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Taxonomic notes on five species of the genus *Cletus* Stål (Heteroptera: Coreidae) from northern India with particular reference to their female genitalia

Rashmi Gupta, Devinder Singh**ABSTRACT**

Morphological attributes and external female genitalia of five species belonging to the genus *Cletus* Stål collected from North India have been studied. Detailed descriptions, synonymy, material examined, measurements and details of various structures have been provided. Photographs of different morphological features as well as of female genitalia have been given. A dichotomous key has also been included for the studied species.

Keywords: *Cletus*, Taxonomy, India, Genitalia, Coreidae

Abbreviations: DSD: Distal Spermathecal Duct, DV: Dorsal View, F: Flange, Fig.: Figure, GP: Gonoporal Process, Gx: Gonocoxa, mm: Millimeters, PF: Proximal Flange, PSD: Proximal Spermathecal Duct, Pt: Paratergite, S: Sternite, SB: Spermathecal bulb, VV: Ventral View.

1. Introduction

Genus *Cletus* is widely distributed throughout the world especially in the Oriental region. The species belonging to this genus are characterized by having oblong and subcompressed body with lateral angles of the pronotum acutely produced. The female genitalia consists of two main parts i.e. genital plate and spermatheca. According to Distant^[1-5] thirteen species have been reported from British India.

Bugs were collected with the help of insect net from leaf litter and by beating vegetation and branches of trees below which a white sheet was spread. After collection, the insects were killed with ethyl acetate vapours and pinned, stretched and kept in wooden boxes for further examination. For studying female genitalia the methodology and terminology given by Scudder^[6] have been followed. No significant work has been done on Indian Coreidae after Distant. According to Schuh and Slater^[7], eight species belonging to the genus *Cletus* are known from India.

2. Key to the studied species of genus *Cletus* Stål

1. Female 10.00-10.30 mm long; flange of spermatheca larger, distal spermathecal duct shorter, proximal spermathecal duct longer; spermathecal bulb nearly of equal thickness with tip of one side narrow, sternite 7 not broad, gonocoxa 1 smaller..... 2

- Female 7.50- 9.00 mm long; flange of spermatheca shorter, distal spermathecal duct much longer, proximal spermathecal duct shorter; two third of spermathecal bulb broad, one third narrow, sternite 7 broader, gonocoxa 1 larger..... *trigonus* (Thunberg)

2. Humeral angle right angled and at level of pronotum; proximal spermathecal duct shorter, apex of sternite 7 less curved..... 3

-Humeral angle acutely pointed, directed forward and upwards; proximal spermathecal duct long, apex of sternite 7 steeply curved..... *punctiger* (Dallas)

3. Humeral spines not acute; spermathecal bulb of equal length throughout, outer angle of sternite 7 acute..... *bipunctatus* (Westwood)

-Humeral spines acute; spermathecal bulb not of equal length throughout, outer angle of sternite 7 almost right angled.....4

4. Body dark yellow with reddish tinge; base of antennal segment IV dark brown, apical area light brown; apex of corium red; Female genitalia with bulb apically narrow, flange broader and shorter; gonocoxa 1 small..... *rubidiventris* (Westwood)

-Body light yellow; antennal segment IV throughout same color; apex of corium yellowish brown; Female genitalia with bulb less narrow apically, flange narrower and longer; gonocoxa 1 bigger..... *punctulatus* (Westwood)

3. *Cletus trigonus* (Thunberg) (Figs. 1-7)

Cimex trigonus, Thunberg, 1783, Nov. Ins. Sp., 2: p. 37.

Cimex pugnator, Fabricius, 1787, Mant., 2: p. 287.

Cletus pugnator, Stal, 1868, Hem. Fabr., 1: p. 60.

Gonocerus acutus, Dallas, 1852, List Hem., 2: p. 495.

Cletus bistillatus: Dohrn, 1860, Stett. ent. Zeit., 21: p. 403.

3.1 Dorsal coloration

Head dark yellow with brown punctures; antennal segment I red, segments II and III reddish ochraceous, segment IV dark brown with apex light brown and with pubescence, segments with yellow granules; eyes blackish yellow; ocelli red; pronotum pale yellow with black punctures more dense towards posterior side, two yellowish discoidal spots on anterior side, posterior region densely punctuated, humeral angles with large acute black spine; scutellum yellow with pale yellow apex and with small yellow punctures; clavus reddish yellow with black punctures; corium yellow with reddish tinge and with black punctures, anterior two third of lateral margins bright yellow with serrations, posterior one third of lateral margin dark brown, two bright yellow discoidal spots on apical edge; hemelytral membrane brassy; connexival segments yellow.

