



*Research Paper*

**TAXONOMIC STATUS OF *Imaus mundus* (WALKER) (LYMANTRIIDAE: LEPIDOPTERA) FROM INDIA**

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**Abstract**

The present communication deals with the taxonomic studies on *Imaus mundus* (Walker) which is the type species of genus *Imaus* Moore. The external morphological characters including the wing maculation, venation and particularly the male external genitalic features of this species has been studied and illustrated in detail. This monotypic genus is characterized by bi-lobed uncus, simple valvae in male genitalia. The genus diagnosis has also been updated.

Key words: *Imaus*, genitalia, Lymantriidae, *mundus*.

**INTRODUCTION**

Moore [7] established the genus *Imaus* with *mundus* (Walker) as its type species from Bangladesh (Sylhet) as a monotypic genus. Hampson [3] described two species namely *mundus* (Walker) and *albus* Moore under this genus. Holloway [4] shifted the species *albus* Moore to genus *Dura* Moore as its type species. Chao [1] followed Holloway and included this genus with single species in *Fauna Sinica*. In the present studies, the external morphological features including wing maculation, venation and particularly male genitalic features of this species i.e., *mundus* (Walker) have been studied and illustrated in detail.

**MATERIAL AND METHODS**

The adult moths referable to family Lymantriidae were collected by conducting survey cum collection tours in different localities of Himachal Pradesh (North-West) India by using light traps equipped with a 160 w mercury bulb and a 2 × 2.5m white screen. The present species under reference was sorted out from the collected material and identified on the basis of external morphological characters [3]. To study of wing venation, the methodology proposed by Zimmermann [11] was followed. The specimen was dissected out to examine the male external genitalic features [8] and the terminology for naming various genitalic parts given by Klots [6] was followed in the present communication.

**ABBREVIATIONS:** 2A: Second anal vein; 3A: Third anal vein; AED: Aedeagus; CA: Costula; CU<sub>1</sub>: First cubital vein; CU<sub>2</sub>: Second cubital vein; DU.EJ: Ductus Ejaculatorius; M<sub>1</sub>: First Medial vein; M<sub>2</sub>: Second Medial vein; M<sub>3</sub>: Third Medial vein; R<sub>1</sub>: First Radial vein; R<sub>2</sub>: Second Radial vein; R<sub>3</sub>: Third Radial vein; R<sub>4</sub>: Fourth Radial vein; R<sub>5</sub>: Fifth Radial vein; Rs: Radial sector; SA: Saccus; Sc: Subcosta; Sc+R<sub>1</sub>: Subcosta and first radial vein; TG: Tegumen; UN: Uncus; VIN: Vinculum; VLV: Valva.

## RESULTS

### GENUS *IM AUS* MOORE

Moore, 1879, *Descr. Lepid. Coll. Atkinson*, 54; Hampson, 1892, *Moths India*, 1: 466; Swinhoe, 1922, *Ann. Mag. Nat. Hist.*, (9) 10 (58): 571; Holloway, 1999, *Moths Borneo*, 5: 23; Chungling, 2003, *Fauna Sinica*, 30:332; Kaleka, 2012, *Colemania*, 34:5.

**Type Species:** *Imaus mundus* (Walker)

**Distribution:** India (Himalayas); China; Malay Peninsula; Sundaland (Borneo, Java and Sumatra).

**DIAGNOSIS:** Labial palpus long, slender, porrect. Antennae bipectinate in both sexes. Forewing triangular produced at apex; discal cell more than half the length of wing, discal cell closed; 1A+2A from base of wing; 3A absent; Cu<sub>2</sub> from beyond two-thirds of cell; Cu<sub>1</sub>, M<sub>3</sub>, M<sub>2</sub> from near lower angle of cell; M<sub>1</sub> from upper angle of cell; R<sub>5</sub>-R<sub>2</sub> stalked; Sc from base of wing not reaching apex. Hindwing with discal cell more than half the length of the wing, discal cell closed; 1A from base of the wing not reaching the tornus; 2A from base of wing reaching tornus; 3A absent; Cu<sub>2</sub> from beyond two-thirds of lower angle of cell; Cu<sub>1</sub>, M<sub>3</sub>, M<sub>2</sub> from near lower angle of cell; M<sub>1</sub> from upper angle of cell; Sc+R<sub>1</sub> from base of wing anastomosing before middle of cell. Fore leg with distinct epiphysis; mid leg with one pair of tibial spur; hind leg with two pairs of tibial spurs. Male genitalia with uncus broad, semi-sclerotized, dorsally setosed; tegumen narrow; vinculum with V-shaped saccus; juxta oblong; valve simple, undivided; aedeagus of moderate size, dilated proximally; vesica without any distinct armature.

