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Amit Katewa & Prakash Chand Pathania

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COMMUNICATION

Moths of the superfamily Gelechioidea (Microlepidoptera) from the Western Ghats of India

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Abstract: Sixteen species belonging to 13 genera—*Stegasta* Meyrick, *Anarsia* Zeller, *Hypatima* Hübner, *Helcystogramma* Zeller (Gelechiidae), *Lecithocera* Herrich-Schäffer, *Hygroplasta* Meyrick, *Torodora* Meyrick (Lecithoceridae), *Apethistis* Meyrick, *Cophomantella* Fletcher, *Stathmopoda* Herrich-Schäffer, *Tonica* Walker (Oecophoridae), *Ethmia* Hübner (Ethmidae), and *Eretmocera* Zeller (Scythridae)—of the superfamily Gelechioidea have been collected from different localities of the Western Ghats. Other details such as synonymy, material examined, distribution, and remarks are also provided. Fifteen species are recorded for the first time from the Western Ghats.

Keywords: Ethyl acetate, Ethymiidae, female genitalia, forewing, Gelechiidae, Insecta, Lecithoceridae, Oecophoridae, light trap, Scythridae.

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Author contributions: AK did the field work and prepared the genital plates and PCP also did field survey and prepared the manuscript.

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INTRODUCTION

The main characters of superfamily Gelechioidea are maxillary palpus always four segmented, scaled and folded over with base of the haustellum, labial palus upturned 3rd segment long and acute, head decorated with smooth scale, cheatosemata absent, dorsal surface of hind tarsus with long, slender scales, pupal antennae meeting mesially before their apexes, larval abdominal segment 1–8 with setae L1/L2 closely approximated or on the same pinaculum (Common 1970, 1990; Hodges 1978, 1986; Minet 1990, 1991). The Western Ghats is one of the hot biodiversity spots quite diverse and unique and about 160,000 km^2 and stretches for 1,600 km from the river Tapti in the north to Cape Camorin in the south and is very rich in flora and fauna. The average height of about 1,200 m running parallel to the western coast of southern India covering six states of Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, and Kerala. It is known by various names in different areas, i.e., as the Sahyadri mountains in Maharashtra and Karnataka, Nilagirimalai in Tamil Nadu, and Sahyaparvatam in Kerala. The highest peak of the Western Ghats is The Anaimudi peak (2,695 m) in the state of Kerala. The Anaimalai hills in the north, the Palni hills in the north-east and the Cardamom hills in the south are the three ranges that radiate to different directions. Gelechioidea is one of the large groups represented by 1,478 genera of 18,489 species on a world basis (Van Nieukerken et al. 2011).

MATERIAL AND METHODS

A survey-cum-collections tour was undertaken from 29 localities of 19 districts in the six states in the Western Ghats for the collection of superfamily Gelchioidea moths from March 2003 to October 2015 (Image 1A). The details of the visited localities are provided (Table 1). Gelechioidea (Microlepidoptera) has been collected with the help of a portable light trap (Image 1B) and single tube collecting technique and vertical sheet method. Some of moths were captured individually in glass killing tubes of various sizes (2 x 7 cm to 5 x 15 cm) charged with ethyl acetate poured over the plaster of Paris dried at the bottom of the tube from near restaurants, hotels, forest rest houses, bus depots, and railway stations around the localities being visited. As per techniques being used in lepidopterology (Lindquist 1956; Hodges 1958; Tagestad 1974; Robinson 1976; Zimmerman 1978; Nielson 1980; Sokoloff 1980; Mikkola 1986; Landry & Landry 1994), the entire collected specimens were processed for further biosystematics studies. All the collecton are deposited in the Insect Museum, Department of Zoology & Environmental Sciences, Punjabi University, Patiala and National PAU Insect Museum, Department of Entomology, Punjab Agricultural University, Ludhiana, Punjab.

OBSERVATIONS

In the present research work, 16 species of moths of superfamily Gelechioidea have been collected and identified from the Western Ghats, India (Table 1). The details of subfamilies, genera and number of species recorded from the study area are provided below (Table 2):

Systematic Account

Phylum: Arthropoda

Subphylum: Hexapoda

Class: Insecta

Order: Lepidoptera

SUPERFAMILY GELECHIOIDEA

FAMILY GELECHIIDAE

Gelechiidae Stainton, 1854, *Insecta Br. Lepid. Tineina,*: 10 (key) and 75 (spelled as Gelechidae).

Type genus: *Gelechia* Hübner, (1825) 1816, *Vertz. bekannter Schmett*., 415.

Subfamily: GELECHIINAE

Gelechiinae Stainton, 1854, *Insecta Br. Lepid. Tineina*, 10 (key) and 75 (as Gelechidae).

Type-genus: *Gelechia* Hübner (1825) 1816, *Verz. bekannter Schmett*., 415.

I. Stegasta Meyrick

Stegasta Meyrick, 1904, *Proc. Linn. Soc. N.S.W.*, 29: 258 (key), 313.

Type-species: *Stegasta variana* Meyrick, 1904, *Proc. Linn. Soc. N.S.W.*, 29: 313 9 (key), 314, by original designation.

Diagnosis: Rose & Pathania (2004).

1. Stegasta comissata Meyrick (Image 2A)

Stegasta comissata Meyrick, 1923, *Exot. Microlepid*., 3: 18

Description: Forewing with a white spot present near apex, anal area white near base to 3/4th and costal margin, vein R4+R5 short stalked, R1 arising at middle of discal cell, male genitalia with sacculus beset with a small spine-like projection distally, costa with relatively

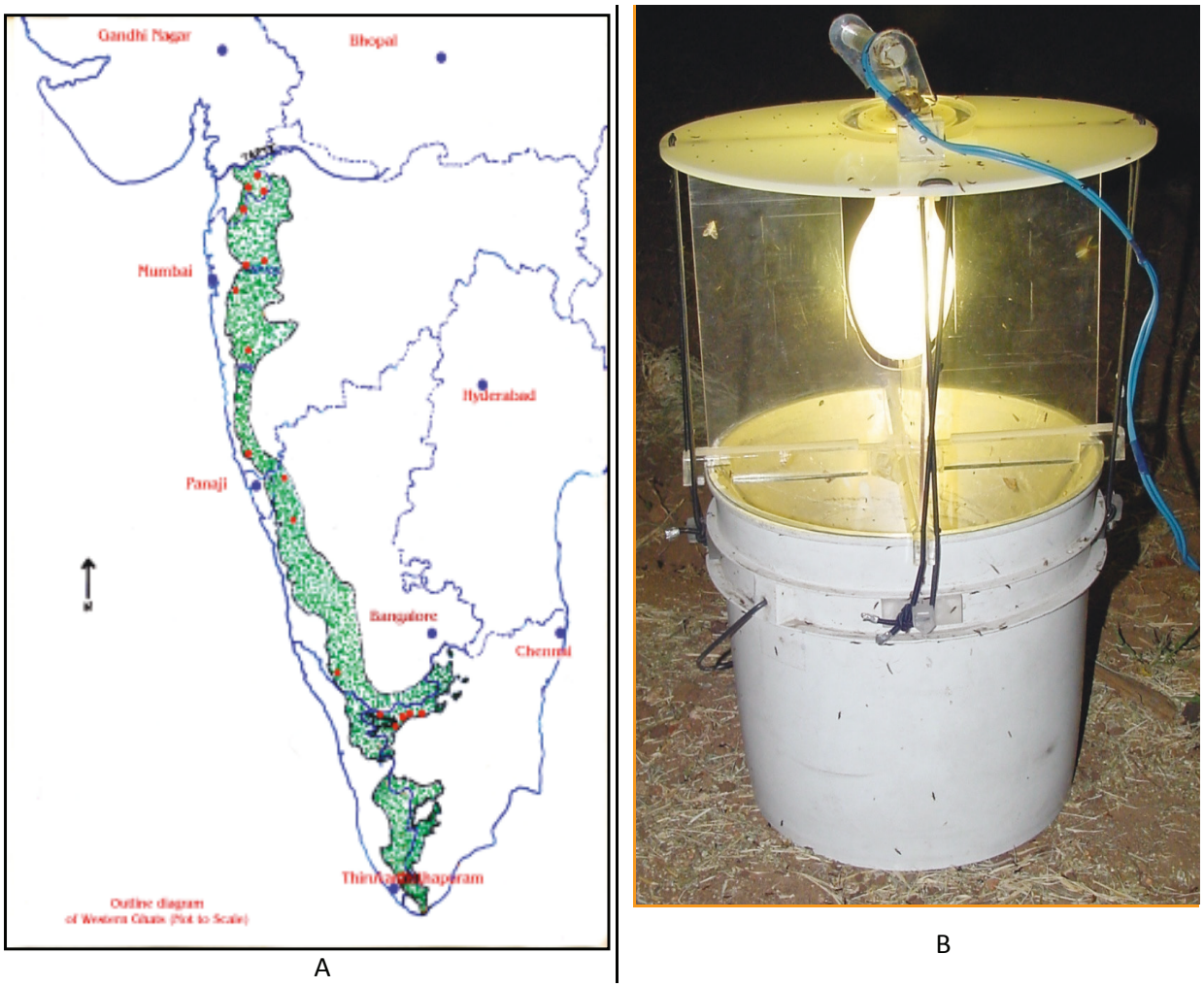

Image 1. A—Map: Area surveyed | B—Portable light trap.

