Further Studies on the Moth, *Cricula trifenestrata* from North-West India (Lepidoptera : Saturniidae)

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Walker (1855) proposed the genus *Cricula* with *trifenestrata* (Helfer) as its type species, the same nomenclature was followed by Hampson (1892), Holloway (1987), Nassig & Treadaway (1989) and Pinratana & Lampe (1990). The species *trifenestrata* was first collected from Assam by Capt. Jenkins and Helfer named it because of the presence of three windows (tri-three and fenestrata-windows) on the forewing (Krushna, 2016). The "windows" markings are completely transparent as they do not have any holes. Hampson (loc. cit.) described two species under this genus i.e. *trifenestrata* and *drepanoides*. Nassig (1989) shifted species *drepanoides* to genus *Solus* Watson. Presently, this genus is represented globally by twelve species and four subspecies (Pinratana & Lampe, 1990; Nassig & Treadaway, 1998). Jordan (1909) described a subspecies i.e., *Cricula trifenestrata andamanica* from Andaman Island, but Nassig (1989) based on external morphological and genitalic features elevated it to the status of species. Till now, only three species are known from India viz. *trifenestrata* (Helfer) (Throughout India), *andrei* (Jordan) (North-East India) and *andamanica* Jordan (Andaman Islands) (Tikader et al., 2014). Out of these, only one species, the type species *trifenestrara* is known from North-West India.

It is a voracious feeder and polyphagous insect which infests a variety of plant species and feed gregariously on the leaves and known leaf defoliator. In the present studies, the external morphological characters including the species specific characters such as wing maculation, venation and male genitalic features of this species have been studied in detail. The procedure given by Robinson (1976) to explore the external genitalic attributes has been followed and to study wing venation, the procedure given by Zimmerman (1978) has been adopted. The terminology for naming different genitalic features is after Klots (1970).

Genus *Cricula* Walker

Walker, 1855, *List Spec. Lepid. Insects Coll. Br. Mus.* 5: 1186.

Euphranor Her-Schoff, 1858, *Samml. Aus. Eus. Schmet.*, 1858: 61 (Syn.)

Type species: *trifenestrata* Helfer

Distribution: Bhutan, Bangladesh, Indonesia, India, Malaysia, Philippines and Sri Lanka

Diagnosis : Probosis distinct, short. Labial palpus minute. Antennae bipectinate, pectinations reduced towards apex. Forewing broad, apex acute, excised below apex, rounded at tornus; discal cell closed, vein 3A+2A basal forked; 1A absent; M3 from lower angle of discal cell; R1 absent; Sc emerging from base of wing not reaching up to apex. Hindwing globular; frenulum absent; vein M3 from lower angle of cell; Sc+R1 from base of wing. Legs pilose; hind tibia with two small pair of tibial spurs; forelegs with epiphysis. Abdomen thickly fringed with scales. Male genitalia with uncus bilobed; valva elongated; aedeagus heavily sclerotized with triangular projections representing cornuti.

***Cricula trifenestrata* (Helfer)**

Saturnia trifenestrata Helfer, 1837, *J. Asiat. Soc. Bengal*, 6 (10): 45.

Cricula trifenestrata Helfer: Walker, 1855, *List Spec. Lepid. Insects Coll. Br. Mus.* 5: 1186.

Cricula ampotoni Randot, 1887. *Lart. Soie*, 2: 199. (Syn.)

Cricula burmana Swinhoe, 1890. *Trans. Ent. Soc.*, 1890: 198. (Syn.)

Diagnosis: Head and thorax ochreous, tinged with yellow scales; underside yellow. Forewing with ground colour ochreous suffused with yellow and fuscous scales; zig-zag antemedial line; hyaline spot beyond end of discal cell, one above it, upper one generally represented by a dark spot; an oblique line from apex reaches up to inner margin beyond middle, area beyond it suffused with grey; submarginal area dressed with fuscous-grey scales; marginal area yellow; underside yellow. Hindwing with ground colour ochreous, an oblique line from apex to inner margin before middle not touching costa; a hyaline spot beyond cell; wavy submarginal line; marginal area yellow; underside yellow. Legs ochreous, tinged with yellow scales. Abdomen ochreous intermingled with yellow scales, lateral sides yellow; underside ochreous, terminal end clothed with yellow scales.

Wing venation: Forewing with discal cell more than half length of wing; Cu_2 from one-third of discal cell; Cu_1 arising from two-thirds of cell; M_2 from above middle of discocellulars; M_1 from upper angle of cell; R_5, R_4, R_3 and R_2 all stalked from middle of cell. Hindwing with discal cell

