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TEA PEST *PARASA LEPIDA* MOORE (LEPIDOPTERA: LIMACODIDAE) FROM BANGLADESH WITH REFERENCE TO ITS DESCRIPTION AND CONTROL STRATEGY

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ABSTRACT

Parasa lepida Moore, recorded from Sylhat, Bangladesh, a pest of tea plant. Its larva feeds on leaves, the adult female described in detail with reference to its head, venations of fore and hind wings, genitalia, cocoon, larvae and economic importance.

Key Words: Description, Control, tea pest, *Parasa lepida* Moore, Limacodidae, Bangladesh.

INTRODUCTION

Moore (1958) had discovered the genus Parasa, earlier Schaeffer and Walker both recognized the same as *Neoera,* which was preoccupied in 1830 for *Diptera.* Moore (1882) described the genus *Parasa*, under the family Limacodidae along with three species and eight other genus under the same family. Cotes and Swinhoe (1887) listed genus *Parasa lepida,* recorded from Swinhoe, Mhow, Mombay and Ceylon and placed it under the family Limacodidae of the group Bombyces. In last decades of nineteenth century, Hampson (1892) re-described the genus *Parasa* along with twenty-four other genera, under the family Limacodidae, recorded from India, Ceylon and Java, he also listed fourteen species under the genus *Parasa.*

In the begning of twentieth Century, Lefroy (1909), Seitz (1913), Fletcher (1914) and Beeson (1941) recorded and listed *genus Parasa* accommodating the species *lepida* Moore, recorded from Oriental region. Chaudhry *et.al.* (1966 and 1970) listed five genera under the family Limacodidae, recorded from throughout India, Ceylon, and Java. They also mentioned the host plants viz. Coffee, Castor, Maize and *Ficus* sp. Hashmi and Tashfeen (1992) have listed genus *Parasa* along with six species, including *P. lepida* Moore under the family Limacodidae.

MATERIALS AND METHODS

The adult specimens of *Parasa lepida* Moore, were collected with the help of light trap from Sylhet, Bangladesh and were identified with the help of available literature as mentioned in references. For the study of sex genital complex the abdomen was excised at the base and boiled in 10% KOH solution for about 5-minutes and then washed with tap water. The genitalia was removed from the abdomen for detail examination and later individual elements of the genitalia and the associated structures were removed as required and examined, using ocular grid under leitz weitzler dissection microscope on a graph paper, which later were transferred on drawing sheet and finalized with pelican ink. All the diagrams are to the given scale.

RESULT

Genus: *Parasa lepida* Moore

Parasa. Moore, 1859, Lep. *E.I.Co:* 413 *Neaera,* Herrich – Schaeffer, 1854, *Sammal, Aussereur; Schmett. I,* nov. Praeocc.

Diagnostic features

Body stout, thorax thick, palpi porrect, densely pilose, extending slightly beyond the head, laterally thickened and pointed in front, legs thick, pilose, tibiae and base of tarsi laterally fringed, antennae in male closely bipectinated to about one – third from the base, in females simple, small and broad, forewings with nearly straight costa, rounded at apex, exterior margin oblique, posterior angle convex, first subcostal emitted at one-third and second from close to end of the cell, third from the end, trifid, discocellulars bent very acutely inward in the middle, emitting a discoidal veinlet within the cell, upper radial from middle of upper discocellular, lower radial from lower discocellular above end of the cell, lower median at one-third and middle median at one-sixth before end of the cell,

submedian running close to median, internal vein with a lower branch at one-third from its base, hind wing short, subcostal bent upward near base and slightly touching the costal, two subcostal branches on a foot stalk at one-fifth beyond end of the cell, upper discocellular veinlet emitted from angle within the cell.

Comparative note

This genus is most closely related to *Miresa* Walker in having venations of fore wings and general appearance but it can easily be separated from the same in having body more luxly clothed, legs and entire tarsi pilose, antennae in male with stouter branches, and with short branches extending to tip, palpi short, lens thickened in front, wings short and more brooder and by the other characters as noted in the description.

Type species:

Parasa lepida Moore, from Ceylon.