### *Imaus mundus* (Walker)

(Figs 1-6)

*Lymantria munda* Walker, 1855, *Cat. Lepid. Het. Brit. Mus.*, 4: 875.

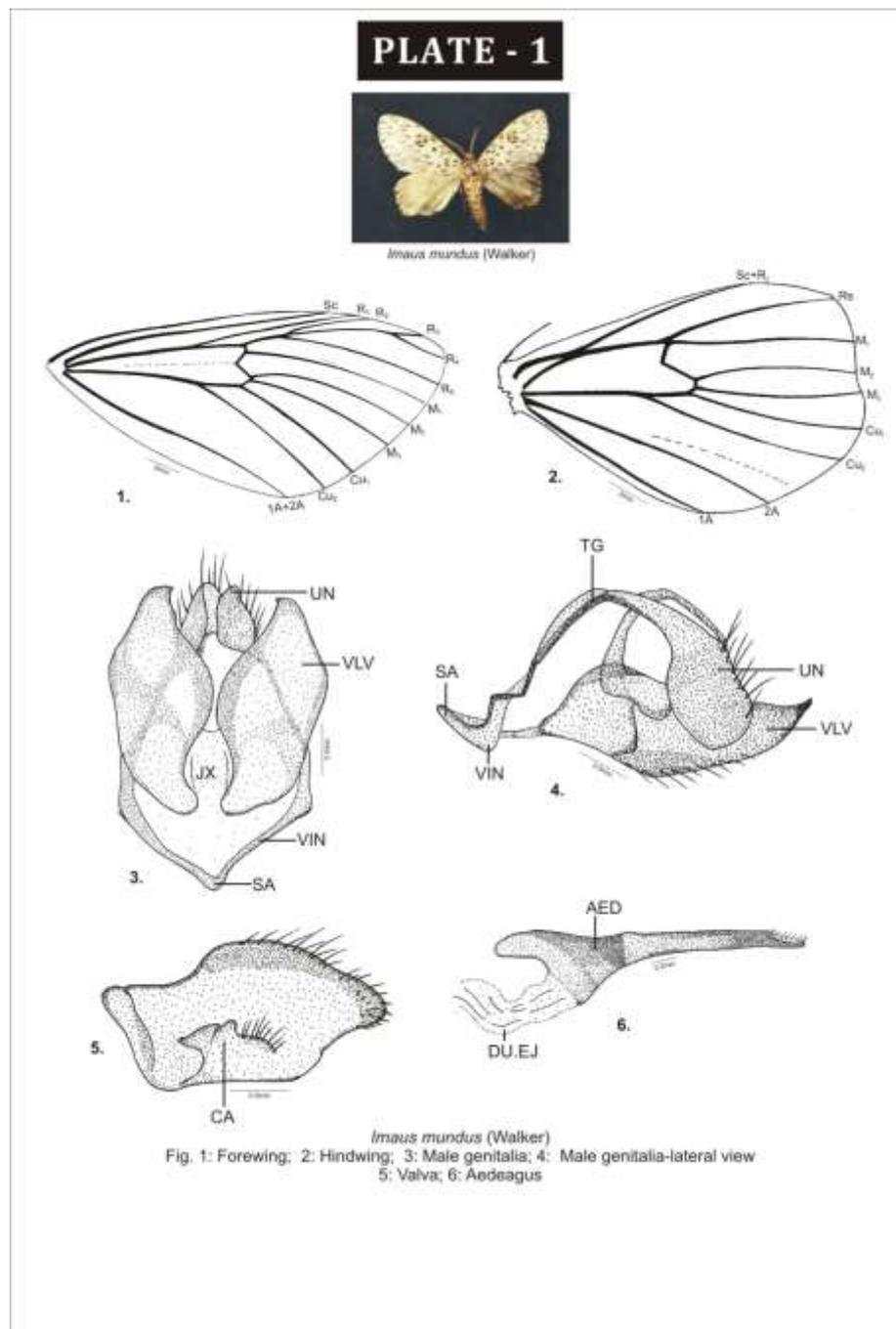
*Imaus mundus* Walker: Moore, 1879, *Descr. Lep. Coll. Atkinson*, 1879: 54; Hampson, 1892, *Moths India*, 1:467; Chao, 2003, *Fauna Sinica*, 30: 333.

