

**A REVISION OF THE GENUS *DERMATINUS* STAL (HEMIPTERA: PYRRHOCORIDAE) FROM INDO-PAKISTAN SUBCONTINENT AND THEIR RELATIONSHIPS<sup>1</sup>**

IMTIAZ AHMAD &amp; FATIMA ALI MOHAMMAD

Department of Zoology, University of Karachi

The genus *Dermatinus* Stal along with *D. erebus* Distant and *D. lugubris* Distant are redescribed with special reference to their metathoracic scent gland ostioles and male and female genitalia and compared with their closest ally *D. pakistanensis* Ahmad and Abbas from Indo-Pakistan sub-continent. A key to all the above taxa is given and in the light of the above characters the relationships of the included taxa are also briefly discussed.

**Introduction**

*Dermatinus* was originally described as a monotypic genus by Stal (1853) to accommodate the only species *lugens* Fabricius. Distant (1904 and 1910) later described two species *lugubris* from Madras and *erebus* from Lucknow and Ceylon, incorrectly citing *limbifer* Stal as type of *Dermatinus* Stal. More recently Stehlik (1965) reviewed the genus *Adheris* Bergroth 1906 alongwith two already described species *pulla* Bergroth and *africana* Courteaux with several of his new species from different part of Africa and suspected that most of the species of the genus *Dermatinus* would have to be transferred to *Adheris* but *Dermatinus* would comprise *lugubris* and *limbifer*.

During a revision of Pyrrhocoridae from Indo-Pakistan subcontinent the present first author got an opportunity to visit British Museum Natural History, London and United States National Museum, Washington and examined the holotypes and many determined specimens of *lugubris* and *erebus* by the courtesy of Mr. W. R. Dolling and Dr. R. C. Froeschner and Dr. T. J. Henry respectively of the above museums. It was confirmed during the present studies that not only *pakistanensis*, earlier described by Ahmad and Abbas (1985) was a valid taxon but this alongwith Distant's *erebus* and *lugubris* actually belonged to *Dermatinus* Stal and were congeneric with *lugens* (Fabr.).

As Distant species *erebus* and *lugubris* were primarily based on colour and some

---

1. Financially supported by an USDA/PARC Research Project No. FG-Pa-361 (PK-SEA-155).

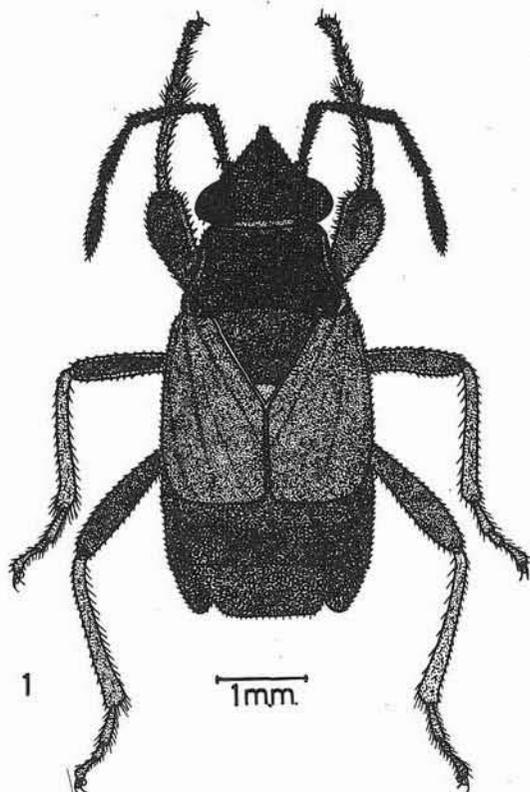


Figure 1: *Dermatinus lugubris* Distant; male dorsal view.

external characters these are presently described with reference to metathoracic scent gland complex and male and female genitalia alongwith a key to the species of the Indo-Pakistan subcontinent and in this light the relationships of the included taxa are also briefly reviewed.

For description, measurements, diagrams and for inflation of aedeagus the methods of Ahmad and Kamaluddin (1985) were generally followed. Keeping the pygophore over night in 10 % KOH solution helped the inflation complete. 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.

