.3; length of antennal segments : I 0.7, II 1.0, III 0.66, IV 0.9, antennal formula $3 < 1 < 4 < 2$; length of labial segments : I 1.0, II 0.90, III 0.70, IV 0.40, labial formula $4 < 3 < 2 < 1$; length of anteocular distance 0.50; length of posterior of head including eyes 0.5; interocular distance 0.7; pronotum slightly less than 2x broader than its length, with lateral margins strongly reflexed, raised callosities located in anterior region covering half of the posterior region, length 0.9; width 1.60; scutellum almost as broad as long length 0.90; width 1.0; metathoracic scent gland (Fig. 5) ostiole with slightly more elongated peritreme apex broad and somewhat rounded length apex of scutellum apex of abdomen 2.60. Total length of male 5.40.

In male (Fig. 9-10) pygophore broader than long, dorsoposterior surface slightly concave with short hairs, ventroposterior margin rounded (Fig. 17) parameres with broad blade, then deeply concave having a bunch of setae of the concavity, then narrowing towards the apices, proximal end bifurcated into two pointed processes; (Figs. 21 & 22) aedeagus with theca shorter than conjunctiva, with a pair lateral thecal appendages rounded at apex, a pair of dorsolateral membranous appendages slightly sclerotized at the pointed apices, conjunctival appendages a pair of dorsal posteriolateral appendages, sclerotized and blunt at the apices, a pair of short ventral membranous appendages near the base of vesica, later broad at the base and narrowing towards apex vesica thin elongated, opening into a small gonopore.

Material. Holotype, (male), Pakistan : Baluchistan, Nawabshah, on wild grass., October 1983, leg. A. A. Khan, in Natural History Museum, Department of Zoology - Entomology, University of Karachi.

Comments. It is most closely related to *lugubris* Distant from which it could easily be separated by having ochraceous band on posterior margin of head and other characters noted in the key.

Lodosiana Gen. n.

Body small, piceous or sanguineous head as long as broad, eyes sessile embracing the anterior margin of pronotum; basal antennal segment slightly shorter than 2nd, 3rd shortest, 4th equal or subequal to 2nd; labium passing beyond meso coxae, basal labial segment hardly reaching to posterior margin of compound eyes and subequal to 2nd which is longer than 3rd, 4th shortest; pronotum anteriorly narrowed, lateral margins reflexed; fore femora with ventrolateral margin spined; metathoracic scent gland complex ill-developed with minute opening, ill-developed peritreme and evaporatoria, membrane of hemelytra reaching to apex of abdomen; incisures of 4th and 5th abdominal venter moderately laterally curved and reaching to lateral margins without markings.

Male genitalia; pygophore as broad as long with ventro-posterior margin elongated in the form of a tongue; parameres with broad base, medially curved and terminating into a pointed apex.

Female genitalia; 1st gonocoxae broad covering the whole terminalia, bifurcated lateroposteriorly overlapping each other; 8th paratergites straight, 9th partly invisible.

Comments. This genus is most closely related to *Scantius* in having remarkably shorter basal labial segment, hardly reaching to posterior margin of compound eyes but it can easily be separated from the above by

the presence of completely black rounded spot on the corium and membrane of the hemelytra.

Type species : *Lodosiana aegyptius* (L.)

Lodosiana aegyptius (Linn.)

Cimex aegyptius Linnaeus, 1758, 447.

Scantius aegyptius Hussey, 1929, 80 (Detailed synonymy)

Lodosiana aegyptius (L.) (Figure 2)

Colour; entire head, entire antennae, anterior convex portion of pronotum, callosities and adjacent spots, and boundaries, entire scutellum, entire clavus, discal spots on corium, entire membrane, pro-meso- and meta-terga entire legs except coxae jet black ;pronotum, corium, and venter of the abdomen sanguineous.

Structure; length of head shorter than width, length 1.05 width 1.15; antecular distance more than posterior of head including eyes; length of antennal segments I 0.8-1.00, II 0.9-1.1, III 0.45-0.55, IV 0.8-1.0, antennal formula $3 < 1 = 4 < 2$; length of labial segments, I 0.60-0.65, II 0.55-0.65, III 0.45-0.60, IV 0.50-0.60, labial formula $3 < 4 < 2 < 1$ length of antecular distance 0.65-0.70, posterior of head including eyes 0.5-0.6; interocular distance 0.7; pronotum slightly more than $1\frac{1}{2}x$ broader than of its length, lateral margins slightly reflexed, raised callosities located in the anterior region alongwith two spots reaching the posterior margin, length of pronotum 1.25-1.60, width 20.0-2.5; scutellum slightly broader than long, length of scutellum 0.80-1.05, width 1.1-1.3 (Fig. 6) metathoracic scent gland ostiole with minute ill-developed peritreme; length apex scutellum apex abdomen 3.5-4.7. Total length of male, 6.60-7.1; of female, 7.45-8.1.