Distribution:

Oriental region

***Parasa lepida* Moore**

(Figs. 1-6)

Parasa lepida, Moore, 1859. *Cat., Lep. Mus. E.I.C. 2*:413, p1.21., 1867, Proc. Zool. Soc. Lond. P.684.,
Phalena Noctua lepida, Cramer, 1777, *Pap. Exct. 2.*
Neara graciosa, Walker, 1855. *Cat. Lep. Het. B.M. 5*: 1139.

Colouration

Body and legs of both adult male and female ferruginous brown, head green redish brown at the sides, thorax green, with a brown strips on the vertex, abdomen brown, forewings with a broad medial very obliquely transverse grass-green band, the inner border of the band ending at the posterior base of the wings, base of the wings darker ferruginous-brown, hind wings pale ferruginous-brown, the base tinged with olive-brown, (Fig.1)

Head

Eyes moderate, frons broad, palpi turned upward, basal segment half of the 3rd segment, length of 3rd segment about half of the 2nd segment (Fig.3).

Fore wings

Fore wings (Fig.4) small, broad, with mearly straight costa, apex rounded, outer margin oblique, posterior angle convex, veins R_1 and R_2 originate from above upper angle of cell, veins R_3, R_4 and R_5 largely stalked and originate from upper angle of cell, veins M_1, M_2 and M_3 originate separately from above lower angle of cell, Cu_1 and Cu_2 originate separately from below lower angle of cell, two anal veins (1A, 2A) are present.

Hind wings

Hind wings (Fig.5) short, broad, veins Rs and M_1 anastomasing and originate from upper angle of cell, veins M_2 and M_3 originate separately from above lower angle of cell, veins Cu_1 and Cu_2 originate separately from below lower angle of cell, two anal veins (1A, 2A) are present.

Female genitalia

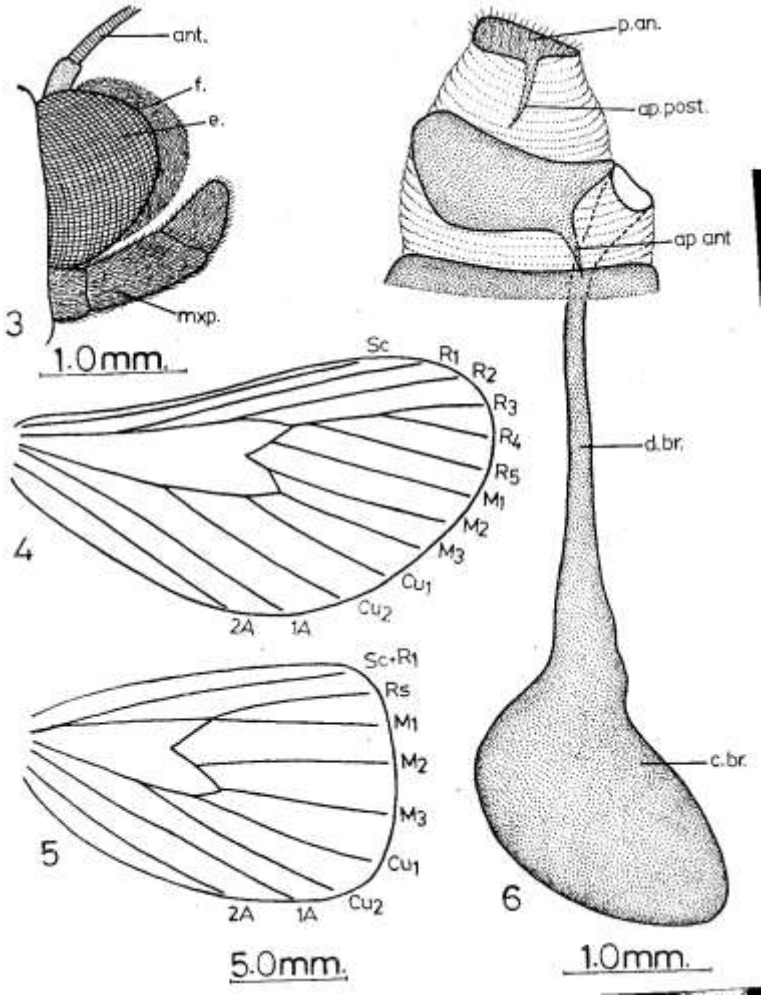
Papillae anales large, triangular-shaped best with hairs, apophysis posteriors thorn-like longer than apophysis anteriors, ductus bursae tube-like, corpus bussae bag-like without cournuti (Fig.6)

Body Size

Body 40 – 42 mm with wings expansion (Fig.1).