Table 1. The visited states and localities during the study at the Western Ghats of India.

	State	Districts explored	Dates of collection	Localities visited
1.	Goa	Sanguem, Ponda	25–30.ii.2004	Forest Rest House, Keri and Ponda
2.	Gujarat	The Dangs	28–30.ix.2005	Ahwa, Saputara, Forest Rest House, Ahwa and Waghai
3.	Maharashtra	Pune	02.x.2005	Malshej Ghat
4.	Karnataka	Kodagu, Uttar Kannada, Dakshin Kannada, Belgaum, Mumbai, Chikmagalure, Shimoga, Kodagu	16.ix.2002 17.xi.2002 21–28.iii.2003 10.vi.2003 25.ix.2003 13–25.xi.2003 16–31.vii.2004 29.viii.2004 28.xi.2004 14–16.x.2005	Medikeri, Ganeshgudi, Jog Falls, Kulgi, Gundya, Shettihalli WS, Nisergdhama, Baghamandala, Forest Rest House, Gundya, Forest Rest House, Khanapur, Forest Rest House, Londa, Malshej Ghat, Kallathy Falls
5.	Tamil Nadu	Nilgiris	29.ix.2003 30.viii.2015	Gudalur, Dodabetta
6.	Kerala	Thiruvananthapuram, Idukki, Palakkad, Pathanamthitta, Palakka	07.x.2003 04–20.ix.2004 28.viii.2015	Vallakadavu, Agli, Forest House, Wadaserikera, Mukkali and Forest Rest House, Wadaserikera,
Total	06	19	18	29

Table 2. The number of families, subfamilies, genera, and number of species recorded during the study from the Western Ghats of India.

	Family	Subfamily	Genera	No of species
1.	Gelechiidae	Gelechiinae	*Stegasta* Meyrick	01
			Anarsia Zeller	02
			Hypatima Hübner	01
		Dichomeridinae	*Helcystogramma* Zeller	01
2.	Lecithoceridae	Lecithocerinae	*Lecithocera* Herrich-Schäffer	02
		Torodorinae	*Hygroplasta* Meyrick	01
			Torodora Meyrick	01
3.	Oecophoridae	Autostichinae	*Apethistis* Meyrick	01
		Xyloryctinae	*Cophomantella* Fletcher	01
		Stathmopodinae	*Stathmopoda* Herrich-Schäffer	01
		Oecophorinae	*Tonica* Walker	01
4.	Ethmiidae		*Ethmia* Hübner	02
5.	Scythridae		*Eretmocera* Zeller	01
	05	08	13	16

long setosed lobe basally, the latter rounded apically, aedeagus with vesica armed with a long cornutus, the latter horn-like (Rose & Pathania 2004).

Material examined: Reg. no. GEL/1-10, India, Kerala: Dist. Thiruvananthapuram, FRH, Vithura, 120m, 04.ix.2004, 01 male; Dist. Idukki, Vallakadavu, 780m, 10.ix.2004, 02 males; 12.ix.2004, 01 male; 28.viii.2015, 01 male; Karnataka:Dist. Kodagu, Medikeri, 1100m, 25.ix.2003, 01 male; Dist. Uttar Kannada, Ganeshgudi, 780m, 21.vii.2004, 02 males; Dist. Uttar Kannada, Jog Falls, 480m, 24.vii.2004, 01 male; Dist. Uttar Kannada, Kulgi, 360m, 17.vii.2004, 01 male, coll. A. Katewa and P.C. Pathania.

Distribution: India: Punjab, Uttaranchal, Jammu & Kashmir (Rose & Pathania 2004); Kerala, Karnataka (In the present study). Elsewhere. Brazil, Obidos, Santarem, Parintins, Manaos (Clarke 1969).

Genitalia: Uncus small, bifid, valvae symmetrical, elongate, broader at base and apically, costal margin slightly concave near cucullus, with a long setose lobe, apically rounded, sacculus margin almost straight, basally slightly convex, with a small spine-like projection directed towards costa at distally near cucullus, apex broader, about 3/4th length of the genitalia, with one long lobe at side, strongly sclerotized, another long spindle shaped at middle, strongly sclerotized, coecum small and broader; cornutus long, horn-like in vesica (Rose & Pathania 2004).

Remarks: Fifteen species of this genus is reported on world basis are represented in the Neotrotropical and Australian regions without any species from the Palaearctic region (Park & Omelko 1994). Two species, i.e., *Stegasta basquella* Chambers and *S. capitella* Fabricius have been known from northwestern India (Gaede 1937). Rose & Pathania (2004) have also studied this species from northern India, yet the collection and reporting of the species, from the areas under reference is a new record from Western Ghats.

II. Anarsia Zeller

Anarsia Zeller, 1839, *Isis, Leipzing*: 190.

Ananarsia Amsel, 1959, *Stuttg. Beitr Naturk*. 28 . 32. Type-species: *Anarsia lineatella* Zeller, 1839. Isis, Leipzing,: 190.

Type-species: *Tinea spartiella* Schrank, 1802, *Fauna Boica*, 2 (2): 104, by subsequent designation: Meyrick, 1925, *In Wytsman, Genera Insect.*, 184: 153.

Diagnosis: Rose & Pathania (2003c).

2. *Anarsia patulella* (Walker) (Image 2B)

Gelechia patulella Wallker, 1864, *List Specimens lepid. Insects Colln Br. Mus*., 29, p. 635; Walsingham, 1887, *in Moore, Lepid. Ceylon*, 3, p. 510 (Gelechia); Meyrick, 1913, *J. Bombay nat. Hist. Sac,* 22, p. 168, (Anarsia), Meyrick, 1925, in Wytsman, Genera Insect. 184, p 153, nr 17; Caradja & Meyrick,1935, *Microlep. Kiangsu*, p. 69.

Description: Forewing with cresent shaped spots on costa or black streak on upper surface of wing, hindwing with veins M3 and CuA1 connate from posterior angle of discal cell, male genitalia with uncus triangular or hook-like, tegumen not as above, left valva without hook-like process (Rose & Pathania 2003c).

Material examined: Reg. no. GEL/11-20, India, Karnataka: Dist. Belgaum, FRH, Khanapur, 370m, 21.iii.2003. 01 male; Dist. Kodagu, Medikeri, 1100m, 16.xi.2002, 01 male; Dist. Uttar Kannada, Ganeshgudi, 480m, 13.xi.2003, 02 males, 22.vii.2004c 01 male, 16.x.2005, 01 male; Dist. Dakshin Kannada, Gundya, 40m, 28.vii.2004, 01 male, Dist. Shimoga, Shettihalli WLS, 320m, 10.vi.2003, 01 male; Dist. Kodagu, Nisergdhama, 1080m, 17.xi.2002, 01 male; Gujarat: Dist. The Dangs, Ahwa, 520m, 29.ix.2005, 01 male, coll. A. Katewa.

Distribution: India: Uttaranchal (Rose & Pathania 2003c); Gujarat, Karnataka (In the present study). Elsewhere. Sri Lanka, Thailand, Taiwan, Australia (Park & Ponomarenko 1996).

Genitalia: Male genitalia with each valva subtrapazoidal, cucullus margin spiny apically, left valva with sacculus beset with a spine (Rose & Pathania 2003c).

Remarks: While reporting *Anarsia patulella* (Walker) as a new record from Taiwan, Park (1995) has mentioned that this species occurs almost throughout the Oriental region, including the southern part of China. He observed that the valvae in the male genitalia show certain variations but no such variation has been recorded in the presently dissected specimens. The species is recorded for the first time and is common in Karnataka and Gujarat of the Western Ghats as evident on the basis of present surveys.

