

RESEARCH PAPER

## A newly recorded genus *Hauptenia* Szwedo (Hemiptera:Fulgoromorph:Derbidae) in Bangladesh, with description of a new species

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### ABSTRACT

The genus *Hauptenia* (Hemiptera: Fulgoromorpha: Derbidae) is recorded for the first time in Bangladesh to describe a new species, *H. bandarbanensis* n. sp. This new species is compared to the seven existing species in this genus but differs from all. It is closer to *H. magnifica* (Yang & Wu, 1993) (type species) but differs from the latter in the flagellum of aedeagus with 6 processes, and 3 lobes out of 4 produced into processes, bipartite lobe absent (flagellum of aedeagus with 5 processes, and 2 lobes out of 4 produced into processes, one lobe bipartite in *H. magnifica*). Diagnosis and illustrations of detailed diagnostic characters, including color photographs and line drawings of male genitalia are provided with an identification key to all species of the genus.

**Key words:** Auchenorrhyncha, Bangladesh, fulgoroidea, new species, planthoppers

### Introduction

The genus *Hauptenia* was established by Szwedo (2006) based on previously known species of the genus *Malenia* Haupt from Taiwan that belongs to the tribe Cedusini Emeljanov, 1992 (Hemiptera: Fulgoroidea: Derbidae: Cidusinae). The member of this genus is easily separated from other members in this tribe by head with eyes distinctly narrower than pronotum (Fig. 1B); frons (Fig. 1D) longer in middle line than widest part and shorter than clypeus about 1:1.1–1.46; tegmen (Fig. 1E) longer than widest part about 2.6–3:1, Sc with 2 sectors; wings with vein CuA with two (Yang & Wu 1993: Fig. 40D) or three (Fig. 1F) terminals; spinal formula of hind leg 7–6–5; male genital styles symmetrical, short and stout, dorsobasal projection distad; pygofer with dorsocaudal angle not produced into finger-shaped process; anal segment not distinctly elongated, usually with apex not reaching level of apex of genital styles, anal style turned ventrad or nearly so, slightly notched at apex in lateral view (Rahman et al., 2012). Currently this genus includes the following seven species: *H. fellea* (Yang & Wu, 1993), *H. glutinosa* (Yang & Wu, 1993), *H. idonea* (Yang & Wu, 1993), *H. jacula* (Yang & Wu, 1993), *H. magnifica* (Yang & Wu, 1993) (type species), *H. palgongsanensis*, Rahman, Kwon & Suh, 2012 and *H. tripartita*, Rahman, Kwon & Suh, 2012 (Bourgoin, 2016).

Despite the well-established status of the genus *Hauptenia* Szwedo in Taiwan and Korea (Yang & Wu, 1993; Rahman et al., 2012), no member of this genus has been noted in Bangladesh. However, during a recent examination of Derbid planthoppers from South-eastern part of Bangladesh, the authors discovered one species of this genus that is clearly separated from all other known species of this genus. The authors consider it to be an undescribed species. The purpose of this study is to describe a new species that present the first record of the genus *Hauptenia* Szwedo, 2006. Images of diagnostic characteristics and identification key to all species of this genus are provided.

### Materials and methods

Morphological terminology follows Yang and Wu (1993). The term “anal segment” used here means the whole tubular structure of the male genitalia and the “anal style” indicates the process of the anal segment. Spinal formula means the numbers of apical spines of the hind tibiae and 1st and 2nd hind tarsomeres.

Dried specimens were used for the description and illustration. External and internal morphology were observed under a stereo microscope (Olympus SZH12) and characters were measured with an ocular micrometer. The length of body was measured from the apex of head to tip of tegmen. Illustrations were scanned

with HP Scanjet 4850 and imported into Adobe Photoshop CS3 for labeling and plate composition.

The holotype of *Hauptenia bandarbanensis* n. sp. will be deposited in the collection of the Department of Entomology, Patuakhali Science and Technology University, Dumki, Patuakhali, Bangladesh (PSTU).