Male genitalia; (Figs. 11-12) Pygophore longer than broad, dorsoposterior surface deeply concave with spinules on upper portion of the concavity, ventroposterior margin elongated in the form of a tongue (Fig. 18) paramere with broad blade and apex having a lateral crest sickle shape without setae on the lateroinner margins; (Figs. 23-24) aedeagus with theca longer than conjunctiva having a pair of nod like thecal appendages, a pair of dorsolateral conjunctival appendages partly membranous partly sclerotized with broad apex and a pair of small sword shape appendage at the base of vesica, a pair ventral appendage slightly sclerotized with broad base and pointed apex alongwith rod shape sclerotized lateral appendage; vesica thin and elongated opening in to small gonopore sclerotized short appendages at the base of vesica, a pair of ventrolateral leaf shaped sclerotized appendages

and a pair of ventroposterior broad appendages with sharply pointed apices, only attached at the base of conjunctiva, vesica slightly broad at the base with a slight convulsion in the middle.

Female genitalia; (Figs. 29-32) 1st gonocoxae broad, almost covering the entire terminal portion, latter completely overlapping each other, posteriorly deeply bifurcated and the bifurcated portion completely concealed by the other bifurcated part with a few setae; 8th paratergite small with spinules in the middle; 9th paratergites cuplike; spermathecal bulb globular, semispherical with flanges.

Material. 6 (males), 3 (females), «*Scantius aegyptius* (Linn.)» identified by N. Lodos (1980) Turkey, İzmir (Hatundere), Manisa (Soma), Kirklareli (Lüleburgaz) on *Phaseolus*, *Althaea*, *Pistacia*, 19.1.1972, 25.7.1973 and 27.11.1973 in Lodos Coll. and Ahmad's coll. 33 (males), 11 (females) on grass and wheat leg. M. Razi and M. Rahim, 15, 17.6.1983 in Ahmad's Coll. in Natural History Museum, Department of Zoology, University of Karachi and in Ahmad's coll.

Comments. It is the most unique species in the genus and could easily be separated from its allies *turbatensis* sp. nov. and *noshkiensis* sp. nov. by two black spots on the pronotum and by other features noted in the key.

Pyrrhocoris Fallen

Pyrrhocoris Fallen 1814, 9; 1829, 45; Latreille, 1825, 421; Curtis, 1833, 465; Dufour, 1833, 42; Westwood, 1840, 122; Amyot et Serville, 1843, 267; Flor, 1860, 10; Fieber, 1860, 4; 1861, 16; Stal, 1861, 196; 1866, 4; 1870, 103 & 115; 1872, 62; Vollenhoven, 1869, 72; Walker 1872, 65 & 167; Distant 1883, 228; 1904, 166; Reuter 1885, 231; Van Duzee 1914, 3883; Hussey 1929, 71; Stichel 1960-62, 293.

Platynotus Schilling 1829, 37; Hahn 1833, 9; Kolenati 1845, 68.

Meganotus Laporte 1832, 38.

Phytocoris Laporte 1832, 83; Gistel 1848, 39.

Astemma Spinola 1837, 170; 1850, ; Kirkaldy 1909, 31.

Type species : *Pyrrhocoris apterus* (Linn.)

Body small, brightly sanguineous; head broader than long; eyes embracing the anterior margin of pronotum; 3rd antennal segment shortest, basal and 4th equal or subequal, 4th shorter and shorter than 2nd; labium reaching to meso coxae, basal segment reaching to posterior margin of head, 1st and 2nd segments subequal and longer than 3rd which is subequal to 4th. Pro-

notum anteriorly narrowed, lateral margins reflexed; fore femora with ventrolateral margins spined; metathoracic scent gland with slit-like opening, ill-developed peritreme and evaporatoria; membrane of hemelytra rarely complete, usually very short, sometimes without membrane, 4th and 5th incisures of the abdominal venter smooth and straight without any marking.

Male genitalia; pygophore slightly broader than long with ventro-posterior margin slightly sinuate, paramere with broad base and with a thumb-like middle process terminating into pointed apex.

Female genitalia; 1st gonocoxae broad, posterior margin subrounded and closer to each other; 8th paratergites triangular and equal to 9th paratergites.

Comments. *Pyrrhocoris* is most closely related to *Dermatinus* in its group in having basal labial segment reaches to posterior margin of head but it can readily be separated by the presence of prominent, rounded or sub-rounded spots on corium in contrast to corium without any spot in *Dermatinus*.

