



Contribution to the study of pentatominae (Pentatomidae: Hemiptera) bugs from Dumna Nature Park, Jabalpur, India

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Abstract

Stink bugs are phytophagous and feed on diverse array of plants. They have been observed feeding on seeds, stems, foliage and flowers of plants. Since, Dumna Nature Park, Jabalpur has very diverse flora. Hence, it is the ideal place to flourish for *phytophagus* pentatomid bugs. In the present study, five species of subfamily pentatominae belonging to five genera were recorded during the year 2015- 2016. The five species are *Erthesina fullo*, *Halys dentatus*, *Plautia fimbriata*, *Piezodorus rubrofasciatus* and *Apines concinna*. All the five species are reported first time from the Park.

Keywords: pronotum, membrane, corium, pentatominae, Dumna Nature Park

1. Introduction

Hemiptera is one among the diverse orders of the insects with about 193000 species belonging to 133 families reported throughout the world [14]. Hemiptera fauna of India has been studied by many workers but the important contribution has been of Distant [9, 10, 11]. The diversity of Hemiptera in Madhya Pradesh has been carried out by many workers including Ghosh and Biswas [12], Ramakrishna *et al.* [15], Chandra [2, 3] and Chandra *et al.* [4, 5, 6, 7]. About 7000 species grouped under 1300 genera of Pentatomoidea has been reported so far [13]. There are about 590 species of this superfamily reported from India. Henry [13] estimated about 4700 species and 900 genera of family Pentatomidae all over the world. Family Pentatomidae is divided into eight subfamilies viz. Phyllocephalinae, Pentatominae, Asopinae, Serbaninae, Podopinae, Discocephalinae, Edessinae and Cyrtocorinae [16]. In the present paper, bugs belonging to subfamily Pentatominae from Dumna Nature Park (DNP), Jabalpur sampled during 2014- 2015 season are reported.

2. Methodology

2.1 Study Area

Madhya Pradesh is centrally located India state and lies between, 210 to 250 N and longitudes 740 to 840 E. Jabalpur district is located in the Eastern half of Madhya Pradesh. Geographically it lies between 23° 10' North latitude and 79° 59' East longitudes. Dumna Nature Park (DNP) is located (23° 10' North latitude and 80° 1' East longitude) on Dumna Airport Road in district Jabalpur. The DNP is least explored, very few species of Hymenoptera and bugs has been reported so far [17, 18, 19, 20, 21, 22, 23].

2.2 Sampling methods

Hand picking, Sweep net and mercury Light trap were used to collect the Pentatominae fauna from Dumna Nature Park during the year 2015- 2016. Sweep net was used to collect diurnal species while as the light trap was used to collect the

nocturnal bug species. Weekly expeditions of insect collection were carried in the DNP.

3. Results

The present study deals with the subfamily Pentatominae. Five species namely *Erthesina fullo*, *Halys dentatus*, *Plautia fimbriata*, *Piezodorus rubrofasciatus* and *Apines concinna* were recorded from the DNP during 2015- 2016. Above mentioned five species of Pentatominae were recorded for the first time from the Park. The systematic list and systematic account is given below.

3.1. Systematic list

Order	Hemiptera
Suborder	Heteroptera
Superfamily	Pentatomoidea
Family	Pentatomidae
Subfamily	Pentatominae
Genus	<i>Erthesina</i> Spinola, 1837
1. Species	<i>Erthesina fullo</i> (Thunberg, 1783)
Genus	<i>Halys</i> Fabricius, 1803
Species	<i>Halys dentatus</i> (Fabricius, 1775)
2. Genus	<i>Plautia</i> Stål, 1867
Species	<i>Plautia fimbriata</i> (Fabricius, 1787)
Genus	<i>Piezodorus</i> Fieber, 1861
Species	<i>Piezodorus rubrofasciatus</i> (Fabricius, 1787)
3. Genus	<i>Apines</i> Dallas, 1851
5. Species	<i>Apines concinna</i> Dallas, 1851

3.2 Systematic account

Genus: *Erthesina* Spinola, 1837

Diagnostic Characters

The head is long, somewhat tapering at apex, the basal joint of the antennae does not nearly reach the apex of the head; the anterior and posterior tibiae are dilated.