## Taxonomy

### Checklist of species of *Hauptenia* Szwedo, 2006

- Hauptenia fellea* (Yang & Wu, 1993); Taiwan.  
*Hauptenia glutinosa* (Yang & Wu, 1993); Taiwan.  
*Hauptenia idonea* (Yang & Wu, 1993); Taiwan.  
*Hauptenia jacula* (Yang & Wu, 1993); Taiwan.  
*Hauptenia magnifica* (Yang & Wu, 1993); Taiwan.  
*H. palgongsanensis* Rahman, Kwon & Suh, 2012; Korea  
*H. tripartita* Rahman, Kwon & Suh, 2012; Korea.  
*Hauptenia bandarbanensis* n. sp.; Bangladesh.

### Key to species of the genus *Hauptenia* (following to Rahman et al., 2012)

1. Genital styles with dorsocaudal angle produced into finger-shaped process (Rahman et al., 2012: Fig. 20) ..... 2  
 – Genital styles with dorsocaudal angle not produced into finger-shaped process (Fig. 1J, Fig. 2I) ..... 5
2. Genital styles with apical hook of dorsobasal projection quadrate, apical margin obliquely truncate (Rahman et al., 2012: Fig. 20) ..... 3  
 – Genital styles with apical hook of dorsobasal projection triangular, apical margin truncate (Yang & Wu, 1993: Fig. 42E) ..... 4
3. Flagellum of aedeagus (Rahman et al., 2012: Figs 17, 18) with 4 lobes and 4 processes, length of middle processes about half of left and right processes; tegmen (Rahman et al., 2012: Fig. 15) with M with 4 sectors; mesonotum dark brown to black ..... *H. palgongsanensis* Rahman, Kwon & Suh  
 – Flagellum of aedeagus (Yang & Wu, 1993: Fig. 41H) with 2 lobes and 4 processes, middle processes as long as left and right processes; tegmen (Yang & Wu, 1993: Fig. 41C) with M with 3 sectors; mesonotum yellow ..... *H. fellea* (Yang & Wu)
4. Flagellum of aedeagus (Yang & Wu, 1993: Fig. 42H,I) with 1 large lobe and 5 processes; body relatively small, body length including tegmen male 3.9–4.3 mm, female 4.9 mm ..... *H. glutinosa* (Yang & Wu)  
 – Flagellum of aedeagus (Yang & Wu, 1993: Fig. 43G,H) with 1 large lobe and 4 processes; body relatively large, body length including tegmen male 5.4–5.7 mm, female 5.9 mm ..... *H. idonea* (Yang & Wu)
5. Wings with CuA with three terminals (Fig. 1F, 2E); genital styles with each inner lower surface with a small hook subapically, apical margin obliquely truncate (Figs. 2I,J) ..... 6  
 – Wings with CuA with two terminals (Yang & Wu, 1993: Fig. 40D); genital styles with each inner lower surface without hook subapically, apical margin truncate (Yang & Wu, 1993: Fig. 40F) ..... *H. jacula* (Yang & Wu)
6. Flagellum of aedeagus (Figs 28) with 4 lobes, longest one wide and tripartite.... *H. tripartita* Rahman, Kwon & Suh  
 – Flagellum of aedeagus (Yang & Wu, 1993: Fig. 39H,I) with 4 lobes, longest one slender and monopartite ..... 7
7. Flagellum of aedeagus with 5 processes, and 2 lobes out of 4 produced into processes ..... *H. magnifica* (Yang & Wu)  
 – Flagellum of aedeagus with 6 processes, and 3 lobes out of 4 produced into processes..... *H. bandarbanensis* n. sp.

Abdomen dark brown dorsally but yellowish to orange lateroventrally. Genital segment brown to dark brown.

