

A Taxonomic Review of the Lecithoceridae (Lepidoptera) in Sri Lanka III. The Subfamily Lecithocerinae: Genus *Frisilia*

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ABSTRACT

As the 3rd series of the study on the family Lecithoceridae in Sri Lanka, 11 species of the genus *Frisilia* Walker, 1864, are recognized. Of these, 5 species, *Frisilia thapsina*, *F. tricrosura*, *F. trizeugma*, *F. ancylosana*, and *F. neacantha* are described as new to science, with illustrations of their genitalia are given.

Key words: Systematics, Lecithocerinae, *Frisilia*, Sri Lanka

INTRODUCTION

The family Lecithoceridae comprises about 800 species of over 100 genera belonging to three or four subfamilies throughout the old world. Most of them occur in the Oriental and Australian regions, with an exception of only a species known from Neotropical Region. In Sri Lanka, 118 species (including three new synonyms) were described by Walker (1864), Felder (1875), Walsingham (1886), and Meyrick (1887-1929), but many of them were synonymized or newly combined through this study. The family Lecithoceridae of Sri Lanka is enumerated with more than 150 species, and is being reviewed in several separated articles: the 1st article of the series of a taxonomic review of the family Lecithoceridae from Sri Lanka (TINEA, 1999, 16: 61-72) is for the genera *Torodora* and its allies of the subfamily Torodorinae, and the 2nd (Insecta Koreana, 1998: 1-22) is the genera including *Deltoplastis* Meyrick, *Hygroplasta* Meyrick, and *Antiochtha* Walker of Torodorinae. This part is the 3rd, and deals with the genus *Frisilia* Walker of the subfamily Lecithocerinae. The subfamily Lecithocerinae is characterized by the presence of the bridge-like structure connecting the tegumen and the valval costa, uncus almost vestigial with two short lobes

basally in the male genitalia. The subfamily comprises approximately 500 species in the eastern Palaearctic, Oriental, and Australian regions, with about 20 species known from Neotropical region. The genus *Frisilia* Walker is mostly distributed in the Oriental region, including the northern boarder of India, and comprises less than 15 species throughout the world.

Material examined for this study is based on a large number of specimens collected in Sri Lanka by members of Lepidopterological expeditions of the National Museum of Natural History, Smithsonian Institution, Washington DC, USA, in 1970, 1971, 1973- 1977, 1980 and 1983. All specimens, including types of new species, are housed in the National Museum of Natural History (USNM), Smithsonian Institution. Descriptions of adults for the newly described species are given, with illustrations of their genitalia and those of the newly known sexes of the previously reported species. Type localities (TL) of the all known species are given after the original reference of the species.

SYSTEMATICS

Genus *Frisilia* Walker, 1864

Type species: *Frisilia nesciatella* Walker, 1864

The genus *Frisilia* Walker in Sri Lanka has not been well studied, since Walker (1864) and Meyrick (1887, 1929) described six species. The genus is defined by the following characters: Male labial palpus atypical, not upturned and curved downwardly, with erect hairs densely, but that of female normal shaped; forewing with sharply defined and conspicuously darkened costal area, with well visible discal dots and frequently a plical spot. Male genitalia often have well-developed median or lateral lobes on the juxta.

1. *Frisilia thapsina* Wu et Park, sp. nov.

Diagnosis. This new species differs from the all known congeners by the S-shaped and slender aedeagus in the male genitalia.

Description. Wing expanse 10-12 mm. Antenna ochreous yellow, dark at base. Labial palpi ochreous brown in male, ochreous yellow in female. Head, thorax ochreous to ochreous yellow. Forewing light yellow, with a silky sheen; pattern dark brown: humeral blotch narrow; dot of cell and discocellular spot small; termen brown; cilia light yellow. Hindwing ochreous.

Male genitalia (Figs. 1, 2): Bridge-like band widened triangularly, sharply angled medially; valva arm-shaped, apex broadly rounded; sacculus narrow and long, terminating in a fingered protruding; juxta small, caudal processes not developed; aedeagus longer and narrower than valva, S-shaped; cornutus bar-shaped, long.

Female genitalia (Fig. 11): Antrum very weak, not obvious; ductus bursae narrow and long, much longer than length of corpus bursae; ductus seminalis wide, arising from distal 2/3; corpus bursae large, ovate; signum elliptic, with dents on lateral margin and a big spine on the other side.

Types. Holotype: male, Kal. Dist. Agalawatta, 13-14 Oct. 1976, gen. slide no. USNM-87825. Paratypes: 4 ♂, 2 ♀, as same data as the holotype; 1 ♀, Gal. Dist., Kanneliya Jungle, 11-16 Jan. 1975, slide no. USNM-88178.