#### **Dermatinus** Stal

*Dermatinus* Stal, 1853; Öfvers. K. svenska. Vetensk. Akad. Förh. 10: 260; 1854; Öfvers. K. svenska. Vetensk. Akad. Förh. 11: 236; 1855; Öfvers. K. svenska. Vetensk. Akad. Förh. 18: 196;

1866; Hem. afr. 3: 4 & 12; 1870; Enum. Hem. 1: 103 & 114; Distant, 1904; Brit. Ind. Rhy. Hem. 2: 115; Hussey, 1929; Gen. Cat. Hem. 1929: 68; Stehlik, 1965; Acta. Musei. Moraviae. Brno. 241; Ahmad and Abbas, 1985; Turk. Bit. Kor. Derg. (In press).

*Pyrrhocoris* Walker, 1872; Cat. Heter. 5: 167.

Type species: *Dermatinus lugens* (Fabr.)

Body small, oval; usually brownish black; thickly punctate. Head with or without posterior ochraceous band; basal antennal segment always shorter than head length. Pronotum trapezoidal; fore femora much incrassate, baset with stout denticles; metathoracic scent gland complex with well developed peritreme; hemelytra reaching to middle of 5th abdominal segment.

Male genitalia: With pygophore broader than long; paramere always apically bifurcated into two processes; inflated aedeagus with 2 pairs of dorsolateral and a pair of ventral membranous conjunctival appendages.

Female genitalia: With spermatheca having distal duct much longer than proximal duct.

### Key to the species

1. Head black without an ochraceous band on posterior margin, labium with basal segment longer in size, scutellum nearly twice broader than long, metathoracic scent gland ostiole with remarkably developed evaporating area, paramere with blade more or less lunate . . . . . *erebus* Distant.

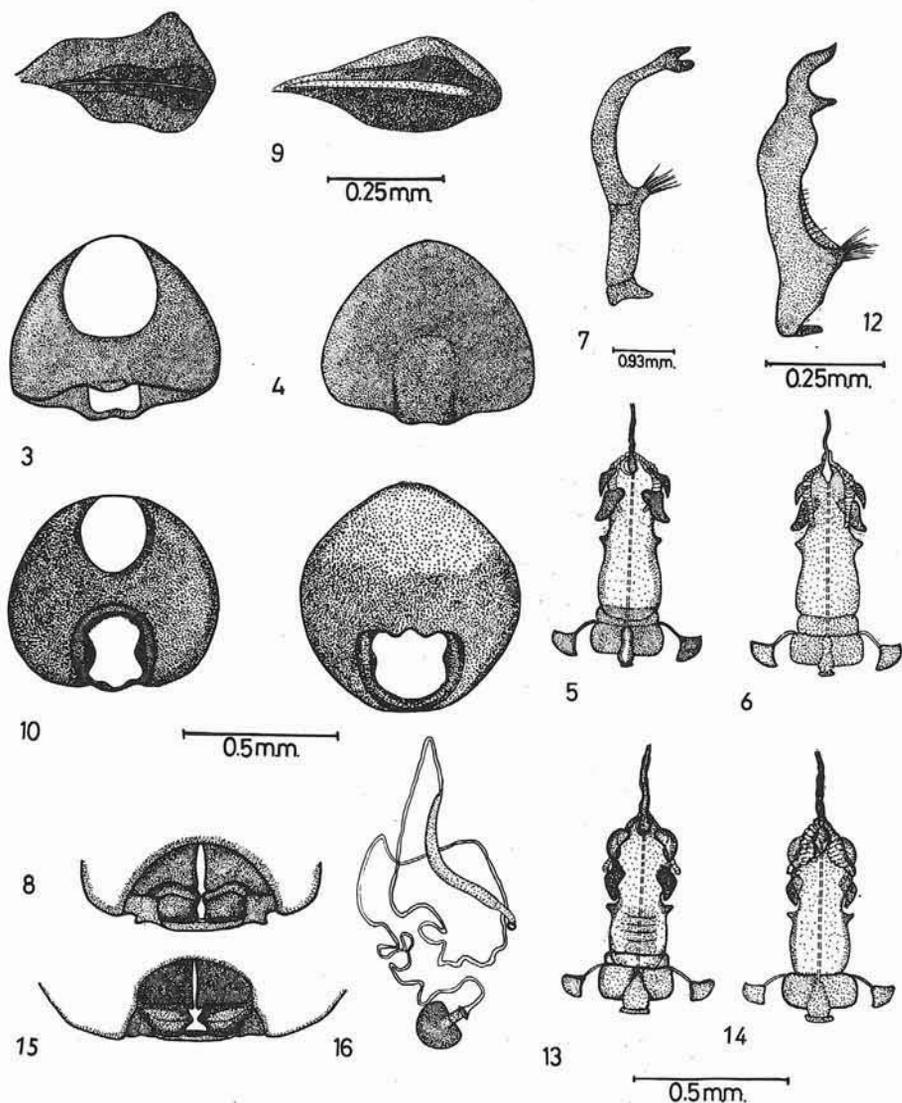
– Head dark castaneous, with a prominent ochraceous band on posterior margin, labium with 2nd segment longer in size; scutellar length and width almost equal, metathoracic scent gland ostiole not as above, paramere with blade obliquely concave . . . . . 2

