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Harkanwal Singh
Department of Zoology and
Environmental Sciences,
Punjabi University, Patiala-147 002,
Punjab, India

Corresponding Author:
Harkanwal Singh
Department of Zoology and
Environmental Sciences,
Punjabi University, Patiala-147 002,
Punjab, India
E-mail: dr.harkanwalsingh@gmail.com

Detailed Studies on Female Genitalia of *Anua mejanesi* (Guenee)

Authors: Harkanwal Singh

Abstract

Three female representatives of *Anua mejanesi* (Guenee) have been captured with the help of light traps from far flung localities of Arunachal Pradesh and studied by following techniques in Lepidopterology. The identification of collected specimens was done with the help of relevant literature and confirmed by making comparison with the identified collections lying in different National museums i.e. Forest Research Institute (FRI), Dehradun and Indian Agricultural Research Institute (IARI), New Delhi. Genitalic attributes provide species specific character for the identification of moths. Species *Anua mejanesi* (Guenee) has been redescribed by incorporating external female genitalic characters in its diagnosis and recorded for the first time from North-East India.

Keywords: Lepidoptera, Noctuidae, *Anua* Walker, Female genitalia

1. Introduction

Genus *Anua* was devised by Walker on its type species *Anua amplior* Walker from South Africa ^[1]. Hampson listed 42 species under genus *Anua* along with three new species viz., *intact* Hampson, *hituensis* Hampson and *tongaensis* Hampson ^[2]. Swinhoe added another species *clemati* Swinhoe in this genus ^[3]. Gaede added four species i.e. *sherlokiensis* Gaede, *keyensis* Gaede, *timorensis* Gaede and *albosensis* Gaede ^[4]. In the present study, three female representatives of a species belonging to *Anua* Walker were collected from different localities of North-East India. After critically examining various morphological features, the species was identified as *mejanesi* (Guenee). Female genitalia of species *meganesi* (Guenee) has been described and photographed for the first time.

2. Materials and Methods

Intensive and extensive collection-cum-survey tours have been conducted in Northeast India between September, 2009 to May, 2012. The collection of adult Noctuid moths have been made with the help of light traps fitted at different places during night time. Both vertical sheet and portable light trap methods have been used for this purpose. Petromax lamp/battery operated lamp was also used for collection purpose in some areas where electricity supply was not available. Collection was done in pre-monsoon and post-monsoon seasons.

Three female representatives of *Anua mejanesi* (Walker) have been collected from Arunachal Pradesh. The identification of captured specimens was done with the help of relevant literature^[5,6]. For study of genitalic attributes, the abdomen detached from the body of preserved moth with needle and forceps, as cutting of last few segments often damages the constituent parts of female genitalia. The detached abdomen dropped in test tube containing 10% KOH overnight to soften the chitin and for removal of muscles and other unwanted parts. The potashed material washed in distilled water and residual traces of KOH removed later by dipping these structures in 1% glacial acetic acid. The abdomen dissected in 50% alcohol for taking out the female genitalic structures. After proper dehydration in different grades of alcohol, the genitalic structures were cleared in clove oil and then mounted in Canada balsam on cavity slides^[7]. The terminology given by Klots has been followed in the present studies for naming different structures of genitalia^[8].

3. Results and Discussion

3.1 Genus *Anua* Walker

Walker, 1858, 15: 1788.

Type species: *Anua amplior* Walker.

3.1.1 Diagnosis: Proboscis fully developed; palpi upturned, 2nd joint reaching to vertex of head and moderately scaled, the 3rd rather long and oblique; frons smooth with pointed tuft of hair above; eyes large, round; antennae of male ciliated. Thorax clothed with hair only and without crests; fore coxae, femora, and tibiae tufted with long hair, the mid and hind tibiae slightly fringed with hair, the fore tibiae not

spined, the mid and hind tibia spined. Abdomen with dorsal ridges of hair on basal segments. Fore wing rather long and narrow, the apex rounded, the termen crenulate; veins Cu₁ and M₂ from near angle of cell; M₁ from upper angle; R₃ from R₂ anastomosing with R₄ to form the areole; R₁ from cell. Hind wing with the cell about one-third length of wing; veins Cu₁, M₃ from angle; M₂ fully developed from just above angle; M₁, Rs from upper angle; Sc+R₁ anastomosing with the cell near base only (Fig. A & B).

3.2 *Anua mejanesi* (Guenee)

Ophiodes mejanesi Guenee (1852) *Noct.*, 3: 232.

3.2.1 Description: Head reddish chocolate; palpi upturned, irrorated with white scales; antennae ciliated, shaft of antennae white; collar reddish brown. Thorax reddish brown, with violet tinge. Forewing reddish chocolate irrorated with dark specks; a short indistinct subbasal line; an outwardly oblique, slightly sinuous, ochreous antemedial line; the orbicular reniform dark with ochreous edges, the former minute; an ochreous postmedial line excurved beyond the cell, then sinuous to inner margin, with an indistinct series of fuscous spots beyond it; a waved submarginal line, area beyond it purplish grey, with black specks between veins towards inner margin; a crenulate marginal line. Hindwing with basal area whitish, outer area fuscous black; cilia white, dark at centre. Abdomen grey. Underside with basal area of both wings white with cell spot, outer area fuscous.

