



RESEARCH ARTICLE

Taxonomy of *Sphenarches caffer* (Pterophoridae: Lepidoptera) from Uttar Pradesh, India

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ABSTRACT

Sphenarches caffer is a serious pest of cucurbits throughout India belongs to family Pterophoridae. In this manuscript, the taxonomic characters mouth parts, legs, wing venations, male and female genitalia has been redescribed from Uttar Pradesh India.

Key words: *Sphenarches caffer*, Pterophoridae, Lepidoptera, India

INTRODUCTION

The Bottle Gourd Plume Moth (*Sphenarches caffer*) is a moth of the Pterophoridae family. It is known from India, Malaysia, Mauritius, the Seychelles and South Africa. The larvae feed on the leaves, flowers and fruits of various plants, including sweet potato. They are small, cylindrical and yellowish green with short spines all over their bodies.

MATERIAL AND METHODS

The adults were collected in the field with aspirator, manually and aerial sweep net, and at night with the help of portable light traps of different light sources (mercury vapour light) (Kumar *et al.*, 2010) during year 2013-14. The collected insects were killed by using benzene. These were stretched, pinned, labelled, identified, preserved in the wooden collection boxes and deposited at Department of Zoology, D.S. College, Aligarh. The insect pest was identified as *Sphenarches caffer*. The collected specimens were examined taxonomically and studied for diagnostic characters including genitalia. The standard technique given by Robinson (1976) and Zimmerman (1978) has been followed for wing venation and genitalia, respectively. To write the taxonomic descriptions on various morphological characters and external genitalia (Kumar *et al.*, 2010) has been followed. For naming of various veins, Comstock-Needham system has been adopted. All illustrations were made by using a drawing tube attached to a stereoscopic zoom microscope and finalized in plate (prepared in 300 pixels/inch) through Adobe Photoshop 7.0. In the field and laboratory observation, specimens were photographed prior to studies, using a Nikon 14.0 mega pixel.

***Sphenarches* Meyrick**

Sphenarches Meyrick, 1886. *Trans. Ent. Soc. London*. p.8

Type sp.: *Sphenarches caffer* Zeller

***Sphenarches caffer* Zeller**

Sphenarches caffer Zeller, 1851. *Linn. Ent. vol. 6*, p. 348

S. anisodactylus Walker, 1864. *List Lep. Het. Brit. Mus. Vol. 30*, p. 934

S. diffusalis Walker, 1864. *ibidem*, p. 945

S. walkeri Walshingham, 1881. *Trans. Ent. Soc. Lond.* p. 279

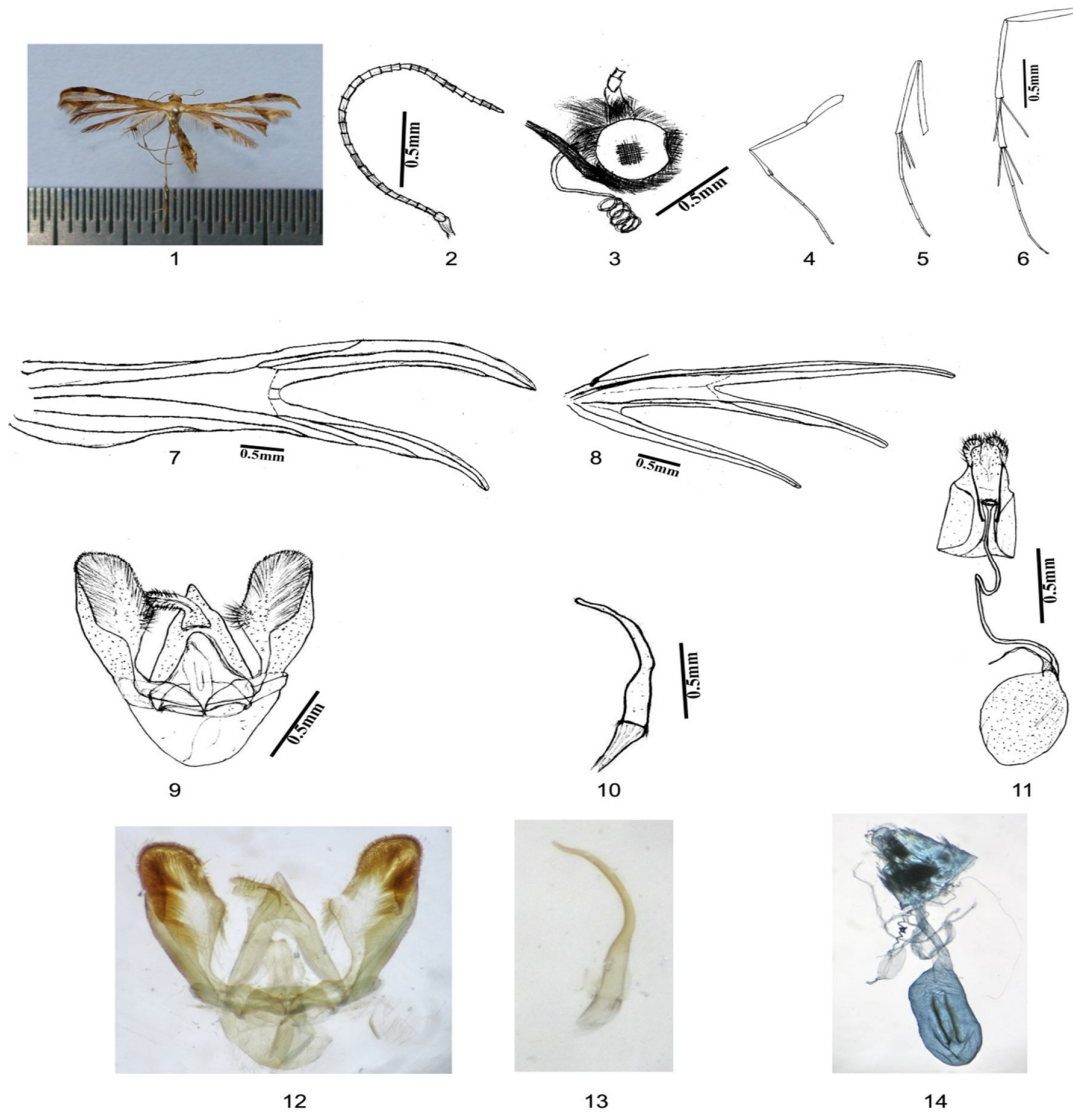
S. synophrys Meyrick, 1886. *ibidem*, p. 17