2. Pronotum with a distinct slightly ochraceous concave posterior band, lateral margins entirely strongly reflexed, posterior margin truncated, medially deeply concave, metathoracic scent gland ostiole with anterior margin of peritreme distinct, evaporating area less distinct, somewhat rounded, paramere with denser and longer setae at the concavity with subacute apices, thecal appendages subacute and dorsal thecal sclerotized markings more in number and more distinct . . . *lugubris* Distant

– Pronotum without a posterior band and of uniform colour, only anteriolateral margins weakly reflexed, posterior margin straight, only very slightly concave medially, metathoracic scent gland ostiole with anterior margin of peritreme indistinct, merging with evaporating area, latter more distinct triangular, paramere with smaller and shorter setae at the concavity with rounded apices, thecal appendages rounded in shape, and dorsal thecal sclerotized markings less in number and more or less indistinct. . . . . *pakistanensis* Ahmad and Abbas

### *Dermatinus erebus* Distant

*Dermatinus erebus* Distant, 1909; Ann. Soc. Ent. Belg. 53: 360; 1910; Brit. Ind. Rhy. Lond. 5: 97; Hussey, 1929; Gen. Cat. Hem.: 68.



Figures 1-8: *Dermatinus erebus* Distant; metathoracic scent gland ostiole; 2: ventral view. Pygophore; 3: dorsal view; 4: ventral view. Inflated aedeagus; 5: dorsal view; 6: ventral view; 7: lateral view female terminalia; 8: ventral view. Figures 9-16: *Dermatinus lugubris* Distant; metathoracic scent gland ostiole; 9: ventral view. Pygophore; 10: dorsal view; 11: ventral view. Paramere; 12: Lateral view: inflated aedeagus; 13: dorsal view; 14: ventral view. Female terminalia. 15: ventral view. 16: spermatheca.

Entire head, entire antennae, except labium, entire pronotum, entire scutellum, except apex clavus, corium, venter, femora except base and apex and terga black; basal labial segment castaneous, remaining segments, base and apex of femora, tibiae, and tarsal segments brownish ochraceous; apex of scutellum ochraceous; entire body except connexiva covered with small greyish silky hairs; head, pronotum, scutellum, clavus and corium finely punctate fore femora without inner row of spines, outer row with uniform denticles on the margin of a dilated portion, small denticles in a row, more inwardly placed, more conspicuous.

Anteocular region almost equal to posterior of head including eyes, length of head distinctly shorter than width; length 0.7; width 1.2; antennae with 2nd and 4th segments longest and subequal, length of antennal segments I 0.5, II 0.9, III 0.55, IV 0.95, antennal formula 1 = 3 2 4; labium distinctly passing beyond posterior coxae, reaching to 3rd abdominal venter, length of labial segments I 1.0, II 0.9, III 0.7, IV 0.4, labial formula 4 3 2 1; length anterior of head excluding eyes 0.4; length posterior of head including eyes 0.3; interocular distance 0.69.

Pronotum slightly less than twice broader than long, anterior of pronotum much narrower than posterior margin, only anterolateral margins distinctly reflexed and posterior margin truncate, length 0.8; width 1.45; scutellum twice broader than long, length 0.4; width 0.8; metathoracic scent gland ostiole with a distinct evaporating area, apex of peritreme broad and rounded, abdomen largely exposed; hemelytra reaching to base of fourth abdominal segment, posterior margin of 7th abdominal sternum in male truncated; distance apex scutellum-apex corium 1.2; apex corium-apex abdomen 1.25. Total length ♂ 4.35, ♀ 5.5.