Pyrrhocoris apterus (Linn.) (Fig. 3)

Cimex apterus Linn. 1758, 447.

Pyrrhocoris apterus Distant 1904, 166; Hussey, 1929, 72 (detailed synonymy); Stichel 1960-62, 293.

Colour; entire head, entire antennae, middle raised portion of pronotum, entire scutellum, entire clavus, small spot in the base and large discal spot of corium, entire rudiments of membrane, pro, meso, meta sterna and entire abdominal terga and sterna jet black, pronotum, corium and lateral and posterior margin of abdominal segment sanguineous, body sparingly punctate.

Structure; anteocular distance distinctly more than posterior of head including eyes; length of head distinctly shorter than width, length of head 1.8, width 2.0, length of antennal segments I 1.1, II 1.4, III 0.8, IV 1.1, antennal formula $3 < 1 = 4 < 2$; length of labial segments, I 1.0, II 1.0, III 0.7, IV 0.7, labial formula $3 = 4 < 1 = 2$, length of anteocular distance 0.9; length of posterior of head including eyes 0.8, interocular distance 1.1, pronotum slightly $1\frac{1}{2}$ x broader than of its length, with lateral margins slightly reflexed, raised black callosities located to the anterior region, length 2.0, width 1.7; scutellum broader than long, length of scutellum 1.2, width 1.4 (Fig. 7); metathoracic scent gland ostiole with elongated peritreme apex rounded,

length apex scutellum to apex abdomen 4.0; abdomen sometimes covered with membrane of hemelytra. Total length of male 9.0; of female 9.9.

Male genitalia; (Figs. 13-14) pygophore as broad as long, dorsoposterior surface concave without spinules, ventroposterior margin rounded; (Fig. 19) paramere with broad base more or less straight outer margin, thumb-like blade curved having subrounded apex (Fig. 25-26) aedeagus with theca longer than conjunctiva two pairs of dorsal membranous conjunctival appendages, one pair near apex and one pair near base of vesica, one pair of sclerotized ventral appendages; more or less rounded with subrounded margins, one pair of elongated broad, ventro-lateral sclerotized appendages overlapping; basal half of ventral appendages with subrounded apical margin and lateral margins very slightly convex, apically sickle-shaped, vesical support moderately broadly flattened and smaller in size.

Female genitalia; (Figs. 30-32) 1st gonocoxae broad, overlapping each other posterior margin rounded; spermatheca with a spherical bulb having a long thin duct without convolution.

Material. Holotype in British Museum Natural History, London 3 (males) and 3 (females) Turkey : Kirklareli (Lüleburgaz), Manisa (Akhisar), 26.7, 26.11.1973, *Althaea*, under stone in Lodos collection. 32 (males) and 36 (females) Baluchistan : Chutair, Ziarat, Chaman, Sariab and Barori on grass 8, 17, 25, 27-5,6,8-1970, 82 and 83, leg. I. Ahmad, M. Moizuddin, M. Shadab and M. Rahim in Natural History, Department of Zoology-Entomology, University of Karachi, USNM and in Ahmad's collection.

Comments. It is most closely related to *neoapterus* and *pscudoapterus* spp. nov., but it can easily be separated for its slightly larger size, always more than 9.0, and by other characters of male genitalia as noted in the description and key.

Genus *Scantius* Stal.

Scantius Stal, 1866, 4 & 10; 1870, 103 & 116; Reuter 1885, 231; Distant 1904, 177; Bergroth 1920, 174; Hussey, 1929, 80; Stichel 1960-62, 296.

Pyrrhocoris Walker 1872, 167; Puton 1899, 38.

Type species : *Scantius forsteri* Fabr.

Body small, piceous or ochraceous head as long as broad; eyes not embracing anterior margin of pronotum; basal antennal segment equal or subequal to 2nd, 3rd shortest, 4th subequal to 1st and 2nd separately; labium

reaching to meso coxae, basal labial segment hardly reaching to posterior margin of compound eyes, all the labial segments subequal to each other. Pronotum anteriorly slightly narrowed, lateral margins very slightly reflexed; fore femora spined at the ventrolateral margin; metathoracic scent gland complex ill-developed, with a slit-like opening, minute peritreme and without evaporatoria; membrane of hemelytra rarely complete; incisures of 4th and 5th abdominal venter slightly curved and reaching to lateral margins.

Male genitalia; pygophore slightly broader than long with ventro posterior margin truncated; paramere with broad base, curved then terminating in to a pointed apex.

Female genitalia; 1st gonocoxae overlapping each other almost covering the entire terminalia; 8th paratergite, triangular; 9th paratergites almost invisible.