3. *Anarsia reciproca* Meyrick (Image 2C)

Anarsia reciproca Meyrick, 1920, *Exot. Microlepid*., 2: 300c

Description: Forewing with small four-six black streak from base to apex in between discal cell, termen with cilia grey and black with white apices, hindwing light grey scaled, somewhat quadrate (Rose & Pathania 2003c).

Material examined: Reg. no. GEL/21-29, India, Karnataka: Dist. Kodagu, Baghamandala, 900m, 25.xi.2003, 02 males; Dist. Uttar Kannada, Ganeshgudi, 480m, 13.xi.2003, 1 male, 16.x.2005, 01 male; Gujarat: Dist. The Dangs, Saputara, 970m, 30.ix.2005, 04 males; Dist. The Dangs, Ahwa, 520m, 29.ix.2005, 01 male, coll. A. Katewa.

Distribution: India: Madras, Coimbatore (Clarke 1969), Uttaranchal, Himachal Pradesh (Rose & Pathania 2003c); Gujarat, Karnataka (In the present study).

Genitalia: Male genitalia with uncus hook like, socii beset with small hair, directed slightly posteriorly, tegumen uniformly broader throughout, valva with costa convex basally, strongly concave at middle, bearing a small, sclerotized, sparsely setosed lobe at base of costa, aedeagus gradually curved (Rose & Pathania 2003c).

Remarks: This species is earlier known from Coimbatore (Tamil Nadu) in the Western Ghats (Clarke 1969). However, its collection from states of Karnataka and Gujarat becomes new and additional record. Nine males of this species from the aforesaid localities were dissected in order to confirm their conspecificity.

III. Hypatima Hübner

*Hypatim*a Hübner, [1825]. Verz. bekannter Schmett., 415.

Al1ocota Meyrick, 1904, *Proc. Linn. Soc. N. S. W*, 29: 258. Type-Species: *Allocota simulacrella* Meyrick, 1904, *Proc. Linn. Soc N. S. W,* 29: 420.

Allocotaniana Stand, 1913, *Arch. Nat*., 79(42): 43. Type-species: *Allocota simulacrella* Meyrick, 1904, *Proc. Linn. Soc. N.S. W*, 29: 420.

Chelaria Haworth, 1828, *Lepid. Br*: 526. Type-species. *Chelaria conscripta* Haworth, 1828, *Lepid. Br.,*: 526.

Cymatomorpha Meyrick, 1904, *Proc. Linn. Soc.N.S.W.,* 29: 258. Type-species: *Cymatromorpha* euplecta Meyrick, 1904, *Proc Linn. Soc. N. S W,* 29: 57 (key) 411.

Episacta Turner, 1919, Proc. R. Soc. Qd., 31: 161. Type-species: *Chelaria discissa* Meyrick, 1916, *Exot. Microlepid*., 1: 581.

Semodictis Meyrick, 1909, *Ann. Trans. Mus*., 2: 16. Type-species: *Semodictis tetraptial* Meyrick, 1909, *Ann. Transv. Mus*., 2: 16.

Type-species: *Tinea conscriptella* Hübner, 1805, *Samml, eur. Schmett.,* 8: pl.41. fig.283 by sebsequent desigantion by Walsingham & Durrat, 1909, *Entomologists mono Mag*., 45: 48.

4. *Hypatima tephroptila* (Meyrick) (Image 2D)

Chelaria tephroptila Meyrick, 1931, *Exot. Micro*

Description: Forewing black towards costa at 1/4th to 3/4th, hindwing without bunch of long hair pencil distally on anal margin, veins M2 and M3 free on the forewing (Pathania & Rose 2003).

Material examined: Reg. no. GEL/30-32, India, Karnataka: Dist. Dakshin Kanna FRH, Gundya, 40m, 28.xi.2004, 03 males, coll. A. Katewa.

Distribution: India: Bombay, Mahableshwar (Clarke 1969), Uttaranchal (Pathania & Rose 2003); Karnataka (In the present study).

Genitalia: Male genitalia with costa strongly convex near cucullus, cucullus foot-shaped, female genitalia with ductus bursae small, broad near corpus bursae, signum large (Pathania & Rose 2003).

Remarks: The species is recorded for the first time

from the Karnataka.

Subfamily Dichomeridinae

Dichomeridinae Hampson, 1918, *Novit. zool.,* 25: 386.

Type-genus: *Dichomeris* Hübner, 1818, *Zutr Samml exot. Schmett*., 1: 25.

IV. Helcystogramma Zeller

Helcystogramma Zeller, 1877, *Horae Soc. ent. ross*., 13: 369.

Ceratophora Heinemann, 1870, *Schmett. Otl. Schweiz*, (2)(1): 325. Type-species: *Recurvaria rufescens* Haworth, 1828, *Lepid. Br*, 555.

Teuchophanes Meyrick, 1914, *Trans. ent. Soc. Lond*, .274. Type-species: *T leucopleura* Meyrick, 1914, *Trans ent. Soc. Lond*, 274

Psamathoscopa Meyrick, 1937, *Exot. Microlepid*. 5. 96. Type-species: *Onebala simplex* Walsingham, 1900, *Bull. Lpool. Mus*, 3 . 2

Anathyrsotis Meyrick, 1939, *Trans. R. ent. Soc. Lond*, 89: 55. Type-species: *A ceriochranta* Meyrick, 1939, *Trans R. ent. Soc. Lond*., 89: 55.

Type-species: *Gelechia (Helcystogramma) obseratella* Zeller, 1877, *Horae Soc. ent. ross.,* 13: 371, pI. 5, fig. 127, by susequent designation: Meyrick, 191O, *Entomologist's mon. Mag*., 46 282.

Diagnosis: Rose & Pathania 2003.

5. *Helcystogramma hibisci* (Stainton) (Image 2E)

Gelechia (?) hibisci Stainton, 1859*. Trans. ent. Soc. Land*., (2)5, p. 117.

Onebala Hibisci: Meyrick, 1925. *in Wytsman, Genera Insect,* p. 138; Gaede, 1937 *Lepid. Cat.* p.377. *Gelechia (Helcystogramma) obseratella* zeller, 1877, *Horae Soc. ent Ross,* 13, p. 371 *Croesophora eudela* Turner, 1919, *Proc. Roy. Soc. Queensland*, 31, p. 160.

Description: Forewing with anal margin with a dark semicircular bloach on medially, extending more than half distance across wing, a similar mark beyond cell, a broad preapical pale fascia extending from 2/3rd length of anterior margin to tornus, a small black spot on cell distally, hindwing with vein M2 relatively arched (Rose & Pathania 2003).

Material examined: Reg. no. GEL/33-34, India, Maharashtra: Dist. Pune, Malshej Ghat, 690m, 02.x.2005, 01 male; Gujarat: Dist. The Dangs, FRH, Ahwa, 520m, 29.ix.2005, 01 male, coll. A. Katewa.

Distribution: India: Calcutta, Himachal Pradesh, Uttaranchal, Punjab (Rose & Pathania 2003d); Gujarat, Maharashtra (In the present study). Elsewhere. South China, Taiwan, Sri Lanka, Java, Australia (Park & Hodges 1995).

Genitalia: Male genitalia with aedeagus broad and long (Rose & Pathania 2003d).

Remarks: The genus *Helcystogramma* is represented by more than eighty species in the Oriental, the Neotropical and the Palaearctic regions (Park & Hodges 1995) and eight species from India (Gaede 1937). The species *H. hibisci* (Stainton) is being reported for the first time from the Western Ghats.

Family Lecithoceridae

Lecithoceridae Le Marchand, 1947, *Revue. fr. Lepidopt.,* 11: 153 (as Lecithocerinae).

Type-genus: *Lecithocera* Herrich-Schäffer, 1853, *Syst. Bearb. Schmett. Eur*. 5: 11 (Key) 45.

Subfamily Lecithocerinae

Leithocerinae Le Marchand, 1947, *Revue. Fr. Lepidopt*., 11: 153.

Timyridae Clarke, 1953, *Cat., Type Specimens Microlepid. BMNH described by E. Myerick*, 1: 21. Type-genus: *Timyra* Walker, 1864, *List. Dprvimrnd Lepid. Insects. Colln. Br. Mus.*, 29: 782.

V. Lecithocera Herrich-Schäffer

Herrich-Schäffer, 1853, *Syst. Bearb. Schmett. Eur.,* 5: 11 [key], 45, pI. *Microlepid*. XII. figs 10, 11.