3.2 Ventral coloration

Venter of head yellow, rostral segments I-IV yellow, apex of IV reddish brown; anterior and posterior lobes of metathoracic peritreme yellow; prosternum, mesosternum and metasternum yellow with small brown punctures with black spot on each segment; abdominal sternites yellow with greenish tinge, rows of black spots on each abdominal sternite; genital plate dark yellow; legs dark brown with brown punctures and with pubescence, black spots present, coxae yellow with greenish tinge.

3.3 Structure:

3.3.1 Head (Fig. 2)

Head subquadrate, declivent, longer than wide, clypeus longer than paraclypei, clypeus and paraclypei fused, a longitudinal slit on middle of head, length of antecular region less than remainder of head; antenniferous tubercles widely separated; antennal segment I

uniformly stout, II and III slender, cylindrical, segment IV clavate; buccula long extending beyond antenniferous tubercles, antennal formula I < IV < III < II; rostrum reaching beyond mesocoxae, rostral formula III < IV < II < I.

3.3.2 Thorax

Pronotum (Fig. 3) gradually declivent, length distinctly shorter than width, anterior angles acute, anterior margin concave, anterolateral margins substraight and serrate, posterolateral margins sinuate, posterior margin concave, humeral angles with a large outwardly directed spine; anterior third of corium serrate; scutellum triangular, apex acute, wider than long; ostiolar peritreme (Fig. 4) with anterior margin prominent and round, anterolateral projection subround, posterolateral projection subround; evaporatoria anteriorly prominent, posteriorly subprominent, laterally well developed; legs slender, pubescent, femora clavate.

3.3.3 Abdomen

Hemelytra membrane reaching last abdominal segment. Segments of connexiva visible from outside with lateral sides serrate, anterior and posterior margins of segments substraight, lateral margins sinuate; Abdominal sternite VII distinctly divided, inner angles acute, lateral angles subacute, posterior margin sinuate (Fig. 5).

3.3.4 Genitalia

(Fig.6) Gonocoxa 1 as long as broad, outer lateral margins subround, apex fused, narrow with blunt edge, inner margin straight, 8th paratergite triangular with blunt apex, outer lateral margin straight, 9th paratergite triangular with outer lateral margin substraight, apex narrow, inner margin substrate; spermatheca (Fig.7) with bulb long rod shaped with narrow apex, distal spermathecal duct long and highly convoluted thin tube, median dilation in form of spherical bulb, proximal flange prominent, proximal spermathecal duct short.

3.3.5 Measurements (in mm)

Head length: 1.30; width across eyes: 1.25; length of intraocular region: 0.60; length of remainder head: 0.70; interocular space: 0.75; interocellar space: 0.30; length of antennal segments I: 1.02, II: 1.60, III: 1.35, IV: 0.95; length of labial segments I: 1.00, II: 0.80, III: 0.52, IV: 0.55; pronotum length: 1.85, width across humeral angles: 3.35; scutellar length: 1.25; width: 1.30; length base scutellum to apex clavus: 2.00; length apex scutellum to apex abdomen including membrane: 4.50; maximum width of abdomen: 3.00; total body length: 8.20.

3.3.6 Specimens examined

10♂, 10♀, INDIA: Panjab: Patiala, 7.vii.2009, coll. Rashmi Gupta: 10♂, 5♀, INDIA: Uttarakhand: Dehradun, 26.vii.2009, coll. Rashmi Gupta.

3.3.7 Distribution

India (Panjab, Uttarakhand, West Bengal), Sri Lanka; Borneo, Philippines.

3.3.8 Remarks

This species is found in abundance from wild vegetation as well as from crop fields.

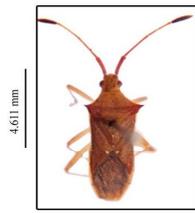
Cletus trigonus (Thunberg)

Fig. 1 Adult



Fig. 2 Head



Fig. 3 Pronotum

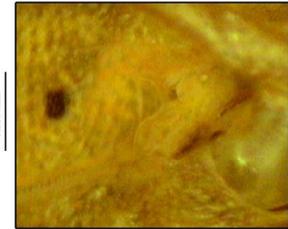


Fig. 4 Ostiolar peritreme



Fig. 5 Female abdomen (V. V.)