Comments. *Scantius* appears closely related to *Lodosiana* in sharing a shorter basal labial segment which hardly reaches to posterior margins of compound eyes as noted under *Lodosiana* but it can readily be separated from the same by its usual brachyptery or sometimes aptery although some forms are macropterous in contrast to fully winged specimens of *Lodosiana* in addition to a number of characters of head as noted under the section «morphology».

Scantius neopallens sp. n. (Fig. 4)

Colour; entire head, entire antennae, entire pronotum except black middle raised portion, entire scutellum except apex, entire clavus, entire corium except lateral margins, entire terga, entire sterna except connexival margins, entire legs reddish ochraceous, entire body densely and coarsely punctate.

Structure; antecular distance distinctly more than posterior of head including eyes, length of head slightly shorter than width, length 1.40, width of head 1.50; length of antennal segments : I 1.0, II 1.0, III 0.6, IV 0.9, antennal formula $3 < 4 < 1 = 2$ length labial segments : I 1.0, II 0.9, III 0.8, IV 0.9, labial formula $3 < 2 = 4 < 1$, length of antecular distance 0.9, length of posterior of head including eyes 0.5, interocular distance 1.0, pronotum less than $1\frac{1}{2}x$ broader than of its length, with lateral margins reflexed, raised black callosities located in the anterior region slightly covering a part of the posterior region, length 1.6-1.8, width 2.3-2.7; scutellum slightly broader than long, length 1.2, width 1.3, (Fig. 8) metathoracic scent gland

ostiole with broad peritreme apex short and pointed, length apex scutellum to apex of abdomen 4.0. Total length of male 8.2 of females 8.6.

Male genitalia; (Figs. 15-16) pygophore as long as broad, dorsoposterior surface on either side of the opening concave and with a few setae, ventroposterior margin slightly sinuate in the middle; (Fig. 20) paramere sickle shaped with broad blade and pointed apices, inner margin entire, with a few setae; (Figs. 27 & 28) aedeagus with theca slightly shorter than conjunctiva, having dorsomedian bell-shaped and a pair of lateral thecal appendages with rounded apices, a pair of dorsolateral fan-like slightly sclerotized conjunctival appendages and bean-shaped slightly sclerotized appendages, broadly sclerotized, attached with conjunctiva throughout the length and a pair of ventrolateral posterior rounded appendages with a lateral notch, vesica broad at the base then narrowing near the posterior opening.

Female genitalia; (Figs. 31-34) 1st gonocoxae broad, almost covering the entire genital portion, partially over-lapping each other, in the middle, posteriorly rounded, with a few setae on entire surface, 8th paratergites small, with spiracles closer to anteriolateral margin; 9th paratergites cuplike; spermatheca with a rounded bulb and flanges with a thin sclerotized straight duct, latter turned again distad and finally opening into an elongated membranous tube.

Material. Holotype (male), Pakistan : Baluchistan, Mand, on *Bscimum* sp. 27.4.69; leg. I. Ahmad, in Natural History Museum, Department of Zoology-Entomology, University of Karachi. Paratype: 2 (males), 3 (females) with same data as that of holotype in Ahmad's collection.

Comments. *S. neopallens* sp.n. is most closely related to *pallens* Distant in having central portion of pronotum without lines or spots but it can be separated from the same in having dark ochraceous tibiae and tarsi in contrast to pale tibiae and tarsi in *pallens*.

Distribution and relationships of the included taxa

The *Pyrrhocoris* group of the subfamily Pyrrhocorinae, includes *Courtesius*, *Dermatinus*, *Lodosiana*, *Brancuccina* and *Scantius*, the representatives of which show shorter basal antennal segment shorter than the head length and many other characters of this group viz head usually without an occipital suture except that in the genus *Courtesius* fore femora incrassate and spined beneath, mostly apterus forms (sometimes brachypterous or even macropterous) except those of the genera *Lodosiana*, *Brancuccina*, body short not

more than 10.5, without median sulcus in the head, metathoracic scent gland ostiole with peritreme poorly developed, evaporatoria ill-defined, and the paramere always with a broad base and half of the apical portion narrow appear an assemblage of the primitive and advanced characters .

Within this group, the representatives of *Pyrrhocoris* together with that of *Courtesius* and *Dermatinus* appear more primitive with basal labial segment almost reaching to the posterior margin of the head in contrast to basal labial segment not reaching beyond the posterior margin of the compound eyes in those of the genera *Lodosiana*, *Brancuccina* and *Scantius*. The species of *Brancuccina* shares spotless corium and lighter scutellum and clavus with those of *Scantius* which show them more primitive than those of *Lodosiana*, having spotted corium and pitchy black scutellum and clavus. The species of *Brancuccina* however appears more primitive than that of *Scantius* in having a shorter basal antennal segment distinctly shorter than 2nd and metathoracic scent gland ostiolar peritreme moderate, in contrast to longer basal antennal segment which is equal to or longer than the 2nd and metathoracic scent gland ostiolar peritreme greatly reduced in the species of *Scantius*.