Distribution. Sri Lanka.

Etymology. The name was derived from Greek "thapsinos" (= yellow).

2. *Frisilia tricrosura* Wu et Park, sp. nov.

Diagnosis. This new species is related to *F. notifica*, but differs from the latter by the longer, free lobes of sacculus and the pair of longer cornuti in the male genitalia.

Description. Wing expanse 10-12 mm. Antenna ochreous yellow, thickening and dark at base. Labial palpi ochreous yellow. Head, thorax ochreous yellow. Forewing ochreous yellow, speckled with brown scales; dot of cell and discocellular spot brown; termen brown; cilia ochreous yellow. Hindwing light ochreous.

Male genitalia (Figs. 3, 4): Basal lobes of uncus wide and short; bridge-like band relatively wide, sharply angled at middle; valva with rounded apex, emarginated at apical 3/4 on ventral margin, with a bundle of hair-like setae near end of sacculus; sacculus wide and long, with a free, long, finger-shaped lobe distally; juxta with a long, heavily sclerotized median process and weak lateral processes; aedeagus longer, narrower than valva; cornuti with a pair of bar-shaped, strong bars, one longer than the other.

Female genitalia (Fig. 12): Antrum cup-shaped, broader distally; ductus bursae widely developed, broader distally; ductus seminalis narrow, arising from near conjunction with corpus bursae; corpus bursae as long as ductus bursae; signum ovate, with many denticles.

Types. Holotype: male, Gal. Dist. Kanneliya, 200ft, 15-17 Oct. 1976. Paratypes: 6 ♂, 10 ♀, Kal. Dist. Agalawatta, 13-14 Oct. 1976, gen. slide no. USNM-87821; 4 ♂, 3 ♀ - Kan. Dist. Udawattakele, 2100ft, 4-5 Oct. 1976, gen. slide no. 87820(♀); Rat. Dist. Gilimale Lumber Mill, 115 ft, 20-25 Oct. 1976; Gal. Dist. Udugama, Kanneliya Jungle, 400ft, 6-12 Oct. 1973; ditto, 200ft, 15-17, Oct. 1976.

Distribution. Sri Lanka.

Etymology. The name was derived from Greek "tricros" (= three-forked) and "ura" (= tail).

3. *Frisilia notifica* Meyrick, 1910

Frisilia notifica Meyrick, 1910, p. 438 (TL: Miskeliya, Madulsima and Peradeniya, Ceylon).

Frisilia notifica: Meyrick, 1925, p. 214, Clarke, 1965, p. 60.

Wing expanse 15-17 mm. Male genitalia (see Clarke, 1965, p. 60, pl. 30, figs. 2-2b).