Fig. 6 Genital plate

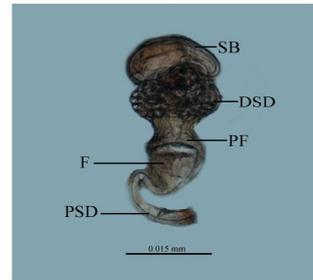


Fig. 7 Spermatheca

4. *Cletus punctiger* (Dallas) (Figs. 8- 14)

Gonocerus punctiger, Dallas 1852, *List Hem.*, 2: p. 494.

Var., Distant 1879, *Sec. Yarkand Miss., Rhynch.*, p. 8.

Homoeocerus minax, Walker 1871, *Cat. Het.*, 4: 99, 26.

Cletus punctiger: Distant 1902, *Fauna Brit. Ind.*, 1: p. 393.

4.1 Dorsal coloration

Head dark yellow with brown punctures; antennal segments I-III reddish brown, segment IV dark brown with pubescence, antennal segments with yellow granules; eyes blackish yellow; ocelli red; pronotum dark yellow with black punctures more dense toward posterior side, two yellowish discoidal spots present on anterior side, two black spots on posterior side, posterior region densely punctuated, humeral angles with small subacute brown spine; scutellum yellow with small yellow punctures; clavus yellow with black punctures; corium yellow with reddish tinge and black punctures present on corium, anterior two third of lateral margins bright yellow with serrations, posterior one third of lateral margin dark brown, two bright yellow discoidal spots on apical edge; hemelytral membrane brassy; connexival segments brownish yellow.

4.2 Ventral coloration

Venter of head yellow; rostral segments I-IV yellow, apex of IV reddish brown; anterior and posterior lobes of metathoracic peritreme yellow; prosternum, mesosternum and metasternum yellow with small brown punctures, a black spot on each sternite; abdominal sternites yellow with greenish tinge, rows of black spots on each abdominal sternite; genital plate dark yellow; legs dark brown with brown punctures and with pubescence, black spots present, coxae yellow with greenish tinge.

4.3 Structure:**4.3.1 Head (Fig. 9):**

Head subquadrate, declivent, as long as wide, clypeus longer than paraclypei, clypeus and paraclypei fused, a longitudinal slit on middle of head, length of anteocular region less than remainder of head; antenniferous tubercles widely separated; antennal segment I

stout, II and III slender, segment IV clavate; buccula long, extending beyond antenniferous tubercle, antennal formula IV < I < III < II; rostrum long, reaching beyond mesocoxae, rostral formula III < IV < II < I.

4.3.2 Thorax

Pronotum (Fig. 10) gradually declivent, length distinctly shorter than width, anterior angles subacute, anterior margin concave, lateral margins obliquely substraight and serrate, posterolateral margins sinuate, posterior margin concave, humeral angles acutely spinous and more produced, spines directed outward; anterior third of corium serrate; scutellum triangular, apex acute, wider than long; ostiolar peritreme (Fig. 11) with anterior margin prominent and round, anterolateral projection and posterolateral projection sinuate; evaporatoria anteriorly prominent and narrow, posteriorly subprominent, laterally well developed; legs slender, pubescent, femora clavate.

4.3.3 Abdomen

Hemelytra membrane reaching above last abdominal segment; segments of connexiva visible from outside, anterior and posterior margins of segments substraight, lateral margins substraight and serrate, abdominal sternite VII indistinctly divided, inner angles acute, lateral angles subacute, posterior margin sinuate (Fig. 12).

4.3.4 Genitalia

(Fig. 13) Gonocoxa 1 broader than long, outer lateral margins subround, inner margins sinuate, apex subround with blunt edges, 8th patergite squarish with substraight margin and apex broad with substraight margin, 9th paratergite longer than 8th and squarish, lateral margin obliquely straight, apex broad and sinuate, inner margin straight; spermatheca (Fig. 14) with long tubular bulb and narrow apex directed posteriorly, distal spermathecal duct sclerotized and highly convoluted, median dilation broad funnel shaped, proximal flange prominent, proximal spermathecal duct long.