The Oriental species included in the genus *Courtesius* represent two groups; one represented by *quinquisignatus* and the other represented by *illuminatus* and *pakistanensis*, *quinquisignatus* appears primitive in having pygophore somewhat rounded, 1st gonocoxae larger in size and distal spermathecal duct comparatively longer than proximal spermathecal duct. However its two white spots on hemelytra, labium reaching to 3rd abdominal venter probably are some of its advanced features. In *illuminatus* group *illuminatus* is probably more primitive in having a longer head than pronotum, labium reaching to hind coxae, metathoracic scent gland with ostiole and 1st gonocoxae much longer in contrast to *pakistanensis* which appears advanced in having a longer labium passing beyond hind coxae, metathoracic scent gland having comparatively smaller ostiole and 1st gonocoxae also comparatively smaller in size.

Dermatinus Stal presently with three Oriental species is represented by apterus forms having shorter body, basal antennal segment shorter than the head length, fore femora incrassate and spined beneath, paramere with broad base and half of the apical portion narrowed along with species of other genera of *Pyrrhocoris* group viz *Courtesius*, *Lodosiana*, *Pyrrhocoris* and *Scantius*. It is however most closely related to *Courtesius* in having pronotum trapezoidal with lateral margins laminate with highly developed scent gland complex. In contrast to the species of the genus *Courtesius*

however those of *Dermatinus* appear more primitive with eyes not laterally bulging, antocular distance equal to post ocular region including eyes and in having blade of the paramere with broad bifurcated apex.

The Oriental species included in the genus *Lodosiana* fall in two groups; one represented by *aegyptius* and the other by *noshkiensis* and *turbatensis*, *aegyptius* appears to be advanced in having two black spots on pronotum adjacent to callosities, blade of paramere elongated, three small spines of uniform size on middle femora and slight dentation on hind femora than the other groups.

The type species *apterus* of *Pyrrhocoris* with two other new species *neopterus* and *pseudoapterus* appears more primitive with larger body size ranging from 7.2-9.9 mm and red and black colour predominant but the presence of both apterus and fully developed forms and the broad sickle-shaped vesica in the inflated aedeagus are probably some of its specialized traits to suit some special habits.

The Oriental species included in the genus *Scantius* fall in two groups; one *neopallens* group which includes *neopallens* and *obscurus* and the second *distanti* group which includes *changamanganensis*, *coriaceus distanti* and *pallens*. In the *neopallens* group *obscurus* shows primitive characters in having head length equal to pronotal length, metathoracic scent gland with larger ostiole; *neopallens* appears advanced in having head length shorter than pronotal length, and metathoracic scent gland with smaller ostiole. In *neopallens* the inner margin of paramere with a toothlike structure at base, probably supports this assumption.

Özet

Pyrrhocoris cins grubunun (Hemiptera : Pyrrhocoridae : Pyrrhocorinae) Indo-Pakistan bölgesinde yeni bir cins ve yeni bir türünün deskripsiyonları ile aralarındaki ilişkiler

Bu çalışmada Brancuccina Ahmad and Zaidi, Courtesius Stal, *Dermatinus* Stal, *Lodosiana* Ahmad and Abbas, *Pyrrhocoris* Fallen ve *Scantius* Stal cinsleri üzerinde çalışılmış ve gözden geçirilmiş olup, Indo-Pakistan bölgesinden yeni bir cins ile iki yeni tür metathorax'a ait pis koku bezleri ostiol'leriyle erkek ve dişi genitalia'ları da gözönüne alınarak tanımlanmıştır. Yukarıda belirtilen taksonların, yeni dahil edilenleri de içerecek şekilde anahtarları yapılmış ve Pyrrhocorinae altfamilyası içinde *Pyrrhocoris* cins grubu oluşturulmuş, ayrıca Pyrrhocoridae ile ilişkileri kısaca tartışılmıştır.