Quassitagma Gozmany, 1978, *in Amsel. et al. Microlepid. Palaearctica*, 5: 132 Type species: *Frisilia indigens* Meyrick, 1914, *Supplta ent,* 3: 50.

Recontracta Gozmany, 1978, *in Amsel et al., Microlepid. Palaearctica*, 5: 148. Type species: *Recontracta frisilina* Gozmany, 1978, *ibidem,* 5: 149.

Nyctocyrma Gozmany, 1978, *in Amsel et al., Microlepid. Palaearctica*, 5: 149. Type species. *Nyctocyrma fraudatrix* Gozmany, 1978, *ibidem*., 5: 151.

Psammoris Meyrick, 1906, *J. Bombay nat. Hlst. Soc,* 17: 149. Type species: *Psammoris carpaea* Meyrick, 1906, *ibidem*., 17' 149.

Type-species: *Carcina luticornella* Zeller, 1839, *Isis, Leipzing*,: 197, by monotypy.

Diagnosis: Pathania & Rose (2004b).

6. *Lecithocera immoblis* Meyrick (Image 2F)

Lecithocera immoblis Meyrick, 1918, *Exot. Microlepid*., 2: 103.

Description: Forwing with veins R3 free, R4+R5 stalked, Forewing with vein R3 from before anterior angle of discal cell, alar expanse 16-17mm; juxta almost excurved anteriorly (Pathania & Rose 2004b).

Material examined: Reg. no. GEL/35-38, India,

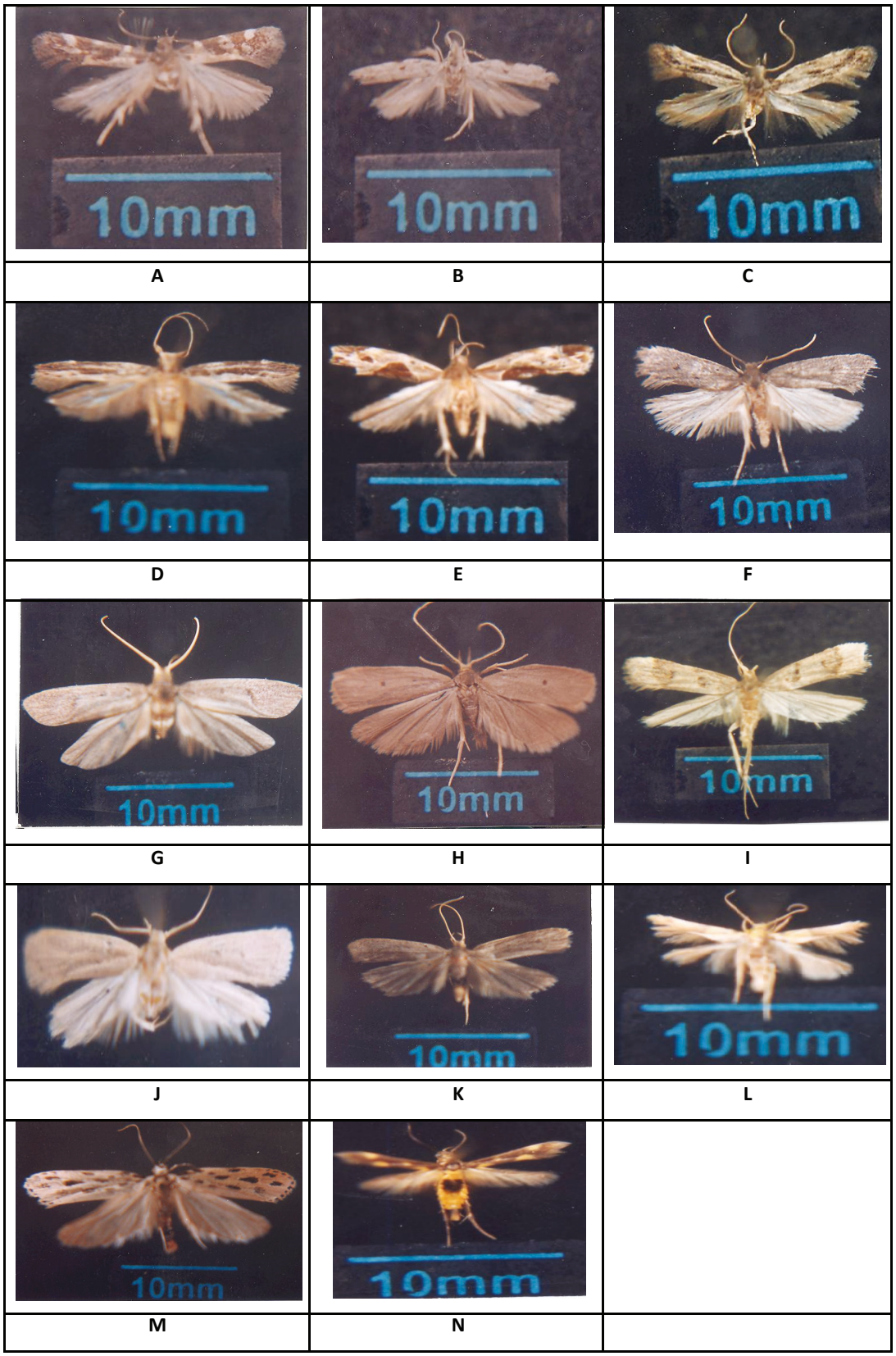

Image 2. A—*Stegasta comissata* Meyrick | B—*Anarsia patulella* (Walker) | C—*Anarsia reciproca* Meyrick | D—*Hypatima tephroptila* (Meyrick) | E—*Helcystogramma hibisci* (Stainton) | F—*Lecithocera immoblis* Meyrick | G—*Lecithocera choritis* Meyrick | H—*Hygroplasta lygaea* (Meyrick) | I—*Torodora fortis* (Meyrick) | J—*Apethistis metoeca* Meyrick | K—*Cophomantella lysimopa* (Meyrick) | L—*Stathmopoda balanarcha* Meyrick | M—*Ethmia pagiopa* Meyrick | N—*Eretmocera impectella* (Walker). © Amit Katewa & Prakash Chand Pathania.

Karnataka: Dist. Kodagu, Medikeri, 1100 m, 16.xi.2002, 01 male, 25.ix.2003, 01 male; Dist. Uttar Kannada, Kulgi, 360 m, 16.vii.2004, 01 male; Tamil Nadu: Dist. Nilgiris, Gudalur, 900 m, 29.ix.2003, 01 male, coll. A. Katewa.

Distribution: India: Coimbatore (Clarke 1965), Punjab, Himachal Pradesh, Uttaranchal (Pathania & Rose 2004b); Karnataka, Tamil Nadu (In the present study).

Genitalia: Each valva more or less rectangular, aedeagus with one of the walls fringed with conspicuous hair (Pathania & Rose 2004b).

Remarks: The species *immoblis* Meyrick is being reported from Karnataka in the Western Ghats for the first time.

7. *Lecithocera choritis* Meyrick (Image 2G)

Lecithocera choritis Meyrick, 1910, *J.Bombay nat. Hist. Soc.,* 20: 448.

Description: Alar expanse 21-24mm, forewing light fuscous in colour; hindwing with vein CuP represented near anal margin (Pathania & Rose 2004b).

Material examined: Reg. no. GEL/39-52, India, Kerala: Dist. Idukki, Vallakadavu, 780m, 10.ix.2004, 03 males; Karnataka: Dist. Kodagu, Medikeri, 1100m, 29.vii.2004, 01 male; Dist. Kodagu, Baghamandala, 900m, 31.vii.2004, 01 male; Dist. Uttar Kannada, Ganeshgudi, 480m, 20.vii.2004, 03 males, 21.vii.2004, 04 males; Dist. Uttar Kannada, Jog Falls, 480m, 24.vii.2004, 01 male; Dist. Uttar Kannada, Kulgi, 360m, 17.vii.2004, 01 male, coll. A. Katewa.

Distribution: India: Palni Hills, Nilgiri Hills (Meyrick 1910); Himachal Pradesh (Pathania & Rose 2004b); Kerala, Karnataka (In the present study).

Genitalia: Male genitalia with costa convex at base, then slightly concave, vesica with tear shaped or one Y-shaped cornuti present in aedeagus (Pathania & Rose 2004b).

Remarks: The species *choritis* Meyrick is being reported from Kerala and Karnataka in the Western Ghats for the first time.

Subfamily Torodorinae

Torodorinae Gozmany, 1978, *in Amsel et. al., Microlepid. Palaearctica*, 5: 189.

Type-genus: *Torodora* Meyrick, 1894, *Trans. ent. Soc. Land.*: 16.

