

ON TWO SPECIES OF *AMIOTA* (*PHORTICA*) SCHINER
(INSECTA: DIPTERA: DROSOPHILIDAE)
FROM NORTHEASTERN INDIA

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ABSTRACT. - A new species of *Amiota* (*Phortica*) Schiner, *A. (P.) penidenticulata* is described from northeastern India. The affinities of this species with congeners is discussed. Another species, *A. (P.) orientalis* Hendel (type locality Taiwan) is recorded in India for the first time. A key to the Indian species of *Phortica* is provided.

INTRODUCTION

Over 250 species representing 23 genera of the family Drosophilidae have been recorded from India. Among them, the genus *Amiota* Loew is represented by only three species - *Amiota* (*Sinophthalmus*) *creberii* Singh, 1976, *Amiota* (*Phortica*) *shillongensis* Singh & Gupta, in Dwivedi *et al.*, 1979, and *Amiota* (*Phortica*) *apodemata* Gupta & Panigrahy, 1987. The present paper deals with the description of one new species, *Amiota* (*Phortica*) *penidenticulata* from northeastern India, and extends the range of another species previously known only from Taiwan.

MATERIALS AND METHODS

The material for the present study was obtained from the vicinity of Basar in Arunachal Pradesh, a mountainous state in northeastern zone of the Indian subcontinent. The collections were carried out with the help of nets sweeping over the vegetation and the oozing wounds of the trees. The collected flies were immediately preserved in 70% alcohol. The taxonomic analysis was made following the procedure adopted by Gupta (1969).

Type specimens are deposited in the "*Drosophila* Collection", Zoological Museum, Banaras Hindu University (DCZMBHU), Varanasi, India; and the Tokyo Metropolitan University (TMU), Tokyo, Japan.

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TAXONOMY

Genus *Amiota* Loew, 1862

Amiota Loew, 1862, Berl. ent. Zeit., 6: 229. Type species: *Amiota humeralis* Loew.

Subgenus *Phortica* Schiner, 1862

Phortica Schiner, 1862, Wien, ent. Monatschr., 6: 433; Okada, 1971, Kontyu, 39(2): 82; Maca, 1977, Acta ent. bohemoslov, 74: 116. Type species: *Drosophila variegata* Fallén, 1823.

Diagnosis. - Species of *Phortica* are characterised by having face, humerus and wing base without milky white spots; carina undeveloped; anterior reclinate smaller than other orbital bristles.

Key to Indian species of the subgenus *Phortica*

1. Arista with dorsal branches only *A. (P.) shillongensis* Singh & Gupta
Arista with both dorsal and ventral branches 2
2. Posterior cross-vein deeply clouded *A. (P.) orientalis* Hendel
Posterior cross-vein not clouded *A. (P.) penidenticulata*, new species

Amiota (Phortica) penidenticulata, new species (Figs. 1-4)