4.3.5 Measurements (in mm): Head length: 1.30; width across

eyes: 1.50; length of anteocular region: 0.52; length of remainder head: 0.78; interocular space: 0.95; intercellular space: 0.35; length of antennal segments I: 1.52, II: 2.25, III: 1.60, IV: 0.75; length of labial segments I: 1.10, II: 1.00, III: 0.60, IV: 0.75; pronotum length: 2.35; width across humeral angles: 4.35; scutellar length: 1.50; width: 1.50; length base scutellum to apex clavus: 2.60; length apex scutellum to apex abdomen including membrane: 5.30; maximum width of abdomen: 3.00; total body length: 10.00.

4.3.6 Specimens examined: 3♂, 2♀, INDIA: Himachal Pradesh:

Shimla, 14.viii.2010, coll. Rashmi Gupta; 3♂, 3♀, Himachal Pradesh: Shimla, 15.x.2011, coll. Rashmi Gupta

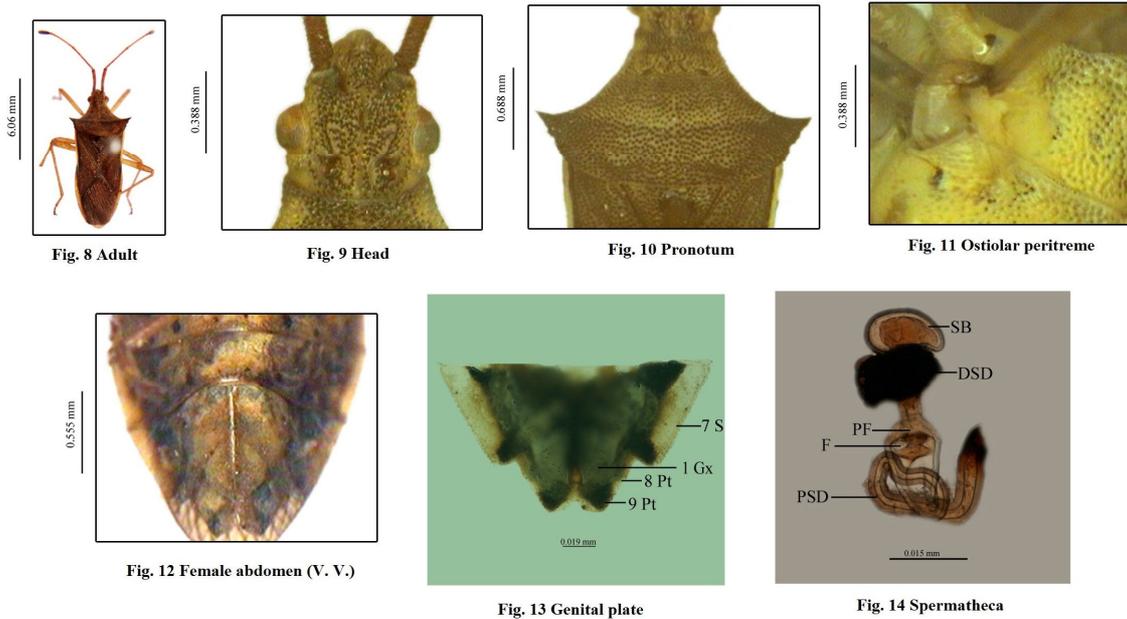
4.3.7 Distribution

China; India: West Bengal, Punjab and Himachal Pradesh.

4.3.8 Remarks

This species is found in abundance from wild vegetation along with another species *C. bipunctatus* to which it is closely allied but differs by the characters as given in the key.

Cletus punctiger (Dallas)



5. *Cletus bipunctatus* (Westwood) (Figs. 15- 22)

Coreus bipunctatus, Westwood 1842, in *Hope Cat.* 2: p. 23.
Cletus signatus, Walker (part.) 1871, *Cat. Het.*, 4: pp. 194, 39.
Cletus inconspicuous, Walker 1871, *loc. Cit.* pp. 195, 42.
Cletus bipunctatus: Distant 1902, *Fauna Brit. Ind.*, 1: p. 393.