REDESCRIPTION

Alar expanse: Male/Female: 19mm; **Male and Female:** Palpi correct, sendot joint triangularly dilated with long scales, third joint long, slender; ochreous, intermixed with

white scales third joint whitish above; Head tawny-ochreous, tegule ochreous; legs whitish posterior tibiae broadly banded and dilated with reddish-brown scales at origin of spurs, foreleg with epiphysis and tibial spurs 0-2-4 (foreleg-midleg-hindleg); Forewing cleft from slightly beyond half, first segment parallel sided narrow, rather falcate apically; second segment broadening posteriorly, apex tawny, irrorated with whitish and black scales; an ill-defined whitish patch at base of cleft tending to form a bar to costa; hindwing cleft three; first segment narrow, parallel sided, rather blunt at apex; second segment narrower than first, gradually narrowing to apex; third segment almost linear, narrower than second narrowing to apex; tawny brown, thickly irrorated with black. Cilia dark tawny brown paler within clefts; posterior margin of second segment with an ill-defined whitish wisp beyond half, third segment with a strong triangular black scales-tooth on dorsum.

Fig. 1-14: *Sphenarches caffer* (Zeller). 1. Habitus photograph, 2. lateral view of mouth parts, 3. Antenna, 4. Fore leg, 5. mid leg, 6. hind leg, 7. fore wing, 8. hind wing, 9. Male genitalia line diagram, 10. Male aedeagus line diagram, 11. Female genitalia line diagram, 12. Male genitalia photo, 13. Male aedeagus photo, 14. Female genitalia photo



Wing venation: Forewing with Sc arising from discal cell; R_1 , R_2 separate, R_{3+4+5} connate, M_1 , M_2 , M_3 present and M_3 connate with Cu_{1a} ; Cu_{1a} and Cu_{1b} present, Cu_{1b} separate arising from

the lower angle of discal cell; 1A+2A fused and 3A separate; Hindwing with Sc+R₁, R_s arising from the upper angle of discal cell reaching at apex of lobe 1, M₃, Cu_{1a} and Cu_{1b} present in lobe 2, 1A+2A fused present in lobe 3; ♂ **genitalia**: Symmetrical. Valve broad with a broad saccular subterminal patch. Cucullus well-developed and extending to twice the length of the valve, ending in a sharp tip; at the end of the valve a basally directed obtuse, hooked process. Tegumen arched, bilobed. Uncus narrow, as long as tegumen. Anellus arms slender, as long as tegumen. Saccus consisting of an elongated plate encircled by a sclerotised rim. Aedeagus short, strongly curved and with rather small coecum; ♀ **genitalia**: Anal papillae small and covered with setae and hairs. Ostium symmetrical, extending to the middle. Ductus bursae long narrow. Corpus bursae vesicular with a pair of straight line signum. Anterior apophyses short, posterior apophyses slender, three times the length of the papillae anales, and ending in a spade-like shape, without lateral hooks.

Material examined

Uttar Pradesh: AMU Aligarh 12.iv.2014, Loni 10.iv.2013, Barot 11.iv.2013, Jawli 10.iv.2014, Ramnagar 16.iv.2014, Bhojipura 12.iv.2014,

Distribution: Africa, India, Sri Lanka, Indonesia, Philippines, E. Australia, W. Indies

Host range: Bottle gourd, beans, cowpea, garden pea, pigeon pea, snake gourd (Lefroy, 1909; Fletcher, 1914; Nair, 1970; Butani and Jotwani, 1984; David, 2001)

Ecology / Biology: **Eggs**- Oval in shape, bluish green in colour with reticulate designs;

Larva- Small, cylindrical, 7 to 9 mm long when full brown, green in colour, having a lateral brown stripe on either side and clothed with dense pubescence of short spines and long capitate hair; **Pupa**- 6-8mm long, spiny and greenish brown in colour; **Adults**- Moths are slender, having both pairs of wings divided into narrow lobes fringed with scales; **Seasonal Occurrence**- Throughout year; **Nature and symptoms of damage**- larvae start feeding on leaf lamina making small holes (Butani and Jotwani 1984).

REMARKS

Zeller (1851) described *Sphenarches caffer*, but in the present study all characters described with illustrations.

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