Pygophore with posteriodorsal surface concave, ventroposterior margin medially notched; paramere with broad blade, stem inwardly deeply concave, apex bifurcated into 2 processes, outer one with acute apex and inner one with rounded apex; inflated aedeagus with two pairs of dorso-lateral conjunctival appendages, anterior narrowed leaf like, posterior one broad sole-like, and sclerotized; and a pair of ventral leaf-like membranous appendages at the base of vesica, latter short and with a rounded gonopore.

First gonocoxae broad, anterior margin medially deeply concave, apices subacute, 8th paratergite longer than 9th paratergite; former triangular in shape with posterior margin concave; 9th paratergite narrow and elongated; spermatheca mutilated in the specimen.

Material examined: Holotype ♂ India: Lucknow, R.H. Mov., 3.11.1908, „Dist. Coll., 1911-383, „type“ „*Dermatinus erebus* Distant“ in BMNH. 1 ♂, 1 ♀ Ceylon „18-11-1907“ „Dist. coll., 1911-383 in BMNH.

It is most closely related to *lugubris* in having anterior margin of peritreme distinct and in paramere having dense and long setae at apex of stem near concavity but in fact it is isolated in the entire genus in having head black, without an ochraceous band on posterior margin and scutellum twice broader than long and in other characters as noted in the key.

### ***Dermatinus lugubris* Distant**

*Dermatinus lugubris* Distant, 1904; Brit. Ind. Rhy. Lond. 2: 115; Lefroy, 1909; Rec. Ind. Mus. 3: 326; Hussey, 1929; Gen. Cat. Hem.: 69.

Entire head except light ochraceous band on the posterior margin, entire antennae, labium, eyes, pronotum except anterior and posterior disc, entire venter, femora except apex brownish black; tibiae, tarsal segments and apices of femora light ochraceous; entire body covered with minute hairs; body finely punctate; tibiae and tarsi with small spines; fore femora in case of male with a prominent tooth at base and with a large flattened carina beset with fine bristles & denticle at ventrolateral margins; in case of female fore femora without a tooth and carina, beset with fewer bristles.

Anteocular region almost equal to postocular region including eyes; head slightly shorter than broad, length 0.19-1.1; width 1.2-1.3; length of antennal segments I 0.5-0.6, II 0.7-0.8, III 0.5-0.65, IV 0.8-0.9, antennal formula 1 = 3 2 4; labium distinctly passing beyond posterior coxae, length of labial segments I 0.8-0.9, II 0.9-1.0, III 0.5-0.6, IV 0.5, labial formula: 4 3 1 2; length of anteocular region 0.4-0.5; length of posterior of head including eyes 0.5-0.6; interocular distance 0.6-0.8.

Pronotum slightly more than twice broader than long with lateral margins strongly reflexed, anterior margin below eyes truncated, posterior margin medially concave, length 0.6, width 1.5; scutellum nearly as long as broad, length 0.9-1.1, width 0.9-1.1; metathoracic scent gland ostiole with slightly more elongated peritreme, apex broad and somewhat rounded; abdomen posteriorly exposed, lateral margins slightly reflexed; hemelytra usually reaching to posterior margin of 5th abdominal segment, posterior margin of 7th abdominal sternum truncated, length apex scutellum-apex clavus- 1.3-1.8; apex clavus-apex corium 0.7-1.0; apex corium-apex abdomen 1.2-1.8. Total length ♂ 4.7-5.0, ♀ 5.5-6.5.

Pygophore with posteriodorsal surface slightly concave, ventroposterior margin laterally rounded, medially bilobed; parameres with broad blade, stem deeply obliquely concave, having a bunch of more dense and longer setae at the concavity, latter with somewhat subacute apices, then abruptly narrowing anteriorly, distal end bifurcated into outer long and inner short processes with acute apex; inflated aedeagus with two pairs of dorsolateral conjunctival appendages anterior one kidney shaped, sc-

lerotized at the sides and apices, posterior one somewhat sole like flatened and sclerotized, a pair of ventral broad membranous appendages at the base of the vesica; theca medially with 3-4 most prominent irregular sclerotized rings; vesica broad at base but more elongated in appearance.