5.1 Dorsal coloration

Head dark yellow with brown punctures; antennal segments I and III reddish brown, segment II brown, anterior half of segment IV dark brown, posterior half light brown, segment IV with pubescence, segments with yellow granules; eyes blackish yellow; ocelli red; pronotum pale yellow with black punctures more dense toward posterior side, two yellowish discoidal spots on anterior side, posterior region densely punctuated, humeral angles with small subacute brown spine; scutellum yellow with small yellow punctures; clavus yellow with black punctures; corium yellow with reddish tinge and black punctures, anterior two third of lateral margins bright yellow with serrations, posterior one third of lateral margin dark brown, two bright yellow discoidal spots on apical edge; hemelytral membrane brassy; connexival segments brownish yellow.

5.2 Ventral coloration

Venter of head dark yellow; rostral segments I-IV yellow, apex of segment IV reddish brown; anterior and posterior lobes of metathoracic peritreme yellow; prosternum, mesosternum,

metasternum yellow with small brown punctures, a black spot on each segment; abdominal sternite yellow with greenish tinge, rows of black spots on each abdominal sternite; genital plate dark yellow; legs dark brown with brown punctures and with pubescence, black spots present, coxae yellow with greenish tinge.

5.3 Structure

5.3.1 Head (Fig. 16)

Head subquadrate, declivent, almost as long as wide, clypeus longer than paraclypei, clypeus and paraclypei fused, a longitudinal slit on middle of head, length of anteocular region less than remainder of head; antenniferous tubercles widely separated; antennal segment I stout, II and III slender, cylindrical, segment IV clavate; buccula long, extending beyond antenniferous tubercles, antennal formula $IV < III = I < II$; rostrum long, reaching up to metacoxae, rostral formula $III < IV < I = II$.

5.3.2 Thorax

Pronotum (Fig. 17) gradually declivent, length distinctly shorter than width, anterior angles subacute, anterior margin substraight, lateral margins curved and serrate, posterolateral margins sinuate, posterior margin concave, humeral angles with small sized spine; anterior third of corium serrate; scutellum triangular, apex acute, wider than long; ostiolar peritreme (Fig. 18) with anterior margin prominent and round, anterolateral projection sinuate, posterolateral projection subprominent; evaporatoria anteriorly

prominent, posteriorly subprominent, laterally well developed; legs slender, pubescent, femora clavate.

5.3.3 Abdomen

Hemelytral membrane reaching last abdominal segment; segments of connexiva visible from outside, anterior and posterior margins of segments substraight, lateral margins sinuate, abdominal sternite VII indistinctly medially divided (Fig. 19).

5.3.4 Genitalia

(Fig. 20) Gonocoxa 1 triangular, outer lateral and inner margins sinuate, apex subround with blunt edges, 8th paratergite rectangular with outer and inner margins sinuate and apex broad with substraight margin, 9th paratergite smaller than 8th and triangular, apex narrow, outer and inner margins substraight; spermatheca (Fig. 21) with long tubular bulb and narrow apex directed posteriorly, distal spermathecal duct sclerotized and highly convoluted, median dilation broad, funnel shaped, proximal flange prominent, proximal spermathecal duct of moderate length.

5.3.5 Measurements (in mm)

Head length: 1.35; width across eyes: 1.50; length of anteocular region: 0.65; length of remainder head: 0.70; interocular space:

0.85; interocellar space: 0.35; length of antennal segments I: 1.50, II: 1.85, III: 1.55, IV: 1.05; length of labial segments I: 1.00, II: 1.20, III: 0.70, IV: 0.50; pronotum length: 2.50, width across humeral angles: 4.50; scutellar length: 1.50; width: 1.75; length base scutellum to apex clavus: 2.50; length apex scutellum to apex abdomen including membrane: 5.50; maximum width of abdomen: 3.70; total body length: 10.00.

5.3.6 Specimens examined

2♂, 1♀, INDIA: Himachal Pradesh: Shimla, 14.viii.2010- 2♂♂1♀, coll. Rashmi Gupta; 3♂, 2♀, Himachal Pradesh: Shimla, 15.x.2011, coll. Rashmi Gupta.

5.3.7 Distribution

Sri Lanka; Myanmar; India: Maharashtra, Karnataka, West Bengal and Himachal Pradesh.

5.3.8 Remarks

This species is found in abundance from wild vegetation of Himachal Pradesh. It is always found along with the species *C. punctiger* to which it is closely similar but differs by having minute humeral spines as compared to very large spines in the former.