VI. Hygroplasta Meyrick

Hygroplasta Meyrick, 1925, *in Wytsman, Genera Insect.,* 184: 5 [key], 244.

Type-species: *Gelechia spoliatella* Walker, 1864, *List Specimens lepid. Insects Colin Br. Mus.,* 29: 659.

8. *Hygroplasta lygaea* (Meyrick) (Image 2H)

Pachnistis lygaea Meyrick, 1911. *Journ. Bombay Nat. Hist. Soc*. 20: 707.

Description: Dorsal surface of forewing with discocellular spot relatively more prominent, discal cell with spot prominent, male genitalia with valvae small, saccus long or small, aedeagus relatively long or small (Pathania & Rose, 2004a).

Material examined: Reg. no. GEL/53-56, India, Karnataka: Dist. Uttar Kannada, Ganeshgudi, 480m, 14.x.2005, 01 male, 16.x.2005, 01 male; Dist. Kodagu, Nisergdhama, 1080m, 17.xi.2002, 01 male; Dist. Uttar Kannada, Kulgi, 360m, 17.vii.2004, 01 male, coll. A. Katewa.

Distribution: Dalhousie, Kashmir (Meyrick 1910); Himachal Pradesh, Uttaranchal (Pathania & Rose 2004a); Karnataka (In the present study).

Genitalia: Male genitalia with saccus relatively smaller, broader distally, sacculus margin concave medially, costa concave medially, aedeagus short, vesica with cornutus, female genitalia with ductus bursae open near middle of corpus bursae, signum spinde-shaped (Pathania & Rose 2004a).

Remarks: Meyrick (1925) and Fletcher (1929) considered the genus *Hygroplasta* in the family Gelechiidae but Clarke (1965) has transferred the same to the family Lecithoceridae, the arrangement being followed for the presently collected material, identified as *Hygroplasta lygaea* (Meyrick) (Pathania & Rose 2004a). The said species is being reported for the first time from the Western Ghats.

VII. *Torodora* Meyrick

Torodora Meyrick, 1894, *Trans. ent. Soc. Land*.,: 16.

Habrogenes Meyrick 1918, Ex at. Microlepid., 2: 102. Type species: *Lecithocera eupatris* Meyrick, 1910, *J. Bombay nat. Hist. Soc*., 20: 443.

Brachmia Hübner (1825) 1816, *Vertz. bekannter. Schmett*.: 419. Type species: *Tinea dimidiella* [Dennis & Schiffermular], 1775 *Ankundung syst. Werks Schmett. Wienergegend*:141

Panplatyceros Diakonoff, 1951, *Ark. Zool*, 3: 76. Type specis: *Panplatyceros serpentina* Diakonoff, 1951, Ark. Zool. 3: 76.

Type-species: *Torodora characteris* Meyrick, 1894, T*rans. ent. Soc. Land.,* 16. Clarke, 1955, *Cat. Type Specimens Microlepid. BMNH described by. E. Meyrick*, 1: 21.

Diagnosis: Rose & Pathania (2003b).

9. *Torodora fortis* (Meyrick) (Image 2I)

Lecithocera fortis Meyrick, 1918, *Exot. Microlepid*., 2: 111.

Description: Forewing with black streaks or black dots; Forewing with veins M2 and M3 connate, veins CuA1 and CuA2 short stalked; male genitalia with each valva somewhat elongated, parallel sided, Alar expanse 18mm; forewing costal margin with two, thin, black equal sized lines vertically present (Rose & Pathania 2003b).

Material examined: Reg. no. GEL/57-59, India, Kerala: Dist. Palakkad, Agli, 520m, 07.x.2003, 01 male; Karnataka: Dist. Uttar Kannada, Ganeshgudi, 480m, 21.vii.2004, 01 male; Gujarat: Dist. The Dangs, Waghai, 180m, 28.ix.2005, 01 male, coll. A. Katewa.

Distribution: India: Nilgiri Hills (Clarke 1965); North Western Shivaliks, Himachal Pradesh (Rose & Pathania 2003b); Gujarat, Kerala, Karnataka (In the present study).

Genitalia: Male genitalia with each valva with costa curved, gnathos relatively less developed, aedeagus small and narrowed, bent at middle (Rose & Pathania 2003b).

Remarks: Gozmany (1978) erected a new subfamily Torodorinae under the family Lecithoceridae. This genus contains 85 species, out of which 82 pertain to the Oriental, 02 to Palaearctic and 01 to the Ethopian regions (Park & Heppner 2000). Rose & Pathania (2003b), dealtwith nine species including *Torodora fortis (*Meyrick) from the northwestern Shivaliks. These species have been collected for the first time from Kerala, Karnataka and Gujarat of the Western Ghats.

Family Oecophoridae

Oecophoridae Bruad, 1850, *Mem. Soc. Emul. Doubs*, (1) 3 (5-6): 45 (as Aecophoridae).

Type-genu: *Oecophora* Latreille, [1796], *Precis Caracteres generiques insets,*: 146.

SUBFAMILY AUTOSTICHINAE

Autostichinae Le Marchand, 1947, *Revue fr. Lepidopt*., 11: 153.

Type-genus: *Autosticha* Meyrick, 1886, *Trans. ent. Soc. Land.,* 1886: 281.

VIII. *Apethistis* Meyrick

Apethistis Meyrick, 1908, *J. Bombay nat. Hist. Soc.,* 18: 459.

Type-species: *Apethistis metoeca* Meyrick, 1908, *ibidem*., 18: 460, by original designation.

Diagnosis: Rose & Pathania (2003a).

10. *Apethistis metoeca* Meyrick (Image 2J)

Apethistis metoeca Meyrick, 1908, *J. Bombay nat. Hist. Soc.,* 18: 460

Description: Forewing with vein Sc ending at 2/3rd of costa, vein R4 to costa near apex, hindwing with CuP vestigial, visible near anal margin only (Rose & Pathania 2003a).

Material examined: Reg. no. OECO/1-3, India, Tamil Nadu: Dist. Nilgiris, Dodabetta, 2640m, 01.x. 2003, 01 male; Gujarat: Dist. The Dangs, Ahwa, 520m, 29.ix.2005, 02 males, coll. A. Katewa.

Distribution: India: Punjab, Jammu & Kashmir (Rose & Pathania 2003a); Gujarat, Tamil Nadu (In the present study). Elsewhere. Sri Lanka (Maskeliya) (Clarke 1969),

Genitalia: Male genitalia with valvae small and broad, aedeagus slightly curved near apex, basally bulbous; female genitalia with relatively larger ostium bursae (Rose & Pathania 2003a).

Remarks: Meyrick (1908) proposed the genus *Apethistis* from Ceylon (Sri Lanka) in the family Gelechiidae. It is transferred to the family Oecophoridae (Hodges, 1978). The genus is represented by fourteen species from India (Gaede 1937; Clarke 1965), out of which two, viz., *metoeca* and *insulsa* Meyrick have studied from the northwestern Shivaliks by Rose & Pathania (2003a). The former species is a new record from the Western Ghats.

Subfamily Xyloryctinae

Xyloryctinae Meyrick, 1890, *Trans. R. Soc. S. Aust*., 13: 23 (as Xyloryctidae).

Type-genus: *Xylorycta* Meyrick. 1890, *Trans R Soc. S Aust*., 13: 25 (key), 57.

IX. *Cophomantella* Fletcher

Cophomantella Fletcher, 194O, *Entomologist's Rec. J. Var*., 52: 17.

Type-species: *Onebala elaphopis* Meyrick, 1910, *J. Bombay nat. Hist. Soc*., 20: 459, by original designation (for *Cophomantis* Meyrick, 1925).

11. *Cophomantella lysimopa* (Meyrick) (Image 2K)

Cophomantis lysimopa Meyrick, 1933, *Exot. Microlepid.* 4: 357.

Description: Forewing with vein R1 originating from much beyond middle of discal cell, hindwing with discal cell closed by arched discocellulars (Rose & Pathania 2003a).

Material examined: Reg. no. OECO/4-13, India, Goa: Dist. Sanguem, FRH, Keri, 90m, 25.ii.2004, 1 male; Dist. Ponda, Ponda, 85m, 28.ii.2004, 03 males; Kerala: Dist. Pathanamthitta, FRH, Wadaserikera, 30m, 07.ix.2004, 01

male; Dist. Thiruvananthapuram, FRH, Vithura, 120m, 04.ix.2004, 01 male, 05.ix.2004, 02 males; Dist. Idukki, Vallakadavu, 780m, 12.ix.2004, 01 male; Dist. Palakka, Mukkali, 560m, 19.ix.2004, 01 male, coll. A. Katewa.