1st gonocoxae comparatively broad, slightly overlapping each other with anterior margins deeply concave, medially bifurcated; 8th paratergites shorter than 9th paratergites, latter somewhat elongated and triangular; spermathecal bulb globular, with distinct proximal and distal flanges, distal duct having less convolutions, opening into a thick coma-like proximal duct.

Material examined: 2 ♂♂, 1 ♀ South India: Karikal Territory, Kurumbagarum. 19.3.1951, 21.4.1951, leg. P.S. Nathen in Lutz collection, USNM, 1 ♂ and 1 ♀ South India, T.V. Campbell „1930-599“ in BMNH.

It is most closely related to *D. erebus* as noted in the comparative note of *erebus* but could easily be separated from it in having distinct posterior concave band on pronotum and strongly reflexed lateral margins and other characters as noted in the key and description.

### ***Dermatinus pakistanensis* Ahmad and Abbas**

*Dermatinus pakistanensis* Ahmad and Abbas Turk. Bit. Kor. Derg. (In press)

*Dermatinus* Stal presently with three Oriental species is represented by brachypterous 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* Distant *Lodosiania* Ahmad and Abbas, *Pyrrhocoris* Fallen and *Scantius* Stal. 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, antecular distance equal to post ocular region including eyes and in having balde of the paramere with broad bifurcated apex.

Among the species of *Dermatinus* *erebus* appears more primitive in contrast to *lugubris* and *pakistanensis* in retaining an unicolours body, head without an ochraceous band on posterior margin, labium with basal segment longer in size and scutellum twice broader than long. In the latter group *pakistanensis* appears more advanced in having paramere with smaller and shorter setae at the concavity with rounded apices, dorsal thecal sclerotized markings less in number and not prominent, in contrast to *lugubris* having paramere with dense and long setae at the concavity with subacute apices, thecal appendages subacute and dorsal thecal sclerotized markings more in number and prominent.

### References

- Ahmad I. & Abbas N., 1985: An analysis of *Pyrrhocoris* group (Hemiptera: Pyrrhocoridae) from Indo-Pakistan subcontinent and their relationships. *Turk. Bit. Kor. Derg.* (In press).
- Ahmad I. & Kamaluddin S., 1985: A new genus and a new species of Pyrrhocoridae (Hemiptera: Pyrrhocoridae) from Oriental region and their relationships. An invitational paper to celebrate 70th birth day of Dr. R. C. Froeschner, United States National Museum, Washington, USA.
- Bergroth E. 1906. Rhynchota Aethiopica. *Ann. Soc. Entomol. Belgique*, London. **5**: 50-200.
- Distant W.L., 1904. The fauna of British India, including Ceylon and Burma. Rhynchota (Heteroptera) vol. II. Taylor and Francis, London.
- Distant W.L., 1909: Rhynchota (Heteroptera) from British India. *Ann. Soc. Entomol. Belgique*, London. **53**: 360-376.
- Distant W.L., 1910: The fauna of British India, Rhynchota vol. **5**. Taylor and Francis, London.
- Hussey R.F. 1929: Pyrrhocoridae. General Catalogue of the Hemiptera, Northampton.
- Lefroy M. Max Well., 1909: The Insect fauna of Tirhut, No. 1, Rhynchota Heteroptera. *Records of the Indian Museum*, Calcutta, **3**: 301-338.
- Stal C., 1853: Nya genera bland Hemiptera. *Öfvers. K. svenska. Vetensk. Akad. Forh.* **10**: 260.
- Stal C., 1854: Nya Hemiptera. *Öfvers. K. svenska. Vetensk. Akad. Forh.* **11**: 231-255.
- Stal C., 1855: Om Thunbergska Hemipterarter. *Öfvers. K. svenska. Vetensk. Forth.* **12**: 345-347.
- Stal C., 1861: Bidrag till Hemipterans Systematik. *Öfvers. K. svenska. Vetensk. Akad. Forh.* **18**: 195-212.
- Stal C., 1866: Hemiptera Africana, Stockholm. **4**:
- Stal C., 1870: Enumeratio Hemipterorum. *I.K. svensk. Vetensk. Akad: Hand.* **1**: 90-124.
- 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.* Brno. **241-245**.
- Walker F., 1872: Catalogue of the specimens of Hemiptera Heteroptera in the collection of the British Museum, London. **5**: 167.