References

- Ahmad, I and N. Abbas, 1984. Redescription of *Lohita grandis* (Gray) (Pyrrhocoroidea : Largidae) with reference to its relationships. *Proc. Kar. ent. Soc.*, 14 : 13.
- _____ and R. H. Zaidi, 1985a. A new genus and a new species of Pyrrhocoridae (Hemiptera : Pyrrhocoroidea) from Bhutan and their relationships. *Bull. DELA. Soc. Entomol. Suis.* (in press).
- _____ and _____, 1985b. A revision of the genus *Courtesius* Distant (Hemiptera : Pyrrhocoridae) with description of a new species from Pakistan and their relationships. *Oriental Insects.* (In press).
- Amyot, C. J. B. and J. G., Audinet-Serville, 1843. *Histoire Naturelle des insectes. Hemipteres.* lxxvi + 681. Paris.
- Bergroth, E., 1920. Hemiptera from British East Africa collected by Professor E. Lonnberg. *Arkiv. for Zoologi utgivet af K. Svenska Vetenskaps Akademien*, 12 (17) : 1-30.
- Blote, H. C., 1933. New Pyrrhocoridae in the collection of British Museum (Natural History). *Ann. Mag. nat. Hist.*, 11 : 596.
- Curtis, J., 1833. *British Entomology.* London. DA Costa-Lima, Angelo, 465.
- Distant, W. L., 1883. First report on the Rhynchota collected in Japan. by Mr. G. Lewis. *Trans. Ent. Soc. London* : 413-443.
- _____, 1904. The fauna of British India Ceylon and Burma. 2 : 114-118.
- Dufour L., 1833. Recherches anatomiques et physiologiques sur les Hemipteres etc. *Memoires de l'Academie royale des sciences : Institute de France. Savants Etrangers*, 4 :131-461.
- Fallen, C. F., 1814. *Specimen novam Hemiptera dispoenenendi methedum exhibens lund.*
- _____, 1829. *Hemiptera Sueciae. Cimicides eorumque familiae affines.* London.
- Fieber, F., 1860-61. *Die europaischen Hemiptera.* Wien.
- Flor, G., 1860. *Die Rhynchoten Livlands in Systematischer Folge beschreiben.* 2.
- Gistel, J., 1848. *Naturgeschichte des Thierreichs für honere Schulen.* Stuttgart.
- Hahn, C. W. and C. A. W., Herrich Schaffer, 1831. *Die Wanzenartigen Insecten.* Nurnberg. 9 volumes. Illustrated (Vols. 1 & 2 1833 by Hahn, the others by Herrich-Schaffer).
- Hussey, R. F., 1929. *General Catalogue of the Hemiptera Pyrrhocoridae : Northampton.*

- Kirkaldy, G. W., 1909. Hemiptera : new and old. No. 1 *Canadian Entomologist*, 51 : 30-32.
- Kolenati, F. A., 1845. Meletemata entomologica. II.
- Laporte, F. L., 1832. Essai d'une classification systematique de l'ordre des Hemipteres (Hemiptera-Heteroptera Latr.) *Magazin de Zoologie (Guerin)*, 1 Nos. 52-55.
- Latreille, P. A., 1825. Familles naturelles du regne animal, etc. Paris : 570.
- Linnaeus, C., 1758. *Syst. Nat. st. lo.*, 11 : 447.
- Puton, A., 1899. *Cat. Hem. Pal. Ed.* 4 : 38.
- Reuter, O. M., 1885. Ad cognitionem Lygaeidarum palaearticularum. *Revue d'Entomologie*, 4 : 199-233.
- Schilling, P. S., 1829. Hemiptera Heteroptera Silesiae Systematice disposita. Beitrage Zur Entomologie besonders in Bezug auf die Schlesische Fauna 1 : 34-93.
- Spinola, M., 1837. Essai sur les genres d'insectes appartenants a l'ordre des Hemipteres, Linn, ou hyngotes, Fabr., et a la section des Heteropteres, Dufour.
- _____, 1850. Tavola sinottica dei genedi spettanti alla classe de gli insecti Arthrodignati Hemiptera Linn., 43-100.
- Stal, C., 1853. Nya genera bland Hemiptera. *Ofve. Svenska. Vet. Akad. Forh.*, 10 : 259-267.
- _____, 1854. Nya Hemiptera. *Ofve. Svenska. Vet. Akad. Forh.*, 11 : 231-255.
- _____, 1855. On Thunbergska Hemipterarter. *Ofve. Svenska. Vet. Akad. Forh.*, 12 : 345-347.
- _____, 1861. Bidrag till Hemipterernas Systematik. *Ofve. Svenska. Vet. Akad. Forh.*, 18 : 195-212.
- _____, 1866. Hemiptera Africana. Stockholm. 4.
- _____, 1870. Enumeratio Hemipterorum. I. *Ofve. Svenska. Vet. Akad. Hand.*, 9 (1) : 9-124.
- _____, 1872. Genera Lygaeidarum Europae. *Ofve. Svenska. Vet. Akad. Forh.*, 29 (7) : 37-62.
- Stehlik, J. L., 1965. Mission Zoologique Del' I.R.S.A.C. En Afrique Orientale (P. Basilwsky - N. Leleup, 1957) Pyrrhocoridae (Het.). *Acta. Musei. Moraviae. Brono.*, 241-245.
- Stichel, W., 1960-62. Illustrierte Bestimmungstabellen der Wanzen, II Europe (Hemiptera : Heteroptera), Berlin 1-4 (11-14) : 353-442.