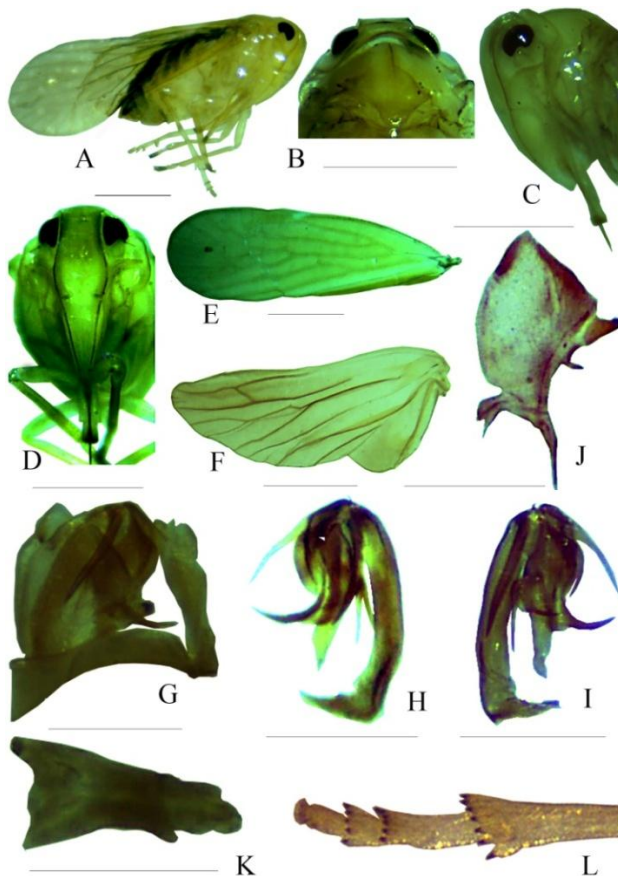
**Head and thorax.** Head with eyes distinctly narrower than pronotum (1:1.53), short. Vertex in dorsal view broadly trapezoidal, wider between basal angles than long in middle line (3.57:1), apical margin distinct, transversely carinate, posterior margin slightly concave, lateral carinae slightly elevated, disk slightly depressed. Frons longer in middle line than widest part (1.58:1), shorter than clypeus (1:1.18), disc depressed in entire length, lateral carinae strongly keeled. Clypeus distinctly carinate medially. Apical segment of rostrum longer than wide. Genae with projecting ear-shaped carinae under antennae. Antennae short, pedicel

*H. bandarbanensis* Jhan & Rahman, 2016 n. sp.  
(Figs 1 I-L, 2 A-J)

**Description.** Body length (from apex of vertex to tip of tegmen): male 3.9–4.2 mm (N=8), female 4.2–4.4 mm (N=11). Tegmen length: male 3.5–3.7 mm (N=8), female 3.7–3.9 mm (N=11).

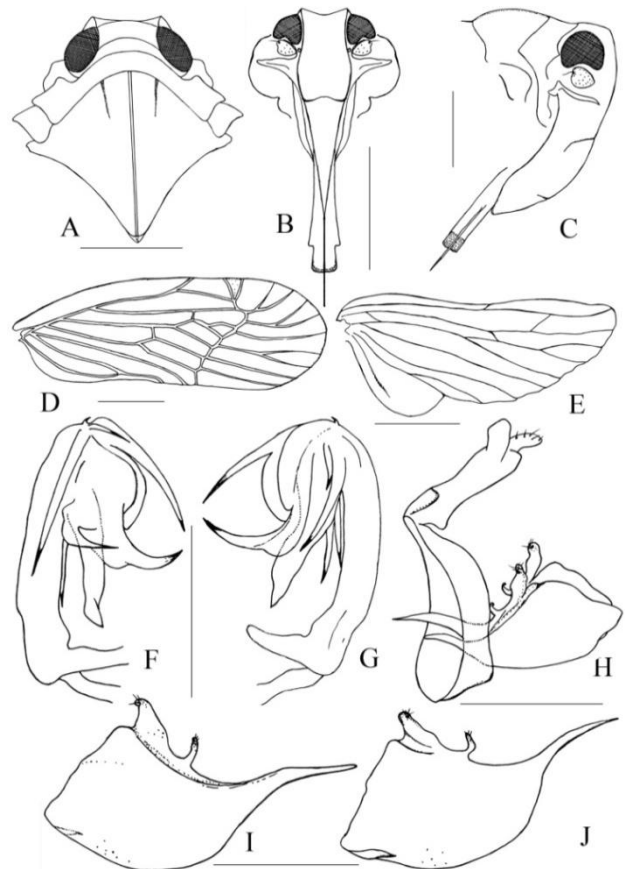
**Coloration.** General color yellowish brown. Vertex (Fig. 1B), pronotum, frons (Fig. 1D), clypeus and ventral aspect of thorax yellowish to brown. Rostrum yellow except apex fuscous. Eyes dark brown to black, ocelli pale yellow. Mesonotum (Fig. 1B) yellowish brown, with median carina dark brown and lateral carinae very shortly yellow near pronotum. Tegmen (Fig. 1E) light brown, longitudinal veins pale yellowish brown. Wings (Fig. 1F) pale brown with dark brown veins. Legs yellow, apex of tarsi fuscous.