1. *Erthesina fullo* (Thunberg, 1783)

1783. *Cimex fullo* Thunberg, *Nov. Ins. Spec.*, 2: 42.

1904. *Erthesina fullo* (Thunberg), Distant, *Fauna Brit. India, Rhynchota*, 1: 117.

Diagnostic Characters

Head black, thickly punctate, a central longitudinal line, lateral margins, inner margins of eyes and ocelli yellowish brown; body beneath pale ochraceous, with coarse scattered black punctures on the lateral areas; pronotum and scutellum black, very coarsely punctate, with scattered small ochraceous callosities; pronotum and scutellum black, thickly punctate; corium purplish brown; connexivum alternately clay and yellowish brown. Second joint of antennae distinctly longer than third; rostrum reaching the third abdominal segment. Length: 22 mm (Fig. A).

Material Examined: India: Madhya Pradesh, Jabalpur district, Dumna Nature Park, 18.ix.2015, Coll. Altaf Hussain Sheikh.

Distribution

India: Chhattisgarh, Andaman and Nicobar Islands, Assam, Kerala, Madhya Pradesh, Meghalaya, Tamil Nadu, Uttar Pradesh and Uttarakhand; Elsewhere: China and Japan^[4]

Genus: *Halys* Fabricius, 1803

Diagnostic Characters

Head long, tapering in front, the central lobe as long as the lateral lobes or longer; first joint of the rostrum not extending beyond the bucculae; veins of the membrane irregularly ramulose; non-dilated tibiae.

2. *Halys dentatus* (Fabricius, 1775)

1775. *Cimex dentatus* Fabricius, *Syst. Ent.*, 702.

1902. *Halys dentatus* (Fabricius), Distant, *Fauna Brit. India, Rhynchota*, 1: 119.

Diagnostic Characters

Head punctate, rostrum extending as long as fifth abdominal segment; body dull brown, darkly punctate; antennae with the second and fourth and the third and fifth joints subequal in length; pronotum with obscure oblique fasciae; apex of scutellum pale, scutellum with small basal and central discal and two marginal spots before apex, corium with discal patches, black; membrane grayish brown; body beneath and legs yellowish brown; abdomen thickly punctate. Length: 21 mm (Fig. B).

Material Examined: India: Madhya Pradesh, Jabalpur district, Dumna Nature Park, 04.xi.2015, Coll. Altaf Hussain Sheikh.

Distribution

India: Andaman and Nicobar Islands, Assam, Andhra Pradesh, Kerala, Meghalaya, Sikkim, Uttar Pradesh and West Bengal; Elsewhere: Bangladesh, China, Japan and Sri Lanka^[24]

Genus: *Plautia* Stål, 1867

Diagnostic Characters

Head rounded at the apex, emarginated in front of eyes, lobes of equal length; rostrum extending beyond the posterior coxae; pronotum with the lateral angles rounded, not prominent scutellum moderately short and broad.

3. *Plautia fimbriata* (Fabricius, 1787)

1787. *Cimex fimbriata* Fabricius, *Mant. Ins.*, 2: 295.

1902. *Plautia fimbriata* (Fabricius), Distant, *Fauna Brit. India, Rhynchota*, 1:191.

Diagnostic Characters

Head, pronotum, and scutellum pale olivaceous-green; abdomen above red; body beneath and legs pale greenish; antennae greenish-ochraceous, with the apices of the fourth and fifth joints infuscated; pronotum and scutellum are finely and somewhat sparingly punctate, corium more thickly punctate; abdomen with the central disk greenish-ochraceous, and with lateral marginal black; membrane fuliginous, darker at base. Length: 10 mm (Fig. C).

Material Examined: India: Madhya Pradesh, Jabalpur district, Dumna Nature Park, 21.x. 2014, Coll. Altaf Hussain Sheikh.