Distribution: India: Bombay, Mahabaleshwar (Clarke 1965); Himachal Pradesh (Rose & Pathania 2003a); Goa, Kerala (In the present study).

Genitalia: Male genitalia with aedeagus small and broad, apex pointed, vesica lacking cornutus, coecum absent, juxta well developed, long, apically pointedmale genitalia with aedeagus not as above (Rose & Pathania 2003a).

Remarks: The species has been reported for the first time from Goa and Kerala of Western Ghats.

Subfamily Stathmopodinae

Stathmopodinae Janse, 1917, *Check-List S. Afr. Lepid. Heterocera*: 190 (as Stathmopodidae).

Types-genus: *Stathmopoda* Harrich-Schäffer, 1853, *Syst. Bearbeitung Schmett. Eur.,* 5: (14) key, 54; 1894, *ibidem*, 6: *Microlepid*; pl. 9 figs. 17-22, included in Fletcher 1929 within the Schreckensteiniidae.

X. *Stathmopoda* Herrich-Schäffer

Stathmopoda Herrich-Schäffer, 1853, *Syst. Bearbeitung Schmett. Eur*., 5: 14 (key), 54; 1849, *ibidem*, 6: *Microlepid.* pl. 9 figs. 17-22.

Type-species: *Phalaena pedella* Linnaeus, 1761, *Fauna Suecica (Edn 2)*: 367, by subsequent designation by Meyrick, 1914, *in Wytsman, Genera Insect*., 165: 10.

Diagnosis: Pathania et al. (2009).

12. *Stathmopoda balanarcha* Meyrick (Image 2L)

Stathmopoda balanarcha Meyrick,1916-1923, *Exot. Microlepid.,* 2: 461.

Description: Forewing with Sc ending at middle of costa, forewing elongate, basal half yellowish, distal half light fuscous scaled, black irregular spot near base of costa, costa slightly convex at base then straight (Pathania et al. 2009).

Material examined: Reg. no. OECO/14-20, India, Karnataka: Dist. Belgaum, FRH, Londa, 420m, 24.iii.2003, 01 male, 26.iii.2003, 02 males, 28.iii.2003, 03 males; Maharashtra: Dist. Mumbai, Malshej Ghat, 690m, 02.x.2005, 01 male, coll. A. Katewa.

Distribution: India: Assam, Shillong (Meyrick 1916, 1923); Punjab (Pathania et al. 2009).

Genitalia: Male genitalia with sacculus pointed apically, cucullus convex ventro-distally, aedeagus long and narrowed, apex pointed, vesica with a rod-like broad cornutus, female genitalia with corpus bursae ovate in shape, ductus seminalis open in corpus bursae near ductus bursae (Pathania et al. 2009).

Remarks: The species *S. balanarcha* Meyrick completely conform to the characterization of the genus (Pathania et al. 2009) and is a first record from the Western Ghats.

Subfamily Oecophorinae

Oecophorinae Bruand, 1850, *Mem. Soc. Emul. Doubs* (1) 3 (5-6): 45 (as Oecophoridae)

Type-genus: *Oecophora* Latreille (1796), *Precis Caracteres generiques Insectes*: 146.

XI. *TONICA* WALKER

Tonica Walker, 1864, *List Specimens lepid. Insects Colln. Br. Mus*. 29: 788.

Type-species: *Tonica terasella* Walker, 1864, *ibidem*, 29: 788, by monotypy.

13. *Tonica niviferana* (Walker) (Image 3)

Binsitta niviferana Walker, 1864, *List Specimens Lepid. Insects Colin Br. Mus*., 29: 832.

Tonica niviferana Meyrick, 1905, *Journ. Bombay Nat. Hist.Soc*. XX-167.

Description: Forewing with a black spot near base, one black scales streak and a small triangular spot present near middle of costa, vein Sc join by a bar at 3/4th with discal cell, CuP visible at anal margin (Pathania et al. 2006)

Material examined: Reg. no. OECO/21-23, India, Kerala: Dist. Pathanamthitta, FRH, Wadaserikera, 30m, 07.ix.2004, 01 female; Dist. Thiruvananthapuram, FRH, Vithura, 120m, 04.ix.2004, 01 female; Dist. Palakkad, Mukkali, 560m, 19.ix.2004, 01 female, coll. A. Katewa.

Distribution: India: Sikkim, Darjeeling, Khasi Hills (Meyrick 1910); Dehradun, Pusa (Roonwal et. al. 1964) and Kangra (Srivastava et al. 2005; Pathania et al. 2006).

Genitalia: Male genitalia with gnathos small, sacculus with pointed apex exceeding beyond each valva, coecum absent (Srivastava et al. 2005).

Larval host plant: *Bombax malabaricum* (Fletcher 1921).

Remarks: Srivastava et al. (2005) have studied the species on the basis of the male individuals collected from Kangra in western Himalaya. *Tonica niviferana* (Walker) is being reported for the first time from the Western Ghats.

Family: Ethmiidae

Ethmiidae Busck, 1909, *Proc. ent. Soc. Wash*., 11: 91.

Type-genus: *Ethmia* Hübner (1819) 1816, *Verz. bekannter Schmett*.,: 163.

XII. *Ethmia* Hübner

Ethmia Hübner [1819] 1816, *Verz. bekannter Schmett.,* 11: 163.

Type-species: *Ethmia pyrausta* Pallas (1771) *Reise Rus.Reich*. 1: 472.

Diagnosis: Pathania et al. (2006a).

14. *Ethmia hilarella* Walker (Image 4)

Ethmia hilarella Walker, 1863. *Cat. Lep. Het. B.M.* 28: 542.

Description: Vertex covered with silver grey scales, black scales at middle basally, labial palpus small, recurved, second segment long, without brush of elongate scales, black and silver grey, third segment small, acute, black and silver grey, antenna long, filiform, basally silver grey then fuscous, longer than three-fourth length of forewing, thorax silver grey with black spots, forewing silver grey scaled, elongate, three black spot at base, four row of black spot oblique, first near base of costa with three black spots, second at middle with two black spot, third at two-third from base with three spots, fourth near apex with three sports, one black spots near anal margin distally and a row of black spots on the termen, costa slightly arched, apex subacute, termen slightly convex, tornus convex, anal margin convex, termen with cilia silver grey in colour, hindwing yellow with black margin at apex,prothoracic and mesothoracic legs silver grey and black in colour, metathoracic leg yellow, hind tibia with long, hair like erect scales on the dorsal surface.

Material examined: Reg. no. ETHM/1-9, India, Karnataka: Dist. Kodagu, Baghamandala, 900m, 25.xi.2003, 02 males, 05 females; Dist. Uttar Kannada, Ganeshgudi, 480m, 13.xi.2003, 01 female; Dist. Chikmagalure, Kallathy Falls, 960m, 26.vii.2004, 01 male, coll. A. Katewa.

Distribution: India: Southern India. Elsewhere. Sri Lanka, Taiwan (Domingo et al. 2003).

Genitalia: Male genitalia with uncus long, bifurcate in shape, apex pointed, moderately sclerotised; socii absent; gnathos long, shield-like, broader at base, distally with small teeth-like structure; tegumen long and broad, broader at base, apically narrowed; two long setose lobe of labis present; vinculum ring-like, broad; saccus absent; juxta U-shaped broad; valvae symmetrical, long, broad, costal margin slightly convex, distinct, almost half the length of valva, heavily sclerotized, sacculus margin convex, cucullus with densely hair on the inner surface, margin obtuse, strongly concave distally, convex dorso-distally; aedeagus small, about two-third length of valvae, pistol-like, ankylosed, apex pointed, broader basally, coecum small, rounded; vesica lacking cornutus. Female genitalia with corpus bursae sac-like, weakly sclerotized; a slit-like signum present; ductus bursae very long, coiled, weakly sclerotized; anterior apophyses small; posterior apophyses long, tip swollen; papilla analis elongated, setosed with long and short setae.

Remarks: The species *hilarella* can be easily identified by the spots present on forewing and the black apical spot of hindwing. The male and female genitalia of this species is being described for the first time, besides being reported for the first time from area under reference.

15. *Ethmia pagiopa* Meyrick (Image 2M)

Ethmia pagiopa Meyrick, 1918, *Exot. Microlepid*., 2: 189.