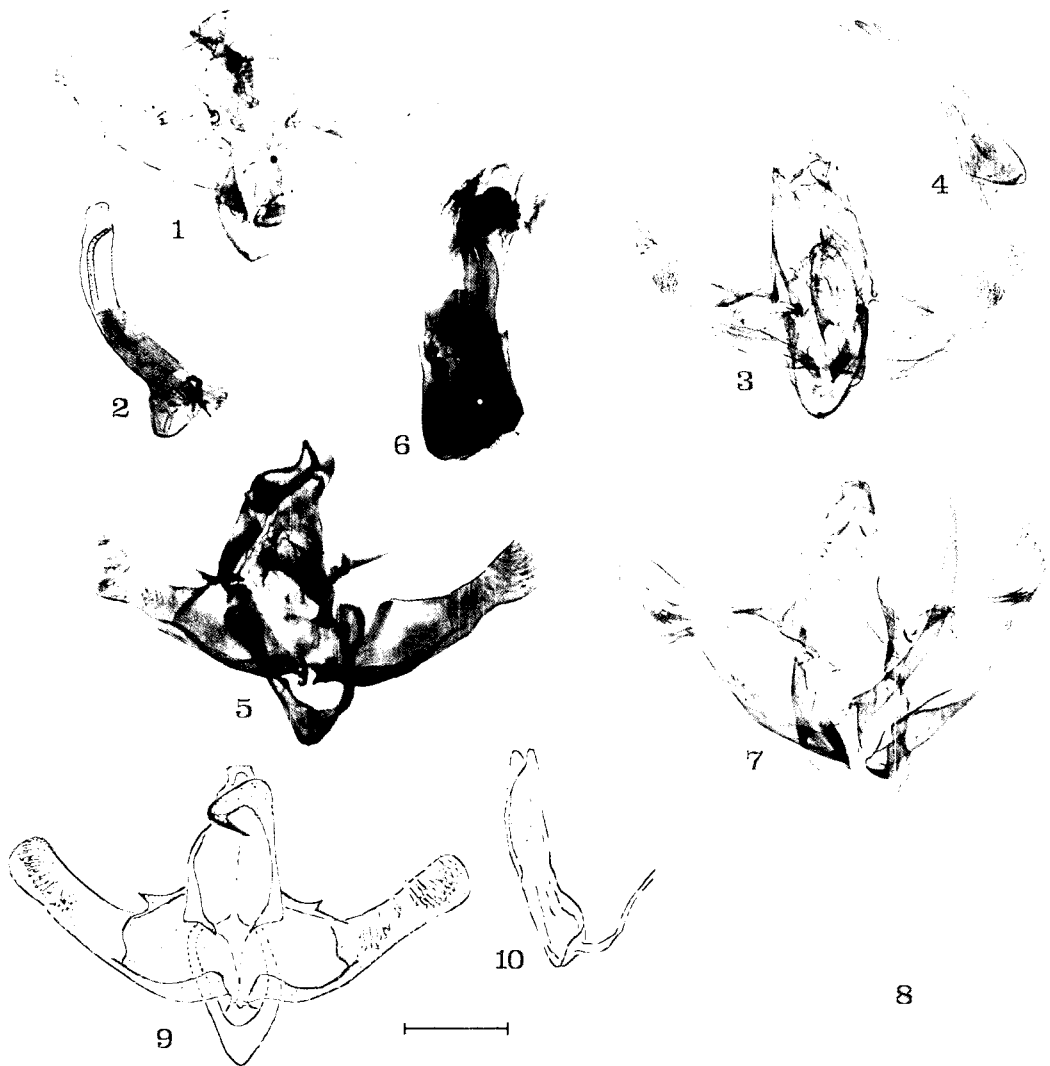
Material examined. 1 ♂, Kan. Dist. Udawattakele, 2100ft, 4-5 Oct. 1976; 1 ♂, Gal. Dist. Kanneliya Jungle, 11-16 Jan. 1975, 1 ♂, 400ft, 6-12 Oct. 1973.

Distribution. Sri Lanka.

4. *Frisilia trizeugma* Wu et Park, sp. nov.

Diagnosis. This new species differs from the allies by the extremely large aedeagus of the male genitalia.

Description. Wing expanse 10-13 mm. Antennae ochreous yellow, dark yellowish brown at base. Labial palpi ochreous yellow, speckled with black scales. Head, thorax ochreous yellow. Forewing ochreous yellow, scattering with brown; pattern dark brown; dot of cell large, discocellular spot long, near to inner margin; termen blackish brown; cilia ochreous yellow, with a



Figs. 1-10. Male genitalia: 1-2, *Frisilia thapsina* sp. nov.; 3-4, *F. tricrosura* sp. nov.; 5-6, *F. trizeugina* sp. nov.; 7-8, *F. ancylosana* sp. nov.; 9-10, *F. neacantha* sp. nov. (Scale bars: 0.5 mm).

row of brown dots in middle. Hindwing grey to light brown.

Male genitalia (Figs. 5, 6): Uncus relatively broad, short; basal lobes of uncus short and wide; bridge-like band widened triangularly, sharply angled at middle; valva emarginated at apical 2/3 on ventral margin, with broadly rounded apex, generally similar to those of *tricrosura* sp. nov., but without free distal lobes of saccus; saccus long; juxta shield-shaped, with a pair of long lateral processes and a median process; aedeagus extremely large, almost twice in width than that of valva; cornuti with two long, stout bars.

Types. Holotype: male, Kan. Dist. Teldeniya, 1400ft, 18-20 Nov., 1976. Paratypes: 17 ♂ - Mate

Dist. Sigiriya 800ft, 13-14 Nov., 1976, gen. slide no. USNM-88028; Mon. Dist. Sella Kataragama Menik Ganga, 150ft, 24 Oct. 1970; Ham. Dist. Hambantota, 28 Oct. 1970; Palatupana, 22-25, Oct. 1970; Rat. Dist. Uda Welawe 300ft, 1 Aug. 1973; Gilimale Lumber Mill 115ft, 20-25 Oct. 1976; Singharaja forest 5 Aug. 1973; Panamure, 500ft, 15-21 Oct. 1970; Eraporu Ganga NW Kolonne, 1000ft, 16 Oct. 1976; Anu. Dist. 280ft, 3 Nov. 1976.

Distribution. Sri Lanka.

Etymology. The name was derived from Greek "tri" (= three) and "zeugma" (= band).