Cletus bipunctatus (Westwood)

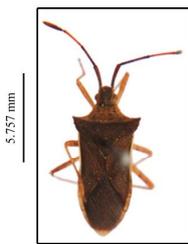


Fig. 15 Adult



Fig. 16 Head



Fig. 17 Pronotum



Fig. 18 Ostiolar peritreme



Fig. 19 Female abdomen (V. V.)

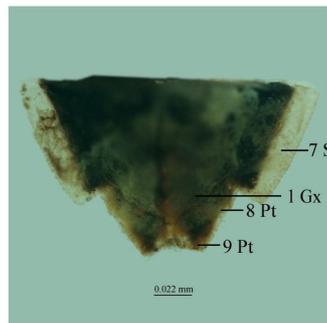


Fig. 20 Genital plate

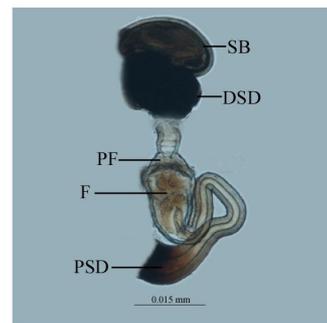


Fig. 21 Spermatheca

6. *Cletus rubidiventris* (Westwood) (Figs. 22- 28)

Coreus rubidiventris, Westwood 1842, in *Hope Cat.*, 2: p. 23.
Cletus signatus, Walker (part.) 1871, *Cat. Het.*, 4: pp. 194, 39.
Cletus pallescens, Walker, *loc. Cit.* pp. 195, 40.
Cletus rubidiventris: Distant 1902, *Fauna Brit. Ind.*, 1: p. 394.

6.1 Dorsal coloration

Head dark yellow with brown punctures; antennal segments I- III purplish red, segment IV dark brown with pubescence, segments with yellow granules; eyes blackish yellow; ocelli red; pronotum

pale yellow with black punctures more dense toward posterior side, two yellowish discoidal spots on anterior side, posterior region densely punctuated, humeral angles with small subacute brown spine; scutellum yellow with small yellow punctures; clavus yellow with black punctures; corium purplish red, black punctures on corium, anterior two third of lateral margins bright yellow with serrations, posterior one third dark brown, two bright yellow discoidal spots on apical edge; hemelytral membrane brassy; connexival segments brownish yellow.

6.2 Ventral coloration: Venter of head dark yellow; rostral

segments I-IV yellow, apex of IV reddish brown; anterior and posterior lobes of metathoracic peritreme yellow; prosternum, mesosternum and metasternum yellow with small brown punctures, a black spot on each segment; abdominal sternites yellow with

greenish tinge, rows of black spots on each abdominal sternite; genital plate dark yellow; legs pale yellow with brown punctures and with pubescence, black spots present, coxae yellow with greenish tinge.

Cletus rubidiventris (Westwood)



Fig. 22 Adult



Fig. 23 Head



Fig. 24 Pronotum



Fig. 25 Ostiolar peritreme



Fig. 26 Female abdomen (V, V')

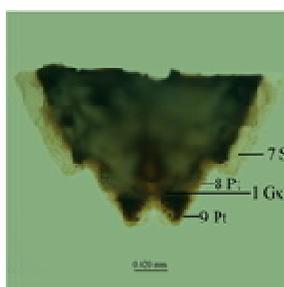


Fig. 27 Genital plate

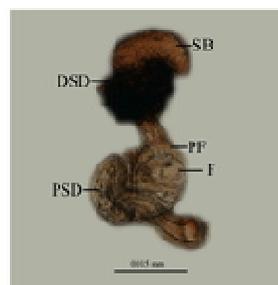


Fig. 28 Spermatheca

6.3 Structure

6.3.1 Head (Fig. 23)

Head subquadrate, declivent, wider than long, clypeus longer than paraclypei, clypeus and paraclypei fused, a longitudinal slit on middle of head, length of anteocular region less than remainder of head; antenniferous tubercle widely separated; antennal segment I stout, II and III slender, cylindrical, segment IV clavate; buccula long, extending beyond antenniferous tubercles, antennal formula $IV < I < III < II$; rostrum long, reaching beyond mesocoxae, rostral formula $III < IV < II = I$.