Description: Forewing with black rounded or irregular spots on the upper surface, forewing with veins CuA1 and CuA2 free, hindwing with veins CuA1 and CuA2 connate; male genitlaia with uncus furcate, cucullus part of each valva without such process (Pathania et al. 2006a).

Material Examined: Reg. no. ETHM/10-11, India, Tamil Nadu: Dist. Nilgiris, Dodabetta, 2640m, 01.x.2003, 01 male, coll. A. Katewa & 30.viii.2015, 01 male, coll. P.C. Pathania.

Distribution: India: Kashmir (Meyrick 1916–1923); Himachal Pradesh, Punjab (Pathania et al. 2006a).

Genitalia: Male genitalia with labis represented by two short arms, vinculum U-shaped, cucullus with one lobe, vesica with a cornutus presen (Pathania et al. 2006a).

Remarks: The speciemens collected from the aforesaid locality has been identified as *Ethmia pagiopa* Meyrick from the account published by Pathania et al. (2006a). The reporting of the species from the Western Ghats is a new record from this hot biodiversity spot.

Family Scythridiae

Scythridae Rebel, 1901, *Staudinger & Rebel, Cat. Lepid. palaearct. Faunengeb.,* 2: 179 (as Scythridinae).

Type-genus: *Scythris* Hübner, (1825) 1816, *Vertz. bekannter Schmett*.,: 414.

XIII. *Eretmocera* Zeller

Eretmocera Zeller, 1852, *Lepid. Microptera, quae J.A. Wahlberg in Caffrourum terra collegit*,: 96.

Stantonia Staudinger, 1859, *Ent. Ztg., Stettin*., 20: 250. Type-species: *Staintonia medinella* Staudinger, 1859, ibidem, 20: 250.

Castorura Meyrick, 1887, *Proc. Linn. Soc. N.S.W*. (2) 1: 1047. Type-species: *Castorura chrysias* Meyrick, ibidem,: 1047.

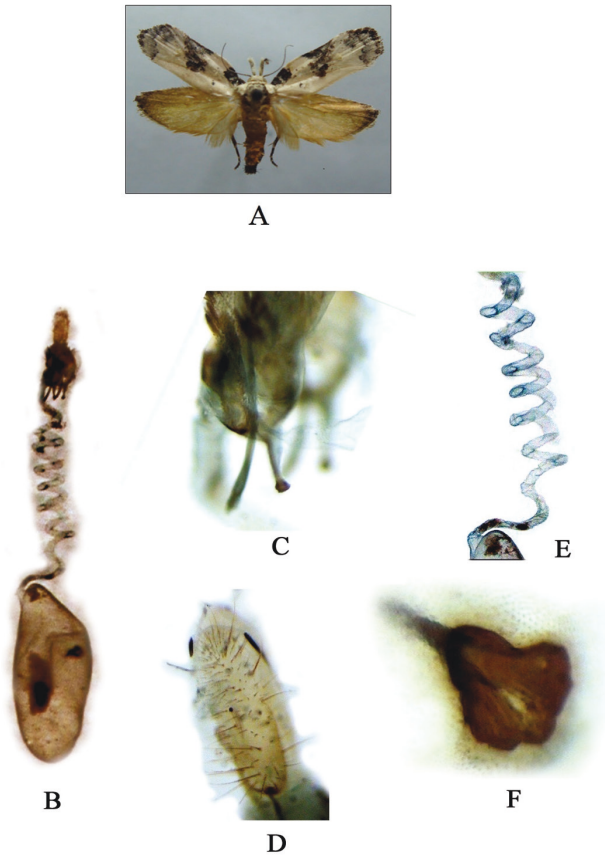

Image 3. *Tonica niviferana* (Walker). A—Adult | B—Female genitalia | C—Ostium bursae | D—Papilae analis | E—Ductus bursae | F—Signum. © Amit Katewa & Prakash Chand Pathania.

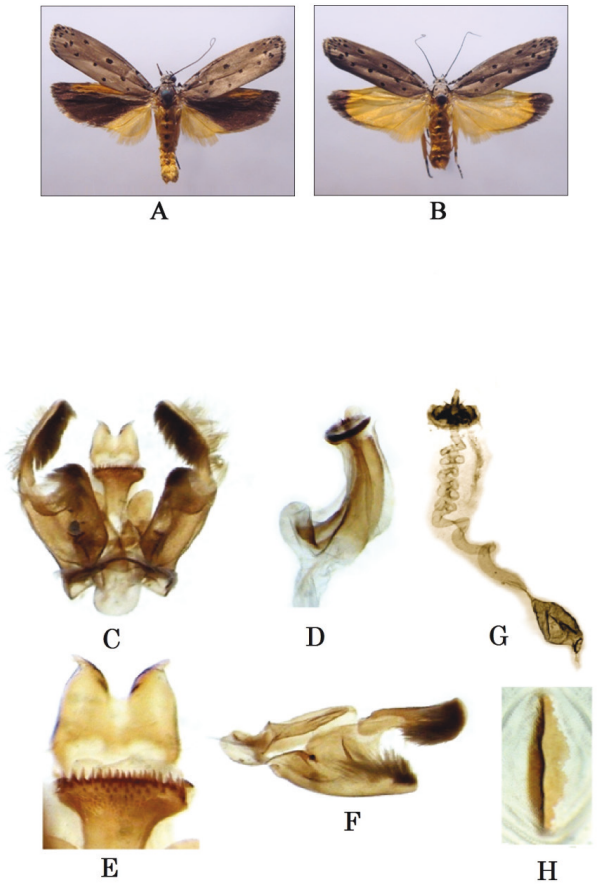

Image 4. *Ethmia hilarella* Walker. A—Adult (male) | B—adult (female) | C—male genitalia (ventral view) | D–E—Aedeagus | F—Valava | G—female genitalia | H—Signum. © Amit Katewa & Prakash Chand Pathania.

Aeraula Meyrick, 1897, *Proc. Linn. Soc. N.S.W*. 22: 298 (key), 369. Type-species: *Aeraula dioctis* Meyrick, 1897, *Proc. Linn. Soc. N.S.W.,* 22: 370.

Type-species: *Eretmocera fuscipennis* Zeller, 1852, *Lepid. Microptera. quae J.A. Wahlberg in Caffrourum terra collegit,:* 97. by subsequent designation by *Walsingham, 1889, Trans. ent. Soc. Lond*.,: 24.

16. *Eretmocera impectella* (Walker) (Image 2N)

Gelechia impectella Walker, 1864, *List Specimens Lepid. Insects Colln. Br. Mus.,* 29: 637.

Description: Forewing with four bright yellow spots, CuP present in distal half only, abdomen with bright yellow and black bands alternatively (Pathania et al. 2009).

Material Examined: Reg. no. SCTH/1-4, India, Kerala: Dist. Pathanamthitta, Wadaserikera, 30m, 07.ix.2004, 02 male; Karnataka: Dist. Uttar Kannada, Ganeshgudi, 480m, 14.x.2005, 01 male, 16.x.2005, 01 male, coll. A. Katewa.

Distribution: India: Bengal, Bihar, Punjab, Dehradun (Roonwal et al. 1964); Uttranchal, Punjab (Pathania et al. 2009).

Genitalia: Male genitalia with socii relatively small, broad, gnathos beak-like, with left arm small, aedeagus short, curved at middle (Pathania et al. 2009).

Remarks: The genus *Eretmocera* Zeller contains forty species and occurs in Afrotropical, Palaearctic, Oriental and the Australian regions, with maximum number of species reported from Africa. According to Landry (1991), "*Eretmocera* includes the most colourful moths of the Scythridids with patches of bright yellow, orange or red on the forewings and/or abdomen, contrasting with the dark piceous brown ground colour and the brilliant colouration of the abdomen. Also, the base of the proximal arm of the gnathos are fused into a long tube and the vinculum is forked basally in the male genitalia". The species is recorded for the first time from the area under reference.

REFERENCES

Clarke, J.F.G. (1965). Catalogue of the type specimens of microlepidoptera in the British Museum (Natural History) described by Edward Meyrick–5. Trustees of the British Museum (Natural History), London, 581pp.

Clarke, J.F.G. (1969). Catalogue of the type specimens of microlepidoptera in the British Museum (Natural History) described by Edward Meyrick–6. Trustees of the British Museum (Natural History), London, 537pp.

Common, I.F.B. (1990). *Moths of Australia*. E.J. Brill, Leiden, vi+535pp., 32 pls.

Common, I.F.B. (1970). Lepidoptera, The insects of Australia, chapter 3b, CSIRO, Divn. Entomology, Melbourne University Press, 1029pp.