Van Duzee, 1914. A preliminary list of the Hemiptera of San Diego country, California. Transactions of the San Diego Society of Natural History, 2 : 1-57.

Vollenhoven, S. C. S., 1869. De inlandsche Hemipteren, beschreven en meerendeels ook afgebeeld, Tweede stuk. Tijdschrift voor Entomologie, 12 : 49-74.

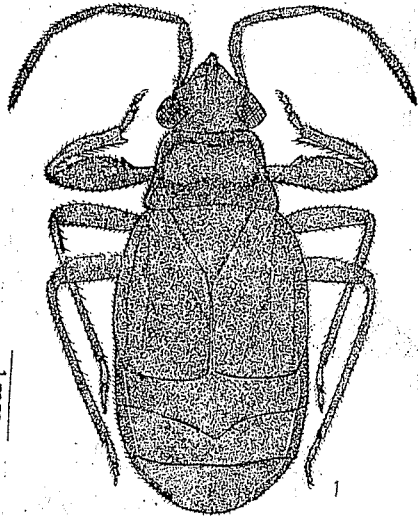
Walker, F., 1872. Catalogue of the specimens of Hemiptera Heteroptera in the collection of the British Museum, London.

Westwood, J.O., 1840. An introduction to the modern classification of insects, founded on the natural habits and corresponding organization of the different families, London, 2 : 122.

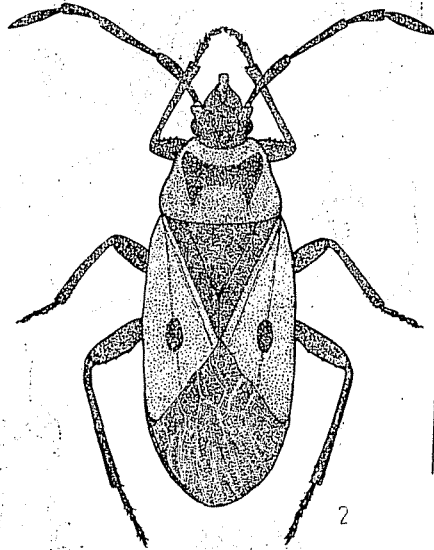
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Illustration of figures