5. *Frisilia dipsia* Meyrick, 1910

Frisilia dipsia Meyrick, 1910, p. 437 (TL: Maskeliya and Madulsima, Ceylon).

Frisilia dipsia: Clarke 1965, p. 59.

Wing expanse 19-20 mm. Male genitalia (see Clarke, 1965, p. 59, pl. 29, figs. 1-1b).

Material examined. 1 ♂, Maskeliya, without collecting date.

Distribution. Sri Lanka.

6. *Frisilia rostrata* (Meyrick, 1906)

Macrernis rostrata Meyrick, 1906, p. 147 (TL: Maskeliya, Ceylon).

Frisilia rostrata: Clarke 1965, p. 60.

Wing expanse 18-21 mm. Male genitalia (see Clarke, 1965, p. 60, pl. 30, figs. 4-4b).

Material examined. 3 ♂, 4 ♀, N.E. Dist. Kanda-ela Reservoir 5.6 mls. SW Nuwara Eliy. 6200ft, 10-21 Feb. 1976; 1 ♂, 1 ♀, Moon Plains 1635ft, 18 Aug. 1973; 1 ♂, Lovers Leap Creek, 7000ft, 15 Mar. 1973; 1 ♂, Maskeliya, Pole, 7 May, 1976.

Distribution. Sri Lanka.

7. *Frisilia ancylosana* Wu et Park, sp. nov.

Diagnosis. This new species is related to *F. rostrata*, but differs from the latter by the shape of the valva, with strong emargination bearing two tuft of spines at 3/4 on ventral margin in the male genitalia.

Description. Wing expanse 10-12 mm. Antennae ochreous brown. Male labial palpi ochreous at base, dark brown in terminal part. Head, thorax ochreous. Forewing ochreous white, with a discocellular spot. Hindwing light grey.

Male genitalia (Figs. 7, 8): Uncus relatively short, with a dorsal process; bridge-like band weakly developed; valva relatively long, emarginated at apical 3/4, with two tufts of stout spines before and beyond emargination, with a row of spines along ventral margin of distal part; sacculus broadly developed, long; juxta with a very long medial process, exceeding uncus; aedeagus S-shaped, longer than valva, with a small plate of sclerotized, small cornutus.

Types. Holotype: male, Kan. Dist. Peradeniya, Upper Hantane Hill, 2300ft, 12-16 Jan. 1970, gen. slide no. USNM-87982. Paratypes: 2 ♂, Udawattakele 2100ft, 5 Oct. 1976, gen. slide no. USNM-87961.

Distribution. Sri Lanka.

Etymology. The name was derived from Greek "ancylos" (= hooked).

8. *Frisilia sejuncta* Meyrick, 1929

Frisilia sejuncta Meyrick, 1929, p. 517 (TL: Bombay, Dharwar, Poona; Ceylon, Peradeniya).

Frisilia sejuncta: Clarke, 1965, p. 63.

Wing expanse 12-13 mm. Male genitalia (see Clarke, 1965, p. 63, pl. 31, figs. 1-1b). Female is not known.

Material examined. 1 ♂, Kan. Dist. Udawattakele, 1800ft, 5-19 Nov. 1976, 10-23 Jan. 1970; 1 ♂, Oharwar Kanara RM. 15 Jan. (the collecting date is unclear).

Distribution. Sri Lanka, India.

9. *Frisilia neacantha* Wu et Park, sp. nov.

Diagnosis. This new species differs from the allies by the shapes of the valva and the juxta in the male genitalia.

Description. Wing expanse 10-11 mm. Antenna ochreous yellow, dark ochreous at base. Labial palpi ochreous brown in male, ochreous yellow in female. Head, thorax ochreous yellow. Forewing ochreous yellow; termen ochreous brown; pattern dark brown: dot of cell and discocellular spot rounded; cilia ochreous. Hindwing light grey.

Male genitalia (Figs. 9, 10): Basal lobes of uncus short; bridge-like band sharply angled at middle; valva almost parallel beyond half, with rounded apex; sacculus relatively short; juxta shield-shaped, with a bar-shaped median process, lateral processes relatively short; aedeagus as long as valva, without cornuti.

Female genitalia (Fig. 13): Antrum indistinctive; ductus bursae narrow at caudal 1/2 and anterior half broadened as much as corpus bursae; ductus seminalis arising from near conjunction with corpus bursae; corpus bursae large; signum rather small, dentate, with a stout spine.