Domingo, J., P. Huemer & J. Baixeras (2003). Ethmia penyagolosella sp. n. (Lepidoptera: Ethmiidae), a new species from Spain. *Nachrichten des Entomologischen Vereins Apollo, N.F*. 24(4): 183–188.

Fletcher, T.B. (1921). Life history of Indian Insects, Microlepidoptera. *Memoirs of the Department of Agriculture in India* 6: 1–217.

Fletcher, T.B. (1929). A list of the generic names used for Microlepidoptera. *Memoirs of the Department of Agriculture in India (Ent.) Series*, 11: 246pp.

Gaede, M. (1937). Catalogue of Gelechiidae. *Lepidopterorum Catalogus* 79: 1–630.

Hodges, R.W. (1958). A method for preparing fresh microlepidoptera for spreading. *Lepidoptera News* 12: 205.

Hodges, R.W. (1978). Gelechioidea: Cosmopterygidae, In: Dominick, R.B. et al. (ed.). The moths of America North of Mexico. 6(1): 166pp.

Hodges, R.W. (1986). Gelechioidea: Gelechiidae, In: Dominick, R.B. et al. (ed.). The moths of American North of Mexico, 7(1): 1–195.

Landry, J.F. & B. Landry (1994). A technique for setting and mounting Microlepidoptera. *Journal of the Lepidopterists'* Society 48(3): 205–227.

Lindquist, O.H. (1956). A technique for pinning and spreading small microlepidoptera. *The Canadian Entomologist* 138(1): 24–25.

Meyrick, E. (1908). Descriptions of Indian Microlepidoptera. *Journal of the Bombay Natural History Society* 18: 137–160, 437–460, 613–638, 806–832.

Meyrick, E. (1910). Descriptions of Indian Microlepidoptera. *Journal of the Bombay Natural History Society* 20: 143–168, 435–462, 706–736.

Meyrick, E. (1916–1923). Exotic Microlepidoptera 2: 1–640.

Meyrick, E. (1925). Lepidoptera; Heterocera family Gelechiadae in Wytsman, Genera Insectorum 184: 1–290.

Mikkola, K. (1986). Tower spreading, a handy method for provisional field preparation for Microlepidoptera. *Nota entomológica* 66: 101–102.

Nielson, Z. (1980). Entomology. The denish scientific to Patagonia and Tierra del Fuego 1978-1979. *Geografisk Tidsskrift* 80: 9–13.

Park, K.T. & J.B. Heppner (2000). Lecithoceridae (Lepidoptera) of Taiwan (III) Subfamily Torodrinae: genus *Torodora* Meyrick. *Transactions of Lepidopterological Society of Japan* 51(4): 287–297.

Park, K.T. & M. Omelko (1994). Two new species of Genus *Stegasta* (Lepidoptera, Gelechiidae). *Japanase Journal of Entomology* 62 (4): 867–871.

Park, K.T. & M.G. Ponomarenko (1996). Genus *Anarsia* Hübner (Lepidoptera, Gelechiidae) from Thailand, with description of nine new species. *Insecta Koreana* 13: 39–58.

Park, K.T. & R.W. Hodges (1995). Gelechiidae (Lepidoptera) of Taiwan III. Systematic Revision of the genus Dichomeris in Taiwan and Japan. *Insecta Koreana* 12: 1–101.

Park, K.T. & R.W. Hodges (1995). Gelechiidae (Lepidoptera) of Taiwan IV. Genus *Helcystogramma* zeller, with description of a new species. *The Korean Journal of Systematic Zoology* 11(2): 223–234.

Pathania, P.C. & H.S. Rose (2003). Taxonomic notes on the genus *Hypatima* Hübner (Lepidoptera: Gelechiidae) alongwith a new species from India. *Journal of Pest management & Ecnomic Zoology* 11(2): 163–171.

Pathania, P.C. & H.S. Rose (2004a). Description of one new and redescription of two known species of *Hygroplasta* Meyrick (Lepidoptera: Lecithceridae:Torodorinae) from India. *Shashpa* 11(2): 93–99.

Pathania, P.C. & H.S. Rose (2004b). Nine species including *Lecithocera gozmanyi* sp. nov. of genus *Lecithocera* Herrich-Schaffer (Lepidoptera: Lecithoceridae: Lecithocerinae) from Shiwaliks, India. *Geobios* 31(4): 225–236.

Pathania, P.C., H.S. Rose & R. Sood (2009). Taxonomic studies of members of family Scythridae (Lepidoptera) from Western Himalaya. *Journal of Insect Science* 22(2): 162–170.

Pathania, P.C., H.S. Rose & R. Sood (2006). Gelechiid diversity (Lepidoptera) from Shiwalik hills of north-western Himalaya. *Zoos' Print Journal* 21(1): 2127–2131. https://doi.org/10.11609/JoTT.ZPJ.2127-31

Pathania, P.C., H.S. Rose & R. Sood (2006a). Taxonomic studies of the genus *Ethmia* Hübner (Ethmiidae:Lepidoptera) from India. *Environment and Ecology* 24(3): 496–503.

Robinson, G.S. (1976). The Preparation of slides of Lepidoptera genitalia with special reference to microlepidoptera. *Entomologist Gazette* 27(2): 127–132.

Roonwal, M.L., R.N. Mathur, G.D. Bhasin, P.N. Chatterjee, P.K. Sen-Sharma, B. Singh, A. Chandra, R.S. Thapa & K. Krishna (1964). A systematic catalogue of the main identified entomological collection at the Forest Research Institute, Dehradun, 22–38: 197–537.

Rose, H.S. & P.C. Pathania (2003a). Significance of the genitalia in the family Oecophoridae (Lepidoptera) alongwith a new species and three new combinations from North-West India. *Panjab University Research Journal (Science)* 53: 105–132.

Rose, H.S. & P.C. Pathania (2003b). Taxonomic studies of genus *Torodora* Meyrick (Lepidoptera: Licithoceridae: Torodorinae) from North-West India. *Bioved* 14(1,2): 141–157.

Rose, H.S. & P.C. Pathania (2003c). Taxonomic studies on the genus *Anarsia* Zeller (Lepidoptera: Gelechiidae) from Shivaliks in India. *Entomon* 28(4): 329–354.

Rose, H.S. & P.C. Pathania (2003d). Two new species along with first record of the genus *Helcystogramma* Zeller (Lepidoptera: Gelechiidae) from India. *Panjab University Research Journal (Science)* 53: 81–90.

Rose, H.S. & P.C. Pathania (2004). A new species and a new record of the genus *Stegasta* Meyrick (Lepidoptera: Gelechiidae) from India. *Journal of Environmental Science* 8(2): 152–156.

Sokoloff, E. (1980). Practical hits for collecting and studying the Microlepidoptera. *Amateur Entomologist* 16: 1–39.

Srivastava, A., P. Kumar & S. Sharma (2005). Taxonomic studies on the genus Tinea Linnaeus (Lepidoptera: Tineidae) with brief account of its genitalia. *Pest management and Economic Zoology* 13(2): 251–256.

Tagestad, A.D. (1974). A technique for mounting microlepidoptera. *Journal of the Kansas Entomologiocal Society* 47: 26–30.

Van Nieukerken, E.J, L. Kaila, I.J. Kitching, N.P. Kristensen, D.C. Lees, J. Minet, C. Mitter, M. Mutanen, J.C. Regier, T.J. Simonsen, N. Wahlberg, S.H. Yen, R. Zahiri, D. Adamski, J. Baixeras, D. Bartsch, B.A. Bengtsson, J.W. Brown, S. R. Bucheli, D.R. Davis, J. Prins, W. De Prins, M.E. Epstein, P. Gentili-Poole, C. Gielis, P. Hättenschwiler, A. Hausmann, J.D. Holloway, A. Kallies, O. Karsholt, A.Y. Kawahara, S.J.C. Koster, M. Kozlov, J.D. Lafontaine, G. Lamas, J.F. Landry, S. Lee, M. Nuss, K.T. Park, C. Penz, J. Rota, A. Schintlmeister, B.C. Schmidt, J.C. Sohn, M.A. Solis, G.M. Tarmann, A.D. Warren, S. Weller, R.V. Yakovlev, A. Zolotuhin & V.V. Zwick (2011). Order Lepidoptera Linnaeus, 1758. In: Zhang, Z.-Q. (Ed.), Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. *Zootaxa* 3148: 212–221

Zimmerman, E.C. (1978). *Microlepidoptera. Insects of Hawaii - 9*. University Press of Hawaii, Honolulu, 8: 1903pp.

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