Genitalic Studies of a Moth, *Megacorma obliqua* (Lepidoptera : Sphingidae)

AMRITPAL SINGH KALEKA, DEVINDER SINGH,
PARMINDER KAUR and SUJATA SAINI

Department of Zoology & Environmental Sciences, Punjabi University, Patiala-147002 (Punjab).

E-mail: *apskaleka@gmail.com*

Walker (1856) described the present species i.e., *obliqua* under genus *Macrosila* for the first time. He distinguished this species from *Psilogramma menepheron* Cramer on the basis of the presence of a cavity on second segment of labial palpus, massive thorax and having a long black band along vein M3 of forewing reaching outer margin. Hampson (1892) discussed it under *Pseudosphinx discistriga* Walker. Rothschild & Jordan (1903) erected a new genus *Megacorma* for its proper placement. Bell & Scott (1937), D'Abrera (1986), Holloway (1987), Inoue *et al.* (1997) and Pittaway & Kitching (2000) have followed the same nomenclature for this monotypic genus.

Material and Methods

Survey tours were undertaken in North East India and South India. As many as 13 adult specimens were collected from different localities. The male and female specimens were dissected to explore the genitalic features. The terminology for naming different parts of genitalia has been followed after Klots (1970). Diagrams were drawn with the help of graph eye-piece fitted in Stereo-zoom binocular.

Genus *Megacorma* Rothschild & Jordan

Labial palpus short, porrect; second segment narrower at base, triangular; much shorter than first segment and having a cavity which is less deep than in other allied genera. Proboscis longer than body. Antenna broad near base, gradually thinning towards distal end. Thorax massive, extending far beyond base of fore wing. Forewing with apex pointed but not produced; anal margin strongly emarginate beyond middle; basal one-fourth portion of anal vein forked; Cu2 arising from middle of cell; M3 from lower angle; M2 from well below middle of discocellulars; M1 (R5, R4) stalked; discocellulars closed; discal cell less than half length of wing. Hindwing with apex rounded; both anals present; 2A forked at base; Cu1 from well before lower angle of cell; M2 from well below middle of discocellulars; M1 and Rs moderately stalked from upper angle of cell; Sc+R1 anastomosing with cell up to middle; discal cell half length of wing. Legs with hind tibia as long as first tarsal segment; mid tibia with one pair and hind tibia with two pairs of tibial spurs; tarsi long, slender, spines short; mid and hind tarsi with conspicuous comb of prolonged spines; pulvillus present. Male genitalia with uncus long, curved, with pointed tip; gnathos simple; tegumen inverted U-shaped, longer than vinculum; saccus narrow with round ending; juxta bean-shaped; transtilla narrow; valva slipper-shaped with both costa and sacculus differentiated; saccular projection having a row of numerous small pointed projections at its distal end; small spines present above saccular projection; no friction scales; aedeagus simple, without any sclerotized projection. Female genitalia with corpus bursae globular; signum lanceolate; ductus bursae quite long, membranous; ostium bursae guarded by semi sclerotized genital plate; ductus seminalis originating from anterior end of genital plate; anterior apophyses shorter than posterior ones; papilla analis oblong, fringed.

Remarks: The present genus is characterized by distinct labial palpus, long thorax, wing pattern and saccular projection in male genitalia. It is represented by single species i.e. *obliqua* (Walker) from the Oriental region.

***Megacorma obliqua* (Walker)**

Macrosila obliqua Walker, 1856, *List specimens Lepid. Insects Colln. Br. Mus. London*, 8: 208.

Wing Expanse: Male: 118-142 mm; Female: 146-150 mm.

Male genitalia: Uncus long, curved, narrow at middle, tip pointed, semi-sclerotized, dorsally setosed in middle; gnathos simple, hood-like, reaching lower level of uncus; tegumen broad, inverted U-shaped, longer than vinculum, slightly sclerotized; vinculum, short, well sclerotized; saccus narrow with rounded tip; juxta bean-shaped; transtilla narrow, moderately sclerotized. Valva extending well beyond level of uncus, slipper-shaped; costa demarcated, setosed; sacculus broad, semi-sclerotized; saccular projection broad at base, narrow at middle, broad distally having nine small pointed projections; small spines present above saccular projection; distal end of valva semi-membranous; well setosed, squarish. Aedeagus simple, narrow, both walls equally sclerotized, semi-sclerotized; vesica without any armature (Fig. 1).