Distribution

India: Himachal Pradesh, Maharashtra, Sikkim and West Bengal; Elsewhere: Madagascar, Malayan Archipelago, Sri Lanka and Teinzo^[4].

Genus: *Piezodorus* Fieber, 1861

Diagnostic Characters

Head short, slightly narrowed anteriorly, lateral margins moderately sinuate; antennae five-jointed, basal joint not reaching apex of head; rostrum reaching or passing the intermediate coxae; basal spine of abdomen acute and moderately long.

4. *Piezodorus rubrofasciatus* (Fabricius, 1787)

1787. *Cimex rubrofasciatus* Fabricius, *Mant. Ins.*, 2: 293

1902. *Piezodorus rubrofasciatus* (Fabricius), Distant, *Fauna Brit. India, Rhynchota*, 1: 224.

1989. *Piezodorus rubrofasciatus* Fabricius, Ghosh, Biswas, Chakraborty and Sen, Fauna of orissa: Slate Fauna Series no.1: 205.

Diagnostic Characters

Head short and slightly narrowed; body pale greenish, thickly punctate; pronotum with a purplish fascia between the angles, the pronotal angles, where the punctures are sparser; clavus with a small black apical spot; basal lateral margin of corium and connexivum pale purplish or reddish; body beneath and legs pale clay colour. Length: 9 mm (Fig. D).

Material Examined: India: Madhya Pradesh, Jabalpur district, Dumna Nature Park, 21.vii. 2014, Coll. Altaf Hussain Sheikh.

Distribution

India: Assam, Chhattisgarh, Maharashtra, Uttar Pradesh and West Bengal; Elsewhere: Australia, Japan, Myanmar and Sri Lanka ^[4].

Genus: *Apines* Dallas, 1851

Diagnostic Characters

Head moderately deflected; rostrum about or not quite reaching the posterior coxae; pronotum broader than long, narrowed anteriorly, lateral angles not prominent; scutellum moderately broad, a little longer than broad at base; corium longer than membrane; membrane with longitudinal veins; abdomen unarmed.

5. *Apines concinna* Dallas, 1851

1851. *Apines concinna* Dallas, *List. Hem.*, 1: 232.

Diagnostic Characters

Head moderately deflected, about as broad as long; antenna black; body shiny black, thickly punctate, body beneath black; length of scutellum 1.82x as long as maximum width of head; a spot at each posterior basal angle of metasternum, pronotum with a central elongate light yellow brown spot; with the second joint bright red brown, scutellum with three basal spots, a transverse arcuate spot, sometimes linearly extending posteriorly; abdomen unarmed. Length: 6.4 mm (Fig. E).

Material Examined: India: Madhya Pradesh, Jabalpur district, Dumna Nature Park, 26.ix. 2014, Coll. Altaf Hussain Sheikh.

Distribution

India: Chhattisgarh Maharashtra and Uttarakhand; Elsewhere: Sri Lanka and Pakistan ^[4].

4. Conclusion

Family Pentatomidae consists of eight subfamilies viz., Asopinae, Podopinae, Pentatominae Cyrtocorinae, Discocephalinae, Phyllocephalinae, Serbaninae and Edessinae. Pentatominae being mostly phytophagous are economically important pests of crops and are widely distributed all over the world. DNP is supposed to have a high diversity of these bugs because of the diverse flora and better microclimate, as the Park embraces terrestrial as well as aquatic ecosystems. A total of five species of Pentatominae belonging to five genera were recorded from Park during 2015- 2016. The species recorded from the Park were *E. fullo*, *H. dentatus*, *P. fimbriata*, *P. rubrofasciatus* and *A. concinna*. All these five species of Pentatominae were recorded for the first time from the Park.

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Fig 1: A. *Erthesina fullo*. Fig. B. *Halys dentatus*. Fig. C. *Plautia fimbriata*. Fig. D. *Piezodorus rubrofasciatus*. Fig. E. *Apines concinna*.

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