3.2.2 Female genitalia: Papilla analis small, round, setosed with long setae; posterior apophysis longer than the anterior apophysis; ductus bursae small, flat, ribbon shaped, strongly sclerotized; corpus bursae large, sclerotized; signum absent (Fig. C-E).

3.2.3 Material Examined:

Arunachal Pradesh: Hunli 18.ix.2011- 3♀♀.

3.2.4 Distribution: W. Africa; Throughout India.

PLATE



Anua mejanesi (Guenee)

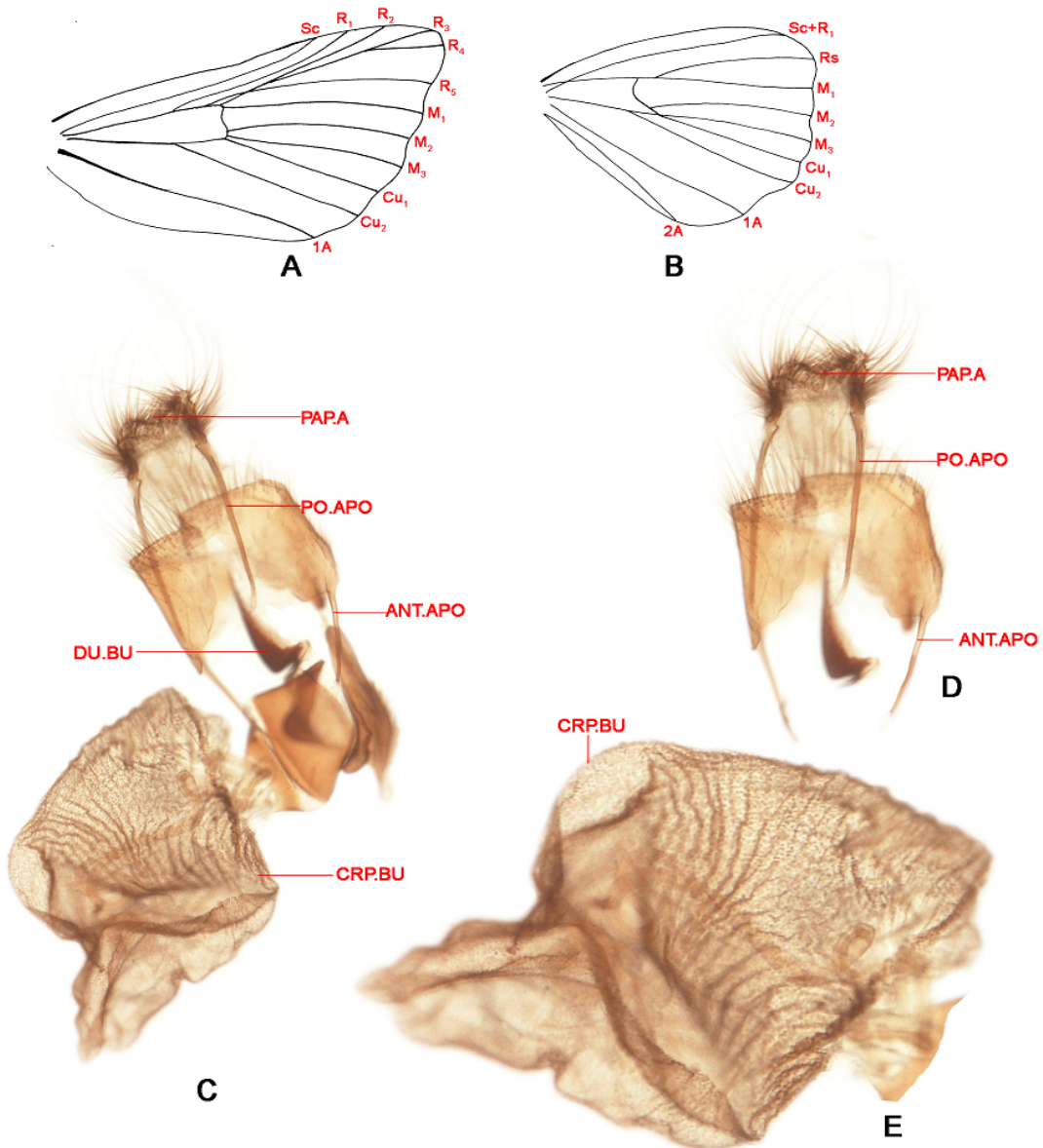


Fig: A. Forewing, B. Hindwing, C. Female genitalia, D. Papilla analis with Apophysis, E. Corpus Bursae (Enlarged)

4. Conclusion

Genitalic attributes provide species specific character for the authentic identification of moths. *Anua meganesi* (Walker) has been recorded for the first time from North- East India.

5. Abbreviations

PAP.A: Papilla analis; ANT.APO : Anterior apophysis; CRP.BU : Corpus bursae; DU.BU : Ductus bursae; PO.APO : Posterior apophyses; Cu1 : First cubital vein; Cu2 : Second cubital vein; 1A : First anal vein; 2A : Second anal vein; M1 : First medial vein; M2 : Second medial vein; M3 : Third medial vein; R₁ : First radial vein; R₂ : Second radial vein; R₃ :Third radial vein; R₄ : Fourth radial vein; R₅ : Fifth radial vein; Rs : Radial sector; Sc+R₁ : Stalk of Sc and R₁.

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