Female genitalia: Corpus bursae globular, membranous; signum lanceolate; ductus bursae narrow, quite

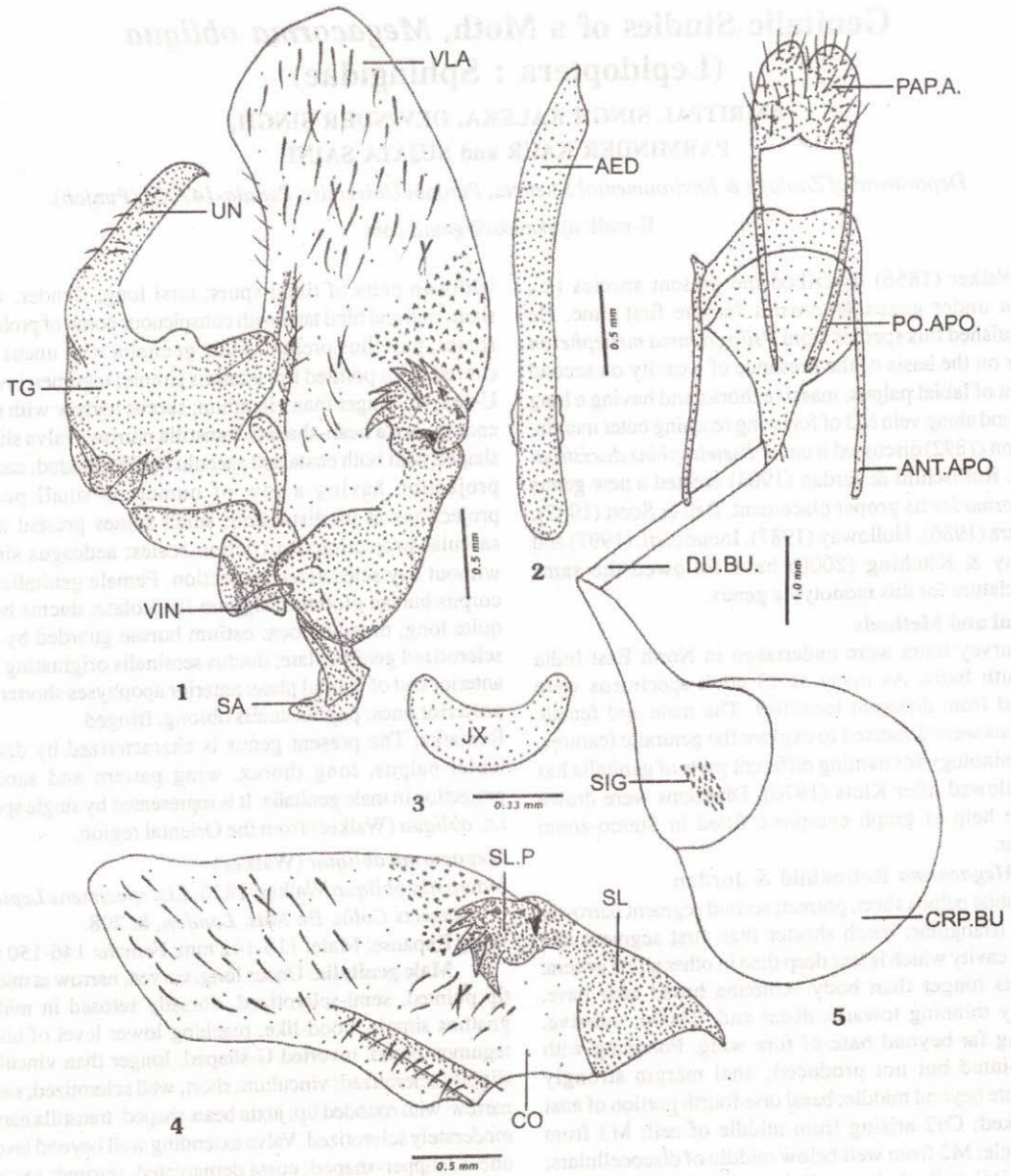

Fig 1. *Megacorma obliqua* (Walker):
1. Male genitalia - lateral view; 2. Aedeagus; 3. Juxta - Ventral view;
4. Valva - Ventral view; 5. Female genitalia.