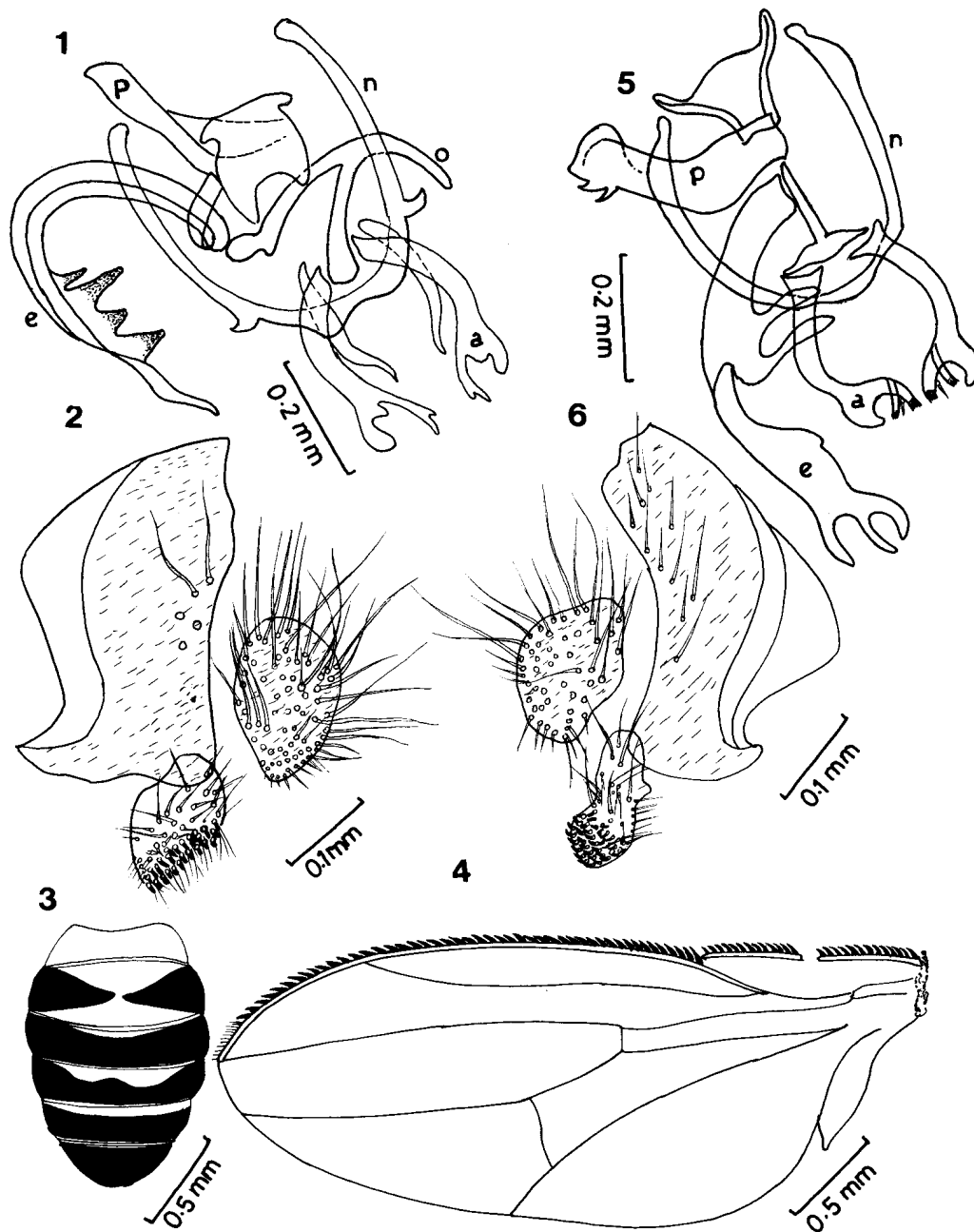
Material examined. - Holotype - male (DCZMBHU 107), Basar, West Siang District, Arunachal Pradesh, northeastern India, leg. K. K. Gupta & J. P. Gupta, 1988.

Paratypes - 1 male (TMU), same data as holotype.

Diagnosis. - Aedeagus with four large denticles subapically.

Description. - Male - Head: arista with five-six dorsal and two ventral branches in addition to small terminal fork. Antennae with second segment pale brown; third segment pale yellow. Frons including ocellar triangle dark brown. Orbital bristles in ratio 15: 5: 12. Cheek dark brown, greatest width of cheek 1/6 the greatest diameter of eye. Palpus dark brown, little lighter distally, with one apical and two marginal setae. Face brown, carina low. Clypeus dark brown. Eyes dark red.

Thorax: Acrostichal hairs in eight regular rows. Prescutellars well developed. Anterior scutellars divergent; posterior scutellars convergent. Distance between anterior and posterior dorsocentrals 1/2 the distance between two anterior dorsocentrals. Mesonotum pale brownish, with scattered dark brown spots. Scutellum pale yellow, tip with a light spot encircled by a dark brown band. Humerus pale yellow. Thoracic pleura dark brown.



Figs. 1-6. 1-4, *Amiota (Phortica) penidenticulata*, new species. 1, phallic organs; 2, periphallal organs; 3, abdomen; 4, male wing; 5-6, *Amiota (Phortica) orientalis* Hendel. 5, phallic organs; 6, periphallal organs. (a, anterior gonapophysis; e, aedeagus; n, novasternum; o, apodeme of aedeagus; p, dorsal mantle of aedeagus).