*Imaus munda* Walker: Collenette, 1932, *Novit. Zool.*, 38:100; Holloway, 1999, *Moths Borneo*, 5:23; Kaleka, 2012, *Colemania*, 34:6.

**Type Locality:** Sylhet (Bangladesh)

**DIAGNOSIS:** Head with vertex and frons clothed with pale brown scales; Antennae with scape and flagellum pale brown, bipectinate, branches pale brownish in colour, reduced at distal end; Labial palpus long, slender, porrect, covered with iron grey scales; thorax, collar and tegula clothed with pale brown scales, thorax with black spots. Legs dressed with brown scales. Abdomen pale brown; series of black spots on both dorsal and ventral sides; underside paler.

**WING MACULATION:** Forewing triangular, produced at apex with prominent subbasal and antemedial series of spots; a prominent spot in discal cell and line on each side of discocellulars; a highly dentate postmedial line; a well marked series of submarginal lunules and marginal spots; underside paler; Hindwing with indistinct submarginal band and a series of marginal specks; underside paler.



**WING VENATION:** Forewing with  $Cu_2$  from well beyond two-thirds of cell;  $Cu_1$  well before lower angle of cell;  $M_3$  from lower angle of cell;  $M_2$  above lower angle of cell;  $M_1$  from upper angle of cell;  $R_5$ - $R_2$  well stalked from well before upper angle of cell;  $R_1$  well beyond two-thirds of cell;  $Sc$  from base of wing not reaching apex. Hindwing with  $Cu_2$  from well beyond two-thirds of lower angle of cell;  $Cu_1$  from well before lower angle of cell;  $M_3$  from lower angle of cell;  $M_2$  from well above lower angle of cell;  $M_1$  from upper angle of cell;  $Rs$  from just before upper angle of cell;  $Sc+R_1$  from base of wing anastomosing before middle of cell.

**MALE GENITALIA:** Uncus quite broad, semi-sclerotized, dorsally setosed, ventrally with flap-like lateral projections, distal end notched giving bifid appearance; tegumen narrow, U-shaped, semi-sclerotized; vinculum shorter than tegumen ending into narrow V-shaped saccus; juxta oblong, medially emarginated, semi-sclerotized. Valva simple,

semi-sclerotized, broad medially; costula distinct having nearly membranous setose outgrowth; distal end of valva narrow, rounded armed with small setae. Aedeagus of moderate size, proximal end flap-like, broad; ductus ejaculatorius entering directly under this flap; distal end slightly more sclerotized; vesica without any distinct armature.

**Wing Expanse:** Male: 56mm-62mm.

**Body Length:** Male: 21mm.

**Material Examined:** Himachal Pradesh: Narag, 06.vii.14, 2♂♂.

**Distribution:** India (Throughout North-East India); China; Malay Peninsula; Sundaland (Borneo, Java, Sumatra).

**Remarks:** The collection of this species from Himachal Pradesh is its first record from North West India. Walker [10] established this species as *munda* under genus *Lymantria* Hübner. Moore [7] erected a monotypic genus *Imaus* on the basis of this species and spelled it as *mundus*. Though Collenette [2], Holloway [4] and Kaleka [5] followed this placement but spelled it as *munda* Walker. Hampson [3], Chao [1] and in the present communication, this species is named as *mundus* Walker as proposed by Moore.

#### ACKNOWLEDGEMENT

The financial assistance by UGC, New Delhi is greatly acknowledged.

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