TAXONOMIC STUDIES ON INDIAN SPECIES OF GENUS *MARUCA* WALKER (LEPIDOPTERA: PYRALIDAE: PYRAUSTINAE)

Jagbir Singh Kirti [1] and Navneet Singh Gill [2]

[1,2] Department of Zoology, Punjabi University, Patiala, Punjab, India
Email: [1]jskirti@yahoo.co.in

ABSTRACT

Taxonomic studies have been undertaken on both the Indian species of genus Maruca *Walker, namely,* M. testulalis *Geyer and* M. amboinalis *(Felder & Rogenhofer). The genus has been recharacterized and the external genitalic features of the species* amboinalis *(Felder & Rogenhofer) have been studied and illustrated for the first time.*

KEYWORDS

Genus, species, genitalia, type species.

ABBREVIATIONS

AED - Aedeagus; ANT.APO - Anterior apophyses; CO - Costa; CRP.BU - Corpus bursae; DU.BU - Ductus bursae; DU.EJ - Ductus ejaculatorius; HRP - Harpe; JX - Juxta; OVP - Ovipositor; PO.APO - Posterior apophyses; SA - Saccus; VLV - Valva; SL - Sacculus; SSCA - Subscaphium; TG - Tegumen; UN - Uncus; VIN - Vinculum.

The genus *Maruca* was proposed by Walker in 1859. The present genus is represented by two species i.e. *testulalis* Geyer and *amboinalis* (Felder & Rogenhofer) in this country. Both the species have been studied here in detail and their identification has been confirmed from relevant literature (Hampson, 1896) and by comparison with specimens at the Forest Research Institute, Dehradun. The male and female genitalia of the species *testulalis* Geyer which is the type species of the genus has been described and sketched by Rose (1982), and Rose and Dhillon (1982a), respectively. However, the genitalic organs have not been studied in the other Indian species, so far. Hence, the descriptions of the same along with their illustrations are given here for the first time.

Genus *Maruca* Walker

Walker, 1859, *Cat. Lep. Het. Brit. Mus.,* 18 : 540.

Type species: *Crochiphora testulalis* Geyer

Distribution: World wide (except Nearctic region)

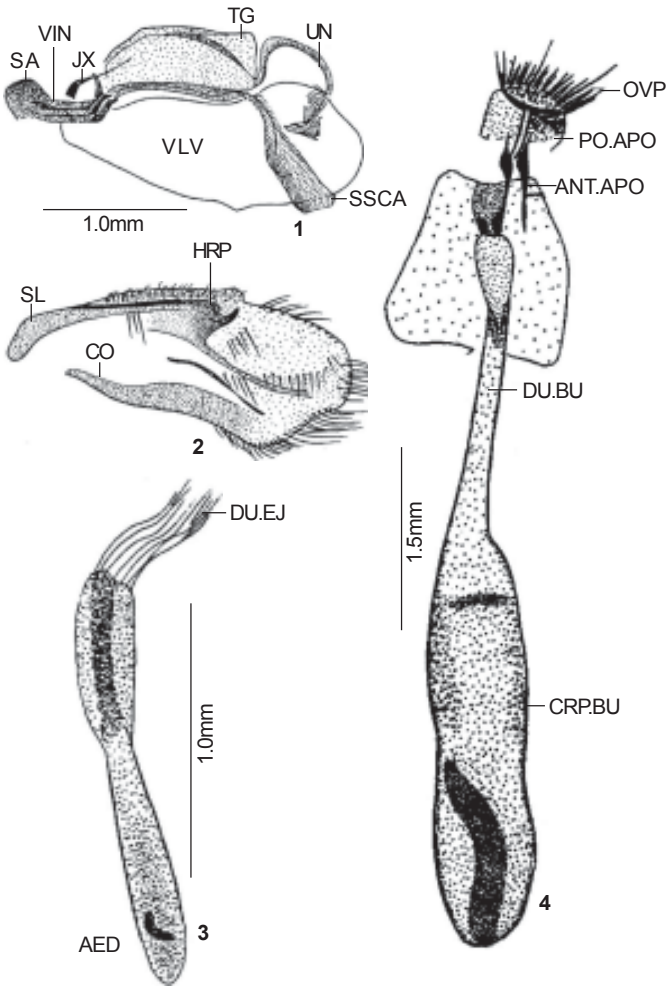
Labial palpus porrect and straight, triangularly scaled, third segment hidden by hairs; maxillary palpus slightly dilated with scales; frons flat and oblique; antenna slightly longer than forewing, flagellum annulated with scales; forewing with vein R_2 approximated to R_{3+4}, R_5 curved and adjacent to R_{3+4}, M_2 and M_3 closely approximated for a short distance, Cu_1 from posterior angle of cell; hindwing with discal cell less than half the length of wing, veins M_2 and M_3 closely approximated at base; abdomen long; male genitalia with uncus long and strongly curved, slightly dilated at distal end, tegumen dome-shaped, valva with a short harpe; female genitalia with corpus bursae dropper-shaped, signum missing, ductus bursae membranous, with a collar at distal end.