Wings: Clear, cross-veins not clouded. Wing-vein indices: C-index 2.24-2.32; 4V-index 2.9; 4C-index 1.7; 5X-index 1.27; C₃fringe 0.75-0.79. Haltere yellowish wing, length 3.59 mm.

Legs: Femora brown, tibiae with three black bands and last tarsal segment of all legs dark brown.

Abdomen: 1T yellow, 2T with a medially interrupted black band, 3T and 5T with uninterrupted bands, 4T with a medially projected band and 6T completely black.

Average body length: 3.5 mm (male)

Periphallic organs: Epandrium pale brown, broad and pubescent, with five bristles on upper portion. Surstylus quadrate, with numerous black teeth scattered in 2-3 rows and several setae. Cercus oval, pubescent, with numerous large bristles dorsally and smaller ventrally.

Phallic organs: Aedeagus large, apically tapering and subapically with four large denticles, basal process of aedeagus present, dorsal mantle broad. Anterior gonapophysis apically bilobed, one of the lobes bearing sensillum.

Etymology. - The species is named *penidenticulata* because the aedeagus bears large denticles.

Remarks. - This species closely resembles *A. (Phortica) antheria* Okada, 1977, but clearly differs from it in having a clear posterior cross-vein (deeply clouded in *antheria*), fourth tergite with a medially projected dark band (not projected in *antheria*), and the aedeagus with four large denticles subapically (absent in *antheria*).

***Amiota (Phortica) orientalis* Hendel, 1974**
(Figs. 5-6)

Amiota orientalis Hendel, 1974, Suppl. Ent. 3: 116 [Taiwan]

Material examined. - 9 males (DCZMBHU), Arunachal Pradesh, northeastern India; leg. K. K. Gupta & J. P. Gupta, iv. 1988.

Diagnosis. - Male: General features as described by Okada (1977).

Periphallic organs: Epandrium pale brown, pubescent, with about 11 bristles on upper portion. Surstylus elongate, with numerous small black teeth scattered on the distal portion and numerous fine setae. Cercus oval, pubescent, with numerous small and large bristles.

Phallic organs: Aedeagus large apically tripartite, basal process spiny, dorsal mantle fan shaped. Anterior gonapophysis bifurcated distally, with sensillum.

Distribution. - Taiwan, India (new record)

Remarks. - Although the ecology of the species belonging to the genus *Amiota* is not much known, some earlier reports have indicated the presence of larval *A. variegata* in the sap of the weeping willow tree (Séguy, 1934). Also, Okada (1962) collected several individuals of *A. variegata* and *A. magna* hovering around the oozing sap of a *Quercus* tree. The present authors

have also collected flies of *A. penidenticulata* and *A. orientalis* by sweeping a net over the oozing wound of a Papaya tree.

Little can be said as regards the distribution of the species of *Amiota* in India, as only five species have been recorded thus far, and a vast area of the Indian subcontinent still awaits exploration.

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LITERATURE CITED

- Dwivedi, Y. N., B. K. Singh & J. P. Gupta, 1979. Further addition to the Indian fauna of Drosophilidae. *Orient. Insects*, **13**(1-2): 61-74.
- Gupta, J. P., 1969. A new species of *Drosophila* Fallen (Insecta: Diptera: Drosophilidae) from India. *Proc. Zool. Soc.*, India, **22**: 53-61.
- Gupta, J. P. & K. K. Panigrahy, 1987. Some further additions to the list of Indian species of Drosophilidae. *Proc. Zool. Soc.*, India, **36**: 57-66.
- Okada, T., 1962. Bleeding sap preference of the Drosophilid flies. *Jpn. Jour. Appl. Ent. Zool.*, **6**(3): 216-229.
- Okada, T., 1977. The subgenus *Phortica* Schiner of the genus *Amiota* Loew of Japan and the oriental region, with reference to anti-Burla's rule (Diptera, Drosophilidae). *Bull. Biogeogr. Soc. Japan*, **32**(3): 17-31.
- Séguy, E., 1934. Diptera (Brachyceres). Muscidae Acalypterae et Scatophagidae. In: *Faune de France*, **28**: 1-832.
- Singh, A., 1976. Description of new species of the genera *Sinophthalmus* and *Scaptomyza* (Insecta: Diptera: Drosophilidae) from Chandigarh, India. *Rec. Zool. Surv.*, India, **69**: 187-202.