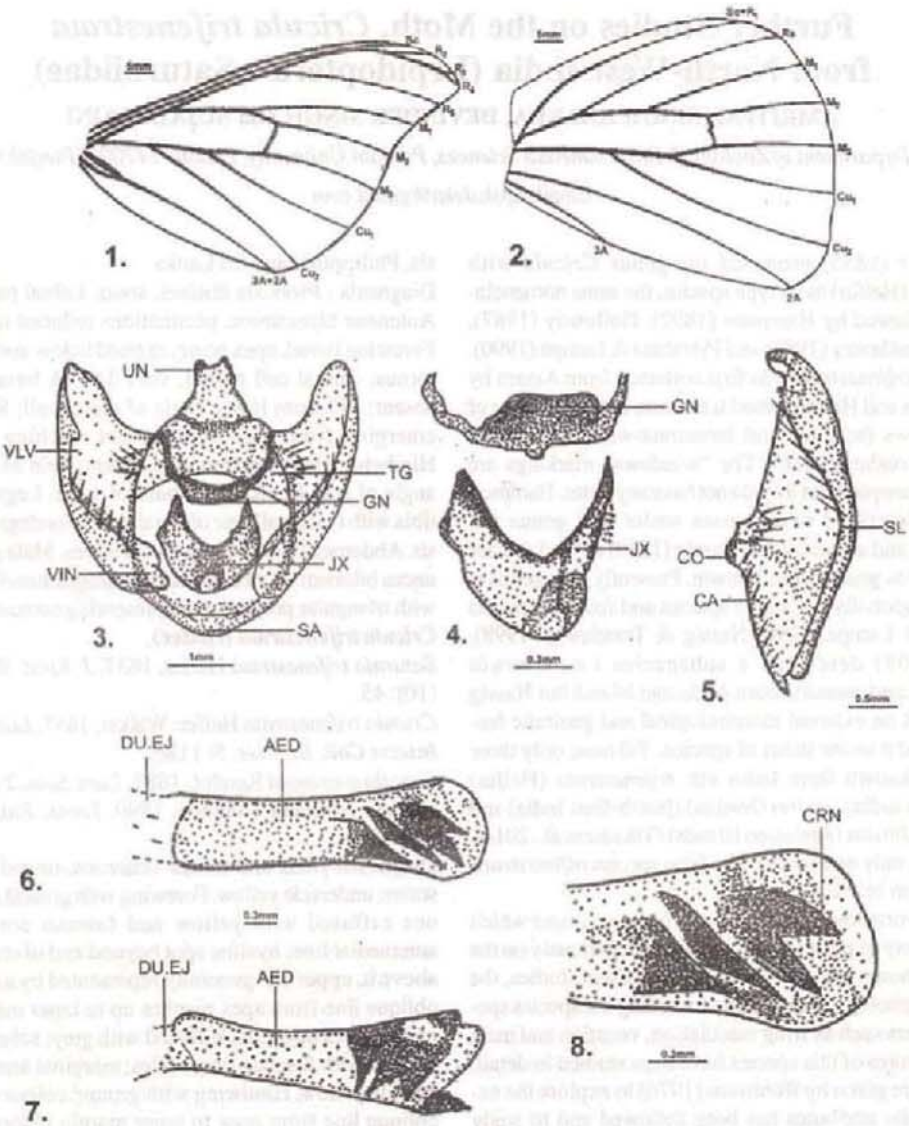

Fig. 1.- *Circula trifenestrata* (Helfer) : 1. Forewing, 2. Hindwing, 3. Male Genitalia-ventral view, 4. Gnathos & Juxta, 5. Valva Right, 6-7. Aedeagus, 8. Aedeagus-distal end.

Abbreviations : 1A-First Anal vein; 2A- Second Anal vein; AED- Aedeagus; CA- Costula; CO- Costa; CRN- Cornuti; Cu_1- First Cubital vein; Cu_2- Second Cubital vein; DU.EJ- Ductus Ejaculatorious; GN- Gnathos; JX- Juxta; M_1- First Median vein; M_2- Second Median vein; M_3- Third Median vein; R_2- Second Radial vein; R_3- Third Radial vein; R_4- Fourth radial vein; R_5- Fifth radial vein; Rs- Radial sector; SA- Saccus; Sc- Subcosta; Sc+R_1- Subcosta+ Radial vein; SL- Sacculus; TG- Tegumen; UN- Uncus; VIN- Vinculum; VLV- Valva.

more than half length of wing; 3A short, extending up to basal one-third portion of anal margin; 2A reaching up to tornus; Cu_2 arising from middle of cell; Cu_1 from three-fourths of discal cell; M_2 from middle of discocellulars; M_1 from upper angle of discal cell; Rs from middle of discal cell. Male genitalia: Uncus of moderate size, slightly sclerotized, broad at base, gradually narrowing towards distal end, distal end bilobed, both lobes curved with blunt apices, in lateral view giving beaked appearance, setosed with micro setae on lateral sides; gnathos with both arms narrow, fused in middle to form a well sclerotized prominent nearly squarish projection; tegumen quite broad, semi-sclerotized, narrow towards vinculum; vinculum narrow, 'U' shaped without distinct saccus; juxta triangular, cone shaped, proximal end narrow, curved ventrally, distal end notched with well sclerotized triangular projection with serrated walls. Valva simple, elongated, moderately sclerotized, slipper shaped; sacculus differentiated, setosed, costal area having a short membranous setosed projections near middle of valva; distal half setosed, distal end differentiated, cucullus with rounded apex extending above valvula, valvula slightly more sclerotized, apex narrow. Aedeagus of moderate size, moderately sclerotized, ductus ejaculatorious entering directly from proximal end, distal end slightly globular, vesica armed with four large, heavily sclerotized triangular projections representing cornuti.

Wing expanse (half): Male: 41mm

Abdomen : Male: 14mm

Material Examined : Himachal Pradesh: Bharmour, Hadsar, 10.vii.2013, 1♂; Shimla, Fagu, 8.vii.2013, 2♂♂.

Distribution: Throughout India: Elsewhere: Java, Myanmar, Philippines, Sri Lanka and Sulawesi.

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