Life cycle

A single female *parasa lepida* Moore lay around 300-600 eggs on the leaves of the host plant. The young caterpillars are brightly coloured very sociable, and feed at first only on the undersides of the leaves. The caterpillars pupate by forming a hard cocoon. The pupation takes place either in the soil or on stems and leaves. The life cycle from egg to adult lasts 42-60 days.



Figs.1-6. *Parasa lepida* Moore 1. entire, dorsal view; 2. larvae, lateral view; 3. head, lateral view; 4. fore wing, dorsal view; 5. hind wing, dorsal view; 6. female genetalia, lateral view.

Key to the laterings

ap.ant. (apophysis anteriors), ap.post (apohysis posteriors), ant. (antenna), c.br. (corpus bursae), d.br. (ductus bursae), e. (eye), f. (frons), mx.p. (maxillary palpi), p.an. (papillae anales), 1A. (anal vein 1), Cu_1 & Cu_2 (cubital vein 1 and 2), M_1-M_3 (median vein 1 to 3), R_1-R_5 (radius vein 1 to 5), Rs. (radio-suctorial vein), Sc. (Sub-costal vein), $Sc+R_1$ (sub-costal and radius vein 1).

Eggs

Eggs flat and overlapping each other, and covered by a transparent cement.

Larva

Larva (Fig.2) limaciform, pale green, whitish or bright yellowish green above, with a dorsal and a lateral dark green band, a sub-dorsal and a sub-lateral row of short fleshy spinous tubercles, the spines of anterior and posterior tubercles tipped with red posterior tubercles tipped with red tinged.

Cocoon

Cocoon oval – shaped in purple brown colour.

Material examined

Two females, sylhat, Bangladesh, August 2000, on light trap, leg. Shamim Ahmed, lodged at authors collection.

Comparative note

This species is most closely related to *Parasa repanda* Walker in having general body shape, palpi project beyond frontal tuft of frons, fore wings short, broad and rounded at apex, hind wings short and broad with a terminal pair of spurs, but it can easily be separated from the same in having, basal brown patch of the forewings with an irregular lower edge, the marginal brown area narrower and even throughout with a silvery-white line on its inner edge and by the other characters as noted in the description.

Food plants

Tea, Coffee, Corn, Black paper and Coconut palms.

Injury

The caterpillars feed on nature leaves, particularly those low down in the bush, caterpillars have distinct markings, usually of different colours and a most striking segmentation. The backs of the caterpillars are furnished with stinging hairs, which have an irritant effect on the skin.

Control

Stinging caterpillars can be effectively controlled by spray, having DDT 50% W.P. 3-5 lbs, Dieldrin 50% W.P., l lb, Eadrin 20% E.C. 9-12 ozs and Lead arsenate 4 lbs. These insecticides may be used in 100gallons of water. These insecticides have proved to be effective in controlling this pest. The treatment should be repeated two or three times at intervals of 14 days.

Economic importance

Parasa lepida Moore is widespread in Asia and Africa. Direct material damage is in the form of leaf destruction, some times to the extent of skeletonization. The caterpillars are also a great nuisance because of the extreme discomfort, which they cause to workers who have to pluck tea or carryout other operations in on affected plantation. They pupate in the soil often shed their stinging hairs on the ground surface so that workers cannot enter the plantations without wearing shoes.

DISCUSSION

The *genus parasa* Moore of the family Limacodidae, includes fourteen species distributed in Sylhet, Bengal, India, Ceylan, Burma, Japan, China, Java, Sikkim, Simla, Nepal, mostly on high altitude. The present species is recorded from Sylhet, Bangladesh.

The present species *Parasa lepida* Moore isolated from other species by its autapomorphies like second segment of maxillary palpi about one and half time longer than 3^{rd} , proboscis reduced fore wings with veins R_3 and R_4 largely stalked, later stalked with Rs and originated from upper angle of cell, M_3 directly originates from lower angle of cell, hind wings with veins Rs and M_1 anastomosing and originate from upper angle of cell, in females papillae anales short, apophysis posteriors longer than apophysis anteriors, ductus bursae very long tubular.

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