6.3.2 Thorax

Pronotum (Fig. 24) gradually declivent, length distinctly shorter than width, anterior angles subacute, anterior margin substraight, lateral margins curved and serrate, posterolateral margins sinuate, posterior margin concave, humeral angles acutely and forwardly produced; anterior third of corium serrate; scutellum triangular, apex acute, wider than long; ostiolar peritreme (Fig. 25) with anterior margin prominent and round, anterolateral projection sinuate, posterolateral projection prominent; evaporatoria anteriorly prominent, posteriorly subprominent, laterally well developed; legs slender, pubescent, femora clavate.

6.3.3 Abdomen

Hemelytral membrane reaching last abdominal segment; segments of connexiva visible from outside, anterior and posterior margins of segments substraight, lateral margins sinuate, ventroposterior margin of abdominal sternite VII medially divided (Fig. 26)

6.3.4 Genitalia

(Fig. 27) Gonocoxa broader than long, small, outer lateral margins subround, inner margins substraight, apex subround with blunt

edges, 8th patergite squarish with substraight margin, apex broad with substraight margin, 9th paratergite longer than 8th and squarish, lateral margin obliquely straight, apex broad and sinuate, inner margin straight; spermatheca (Fig. 28) with long tubular bulb with narrow apex directed posteriorly, distal spermathecal duct sclerotized and highly convoluted, median dilation broad funnel shaped, proximal flange prominent, proximal spermathecal duct of moderate length.

6.3.5 Measurements (in mm)

Head length: 1.25; width across eyes: 1.35; length of anteocular region: 0.50; length of remainder head: 0.75; interocular space: 0.85; interocellar space: 0.30; length of antennal segments I: 1.45, II: 1.75, III: 1.50, IV: 1.30; length of labial segments I: 1.05, II: 1.05, III: 0.55, IV: 0.75; pronotum length: 2.25, width across humeral angles: 4.00; scutellar length: 1.50; width: 1.55; length base scutellum to apex clavus: 2.30; length apex scutellum to apex abdomen including membrane: 2.80; maximum width of abdomen: 4.70; total body length: 10.00.

6.3.6 Specimen examined

1♀, INDIA: Himachal Pradesh: Palampur, 14. VII.2010 coll. Rashmi Gupta.

6.3.7 Distribution

Myanmar; India: Maharashtra, Karnataka and Himachal Pradesh.

6.3.8 Remarks

It is a rare species and only single female specimen was collected from wild vegetation of Himachal Pradesh and is easily recognized by its elongated body. The species is very close to *C. puntulatus* but differs as given in the key.

7. *Cletus punctulatus* (Westwood) (Figs. 29- 35)

Coreus punctulatus, Westwood 1842, in *Hope Cat.*, 2: p. 23.

Cletus femoralis, Kirby 1891, *J. Linn. Soc., Zool.*, 24: p. 94.

Cletus punctulatus: Distant 1902, *Fauna Brit. Ind.*, 1: p. 392.

7.1 Dorsal coloration

Head dark yellow with brown punctures; antennal segments I-III reddish brown, segment IV dark brown with pubescence, antennal segments with yellow granules; eyes blackish yellow; ocelli light brown; pronotum pale yellow with black punctures more dense toward posterior side, posterior part dark yellow, two yellowish discoidal spots on anterior side, humeral angles with broad acute thick black spine; scutellum yellow with small yellow punctures; clavus yellow with black punctures; corium yellow with reddish

tinge and black punctures, anterior two third of lateral margins bright yellow with serrations, posterior one third dark brown, two bright yellow discoidal spots on apical edge; hemelytral membrane brassy; connexival segments pale yellow.

7.2 Ventral coloration

Venter of head greenish yellow; rostral segments I-IV yellow, apex of segment IV reddish brown; anterior and posterior lobes of metathoracic peritreme yellow; prosternum, mesosternum and metasternum yellow with small brown punctures, a black spot on each segment; abdominal sternites yellow with greenish tinge, rows of black spots on each abdominal sternite; genital plate dark yellow; legs dark brown with brown punctures and with pubescence, black spots present, coxae yellow with greenish tinge.