subglobose, flagellum originated from apical point. Lateral ocelli adjacent to eyes and antennal socket. Anterior margin of pronotum between eyes broadly convex, length behind eyes slightly greater than median length, disc with lateral and median carinae absent, oblique transverse carinae strongly elevated. Mesonotum dorsally elevated, depressed at posterior end, median longitudinal carinae slightly elevated, lateral carinae near pronotum very shortly visible then feeble posteriorly. Tegmen with Sc with 2 sectors, subcostal cell long, M with 4 sectors, tegmen longer than widest part (3:1). Wings with R reaching to apical margin, CuA with 3 terminals. Spinal formula of hind leg 7–6–5.



**FIGURES 1(A-L).** *Hauptenia bandarbanensis*. (A) Adult. (B) Head and thorax, dorsal view.(C) Frons, clypeus and rostrum, lateral view.(D) Ditto, front view. (E) Tegmen. (F) Wing. (G) Genital block. (H) Aedeagus, left lateral view. (I) Aedeagus, right lateral view. (J) Genital style, laterodorsal view.(K) Anal segment of male, dorsal view. (L) Hind tibia and tarsus. Scale = 1.0 mm (Figs. A, C–G),0.5 mm (Figs. B, H–L).

**Male genitalia.** Anal segment (Fig.1K) moderately shorter than the apex of genital styles, broader at base in dorsal view than apex about 2:1, longer (including anal styles) than widest part at base (2.1:1), dorsolateral margin slightly convex medially; anal styles strongly turned ventrad.Pygofer (Figs.1G,2H) in profile distinctly shorter dorsally than ventrally, dorsocaudal angle not produced. Aedeagus (Figs. 2F,G) with shaft curved, flagellum with 4 lobes and 6 processes; among 4 lobes, three produced into strong sclerotized processes and another one slender without process; among 6 processes, in left lateral view, one medium and another long process arising from near the basal portion of flagellum, slightly curved, and in right lateral view, one medium and two elongated, straight processes arising from the base of flagellum with one short and stout process that observed from both side.Genital styles (Figs.1J, 2I–J ) symmetrical, short and stout, apical margin obliquely truncate, dorsoapical process indistinct, dorso basal projection reaching to level of apical margin of genital styles, outer projection wider



**FIGURES 2 (A-J).** *Hauptenia bandarbanensis*. (A) Head and thorax, dorsal view.(B) Frons, clypeus and rostrum. (C) Head, lateral view. (D) Tegmen. (E) Wing. (F) Aedeagus, right lateral view. (G) Aedeagus, left lateral view. (H) Pygofer with anal segment and genital style, lateral view. (I) Genital style, laterodorsal view. (J) Genital style, lateroventral view. Scale bars = 1.0 mm (Figs B,D–E, H), 0.5 mm (Figs A,C,F–G,I–J).

than inner one, curvedapically, in ventral view each apex bluntly acute, each inner margin with a hook subapically, directed basad.

**Type materials.** Holotype male, BANGLADESH: Bandarban, 9 Jul. 2015, M.A. Rahman (PSTU). Paratypes: BANGLADESH: 4 males, 6 females, same data as holotype; 3 males, 5 females, Chittagong, 12 Jul. 2015, M.A. Rahman (PSTU).

**Etymology.** This species is named after the collection site of the holotype, Bandarban in Bangladesh.

**Host plants.** Unknown.

**Distribution.** Bangladesh.

**Remarks.** This species is similar to *H. magnifica* (Yang & Wu) but differs from the latter in the general body color yellowish brown (uniform yellow in *magnifica*); the flagellum of aedeagus with 6 processes, and 3 lobes out of 4 produced into processes, bipartite lobe absent (flagellum of aedeagus with 5 processes, and 2 lobes out of 4 produced into processes, one lobe bipartite in *magnifica*).

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