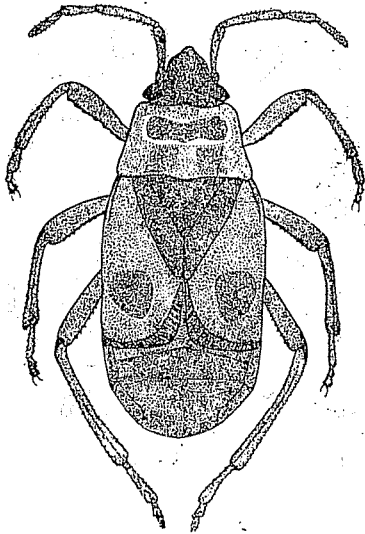
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	2. <i>Lodosiana aegyptius</i>	Dorsal view
	3. <i>Pyrrhocoris apterus</i>	Dorsal view
	4. <i>Scantius neopallens</i>	Dorsal view
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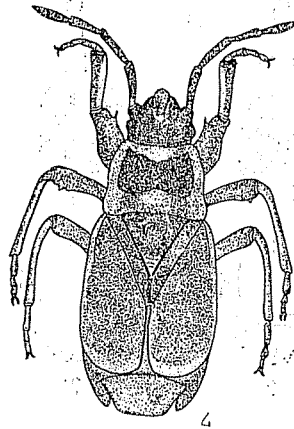
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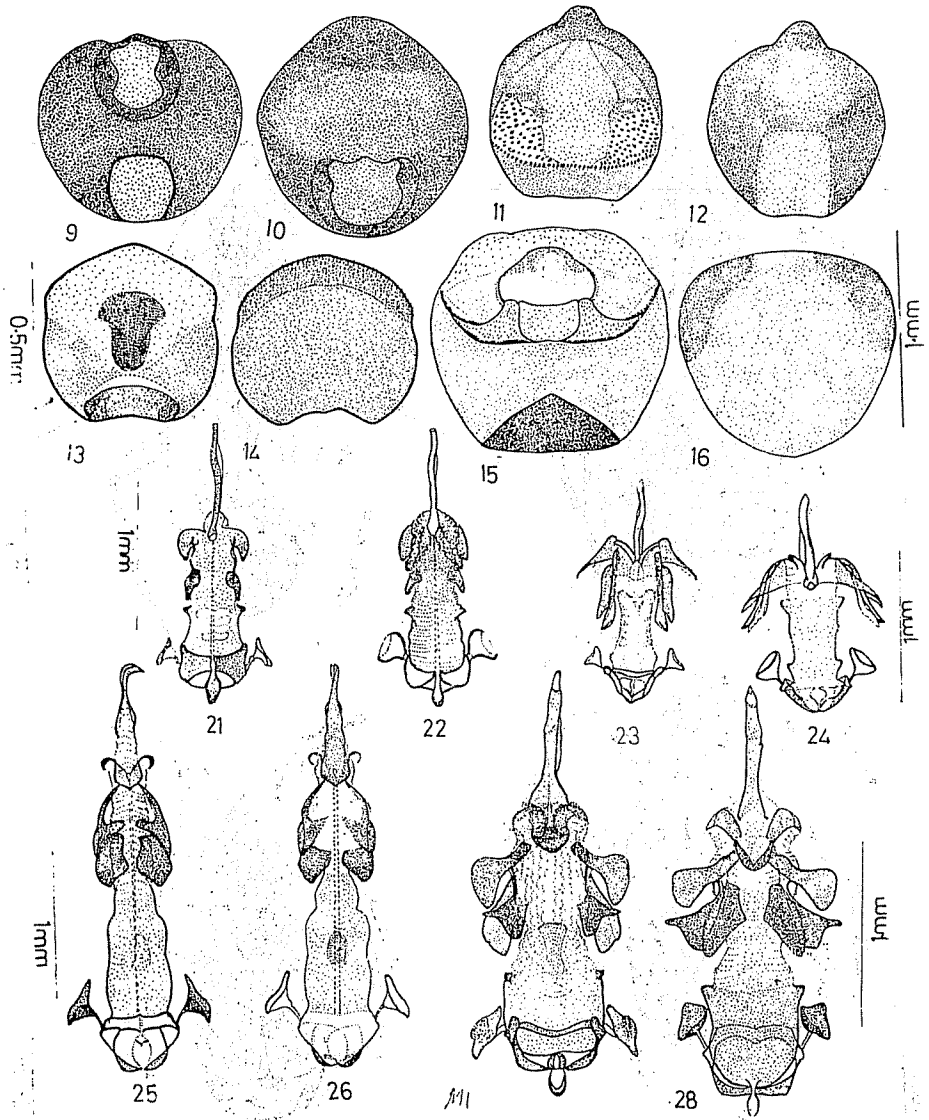
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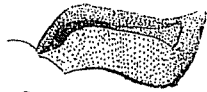


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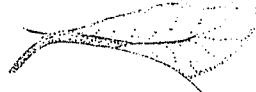




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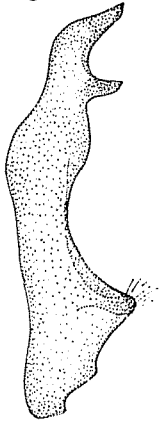


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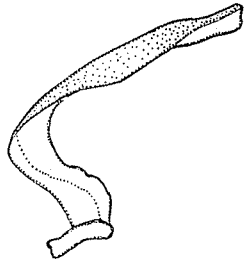


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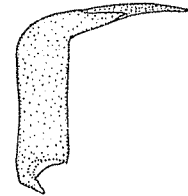
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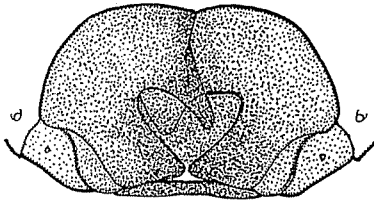


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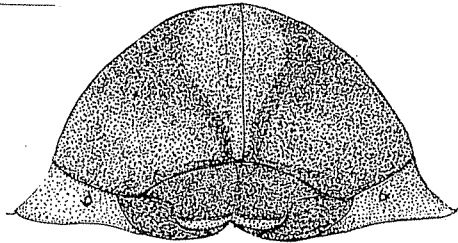


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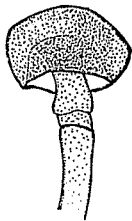
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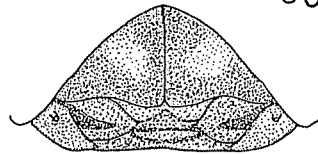


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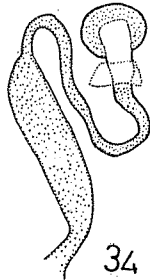


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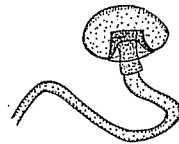
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