Cletus punctulatus (Westwood)



Fig. 29 Adult

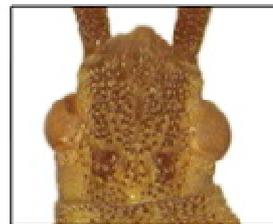


Fig. 30 Head



Fig. 31 Pronotum



Fig. 32 Ostiolar peritreme

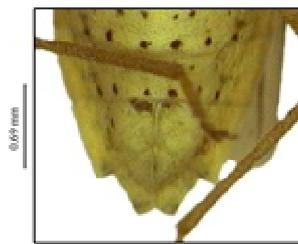


Fig. 33 Female abdomen (V. V.)

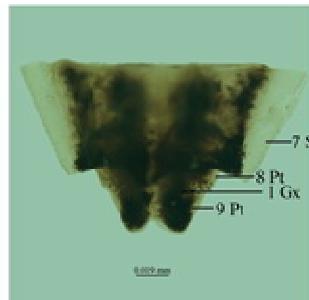


Fig. 34 Genital plate

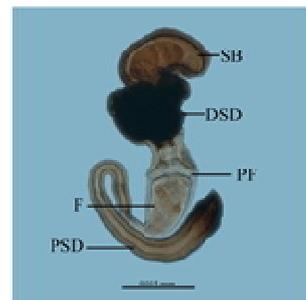


Fig. 35 Spermatheca

7.3 Structure

7.3.1 Head (Fig. 30)

Head subquadrate, declivent, as long as wide, clypeus longer than paraclypei, clypeus and paraclypei fused, a longitudinal slit on middle of head, length of antecular region less than remainder of head; antenniferous tubercle widely separated; antennal segment I stout, II and III slender, cylindrical, segment IV clavate; buccula extending beyond antenniferous tubercle, antennal formula $IV < I < III < II$; rostrum long, reaching beyond mesocoxae, rostral formula $III < IV < II < I$.

7.3.2 Thorax

Pronotum (Fig. 31) gradually declivent, length distinctly shorter than width, anterior angles subacute, anterior margin substraight, lateral margins curved and serrate, posterolateral margins sinuate, posterior margin concave, humeral angles with large spine directed obliquely outward; anterior third of corium serrate; scutellum triangular, apex acute, almost as long as wide; ostiolar peritreme (Fig. 32) with anterior margin subprominent and round, anterolateral projection subprominent, posterolateral projection subround; evaporatoria anteriorly prominent, posteriorly subprominent, laterally well developed; legs slender, pubescent,

femora clavate.

7.3.3 Abdomen

Hemelytral membrane reaching above last abdominal segment. Segments of connexiva visible from outside, anterior and posterior margins of segments substraight, lateral margins sinuate, Abdominal sternite VII indistinctly divided, inner angles acute, lateral angles subacute, posterior margin sinuate (Fig. 33).

7.3.4 Genitalia

(Fig. 34) Gonocoxa 1 as long as broad with outer lateral margin subround, inner margin substraight, apex fused with narrow blunt edge, 8th paratergite squarish and small, outer lateral margin substraight, apex subround, 9th paratergite longer than 8th and squarish with apex broad and subround, inner margin substraight; spermatheca (Fig. 35) with thick medium sized bulb, distal spermathecal tube long, thin and highly convoluted, median dilation in form of a bottle shaped structure, proximal flange prominent, proximal spermathecal tube of moderate size, posteriorly thick.

7.3.5 Measurements (in mm)

Head length: 1.50; width across eyes: 1.50; length of antecular

region: 0.70; length of remainder head: 0.80; interocular space: 0.85; interocellar space: 0.40; length of antennal segments I: 1.45, II: 1.80, III: 1.25, IV: 1.10; length of labial segments I: 1.00, II: 0.75, III: 0.52, IV: 0.75; pronotum length: 2.25, width across humeral angles: 4.35; scutellar length: 1.50; width: 1.50; length base scutellum to apex clavus: 2.10; length apex scutellum to apex abdomen including membrane: 5.00; maximum width of abdomen: 3.00; total body length: 10.50.

7.3.6 Specimens examined

1♂1♀, INDIA: Himachal Pradesh: Dalhousie, 20.IV.2009, coll. Rashmi Gupta.

7.3.7 Distribution

India: Sikkim, Meghalaya, Nagaland and Himachal Pradesh.

7.3.8 Remarks

This species is very rare and only single male and female specimens have been collected from Dalhousie. It is very close to *C. rubidiventris* but differs from the latter as given in the key.

8. References

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