Maruca amboinalis (Felder & Rogenhofer)

(Figs. 1-4)

1874, *Reise Novara Lep. (Het.),* 1874: 18.

Material examined: 1 female, 7.ix.1983, Jatinga, North Cachar Hills, Assam, coll. J.S. Kirti; 1 male, 21.ix.1982, Bander-Dewa, Subansiri, Arunachal Pradesh, coll. J.S. Kirti; 1 male, 13.ix.1983, Cheerapunjee, Khasi Hills, Meghalaya, coll. J.S. Kirti.



***Figures 1-3. Male genitalia of* Maruca amboinalis*; 4 - Female genitalia of* Maruca amboinalis**

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Distribution: Arunachal Pradesh; Assam; Meghalaya; Nilgiri Hills; Sikkim

Male genitalia: Uncus with slightly dilated at distal end, setose with a group of setae having club-shaped ends; tuba analis longer than uncus; subscaphium curved and well sclerotized; vinculum moderate, well sclerotized; saccus U-shaped and broad; valva with costa and sacculus very well differentiated, latter with a sclerotized ridge; harpe marked by a small, weakly curved projection; juxta like an inverted Y-shaped structure; aedeagus short and cylindrical, narrow in middle; vesica without any well defined armature but a well sclerotized curved patch at distal end represents cornutus.

Female genitalia: Corpus bursae oblong, with a slight constriction in outer wall in middle; ductus bursae moderately long, rounded distally; with a collar-like thickening at distal end; anterior apophyses with triangular expansions near bases; posterior apophyses short and narrow; ovipositor with rounded and well defined lobes, each lobe densely setose with varying sizes of setae.

Wing Expanse (Half): Male - 13mm; Female - 15mm.

Discussion

The external male genitalic features like uncus, saccus, juxta and female genitalic feature like absence of signum, the shape of ductus bursae and apophyses clearly indicate the congeneric nature of the species *ambionalis* (Felder and Rogenhofer) with the type species *testulalis* Geyer. The reporting of present species from Bander-Dewa locality is its first record from Arunachal Pradesh.

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NOTES ON PHYTOPHAGOUS AND PREDATORY MITES OF MEDICINAL PLANTS OF KOLKATA

S. Lahiri [1], I. Roy [1], S. Podder [1], G.K. Saha [2,3] and S.K. Gupta [4]

[1] Research Scholar, [2] Reader, Dept. of Zoology, Calcutta University 35 Ballygunge Circular Road, Kolkata, West Bengal 700019, India
[4] Former Joint Director, Zoological Survey of India
Email: [3] gkszoo@rediffmail.com (Corresponding author)

Medicinal plants are receiving global attention as 70% of the medicines used by human beings are of plant origin. Since the Indian System of Medicine (ISM) mostly depends upon herbal medicines which are less costly and also free from side effects, Government of India is encouraging popularization, cultivation, conservation and utilization of medicinal plants for prevention and cure of diseases encountered in day-to-day life. Unfortunately, no sincere effort has ever been made in India including West Bengal to explore phytophagous and predatory mites that occur on medicinal plants resulting in great economic loss. The only published document in this respect is of Ghosh and Gupta (2003), which documented the available information in this regard. However, plants considered there were known more as vegetables, fruit trees and ornamental plants and not as true medicinal plants. The present study was taken up to conduct a thorough survey of medicinal plants in Kolkata metropolis (Medicinal Plants Garden of: (i) Ramakrishna Mission Ashrama, Narendrapur; (ii) Agri-Horticultural Garden, Alipore; (iii) Experimental Garden, Department of Botany; and (iv) Bidhan Chandra Krishi Viswavidyalaya) and the results are presented here.

A total of 48 species of mites collected from 35 species of medicinal plants are reported here; 17 species of phytophagous mites (Table 1) representing four families viz. Tetranychidae (11 spp., 5 gen.), Tenuipalpidae (3 spp., 1 gen.), Tarsonemidae (2 spp., 2 gen.) and Eriophydae (1sp.). Among those, *Tetranychus urticae*, *Schizotetranychus cajani*, *Panonyhus citri* and *Polyphagotarsonemus latus* are important pest species causing substantial damage to respective host plants. The others did not inflict any noticeable damage. Maximum diversity among phytophagous group was noted in Tetranychidae (11 spp.) followed by Tenuipalpidae (3 spp.). Among medicinal plants, *D. metel* harboured the maximum number of species (13 spp., 10 gen., 7 fam.) followed by *Adhatoda vasica* (6 spp., 5 gen., 5 fam.). Among 31 species of other mites belonging to predatory groups, 12 were recorded as efficient predators feeding on a number of phytophagous mites and other insects as listed in Table 2.

The family Phytoseiidae represented the maximum number of species (16 spp.) of which four species were found to be efficient predators. The other predatory mites belonging to Stigmaeidae,

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