Abbreviations : AED: Aedeagus; ANT. APO: Anterior apophyses; CO: Costa; CRP. BU: Corpus bursae; DU. BU: Ductus bursae; JX: Juxta; PAP. A: Papilla analis; PO. APO: Posterior apophyses; SA: Saccus; SIG: Signum; SL: Sacculus; SL.P: Saccular projection; TG: Tegumen; UN: Uncus; VIN: Vinculum; VLA: Valva.

long; ostium bursae guarded by semi-sclerotized genital plate; ductus seminalis originating from anterior end of genital plate; anterior apophyses shorter than posterior ones, apices inwardly bent; posterior apophyses narrow, long, apices blunt; papilla analis oblong with rounded tips, setosed with long setae (Fig. 1).

Material Examined: Arunachal Pradesh: West Kameng Distt., Bomdilla, 3.ix.1990, 1♂; 14.ix.1990, 1♂; 17.ix.1990, 1♂. Assam: North Cachar Hills, Jatinga, 3.ix.1991, 1♂; 4.ix.1991, 1♀; 6.ix.1991, 2♂♂, 1♀. Karnataka: Jog Falls; 17.VII.1991, 1♂. Meghalaya: Jowaii, 14.ix.1990, 2♀♀; Mizoram: Mammit, 29.ix.2013, 1♂, 1♀.

Distribution: India: Eastern Himalaya (Arunachal Pradesh, Assam, Meghalaya, Mizoram) and Karnataka. Elsewhere: Borneo, China, Indonesia, Java, Malaysia, Myanmar, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand and Vietnam.

Remarks: The reporting of this species from Jog falls (Karnataka) is its first record from South India. The females are larger than males, with darker wing maculation.

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'Bio Clock' Scientists bag Medicine Nobel Prize

US- born scientists Jeffrey C. Hall, Michael Rosbash and Michael W. Young won the 2017 Nobel Prize for Physiology or Medicine for their discoveries of molecular mechanisms controlling our biological clocks, the award giving body said in Stockholm.

The mechanisms help explain issues such as why people travelling long distances over several time zones often suffer jet lag and they have wider implications for health such as increased risk for certain diseases.

"(The three scientists') discoveries exlain how plants, animals and humans adapt their biological rhythm so that it is synchronised with the Earth's revolutions," the Nobel Assembly at Sweden's Karolinska Institute said in a statement.

The laureates used fruit flies to isolate a gene that controls the normal daily biological rhythm and showed how this gene encoded a protein that accumulates in the cell during the night and degrades during the day. "The clock regulates critical functions such as behaviour, hormone levels, sleep, body temperature and metabolism," the Assembly said on awarding the prize of 9 million Swedish crowns ($1.1 million).

Thomas Perlmann, secretary at the Karolinska Institute Nobel Committee, described the reaction of Rosbash when first informed of the award: "He was silent and then he said 'you are kidding me'."

Medicine is the first of the Nobel Prizes awarded each year. The prizes for achievements in science, literature and peace were created in accordance with the will of dynamite inventor and businessman Alfred Nobel and have been awarded since 1901.

Nobel medicine laureates have included scientific greats such as Alexander Fleming, the discoverer of penicillin, and Karl Landsteiner, whose identification of separate blood types opened the way to carrying out safe transfusions.

The prize has not been without controversy, especially with the benefit of hindsight, such as with the 1948 award for discovery of DDT, a chemical that heled battle epidemics but was later banned due to its harmful environmental impact.