Types. Holotype: male, Kan. Dist. Udawattakele, 2100ft, 5 Oct. 1976, gen. slide no. Paratypes [3 ♂ 19 ♀]- Kan. Dist. Udawattakele 1800ft, 19-20 Nov. 1976; Kandy 10-23 Jan. 1970; Peradeniya 2300ft, 5-23 Jan. 1970; Rat. Dist. Uggalkaltota 350ft, Irrigation Bungalow, 31 Jan.-8 Feb. 1970, Panamure, 500ft, 15-21, Oct. 1970; Eraporu Ganga, 16 Oct. 1970; Mata Dist. Sigiriya 800ft., 13-14 Nov. 1976; Col. Dist. Labugama Reservoir 400 ft, 2-3 Oct. 1976.

Distribution. Sri Lanka.

Etymology. The name was derived from Greek "acantha" (= spine).

10. *Frisilia heliapta* (Meyrick, 1887)

Macrernis heliapta Meyrick, 1887, p. 275 (TL: Kandy, Ceylon).

Macrernis heliapta: Clarke, 1965, p. 176.

Wing expanse 14 mm. Male genitalia (see Clarke, 1965, p. 176, pl. 88, figs. 1-1d).

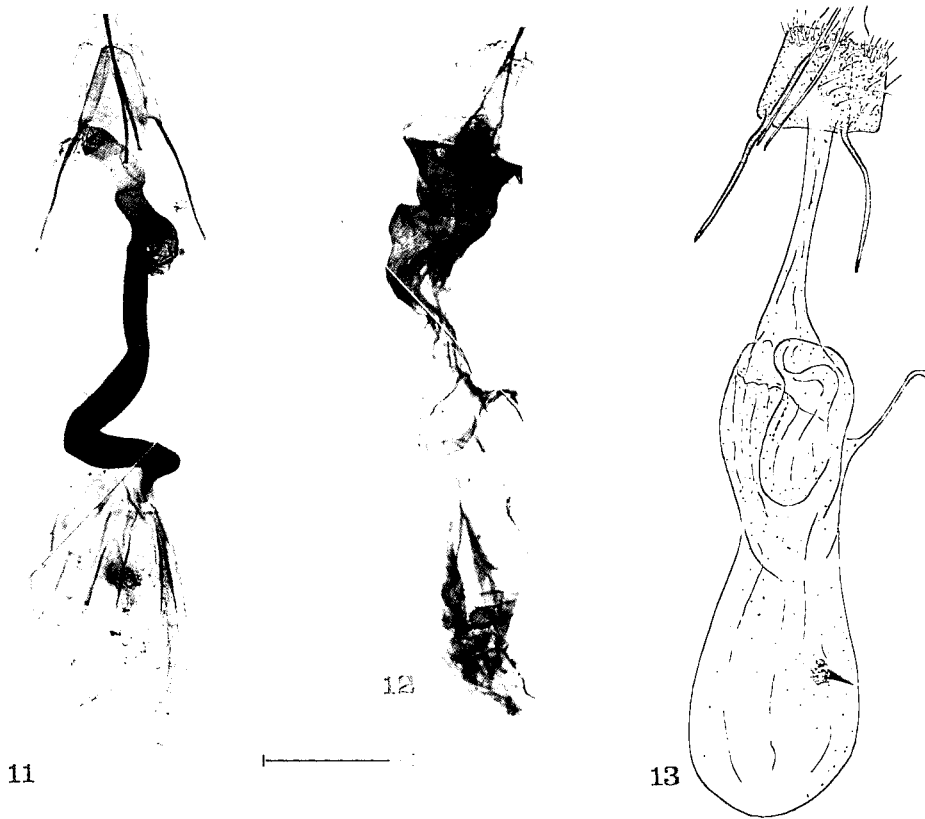
Material examined. 1 ♀, Maskeliya, Pole 3 Jun. slide no. 88227; 1 ♂, 12 May, gen. slide no. 3499.

Distribution. Sri Lanka.

11. *Frisilia nesciatella* Walker, 1864

Frisilia nesciatella Walker, 1864, p. 796 (TL: Ceylon).

Frisilia basaliella: Walker, 1864, p. 805.



Figs. 11-13. Female genitalia: 11, *Frisilia thapsina* sp. nov.; 12, *F. tricrosura* sp. nov.; 13, *F. neacantha* sp. nov. (Scale bars: 0.5 mm).

Wing expanse 10-11 mm.

Material examined. 1 ♂, Anu. dist. Hunuwilagama, 200ft, 28. Oct. 1976; 1 ♂, 10-19 Mar. 1970; ?, Rat. Dist. Uggalkatota, 350ft, Irrigation Bungalow, 31 Jan. -8 Feb. 1976.

Distribution. Sri Lanka.

Remarks. This species was described from Sri Lanka, but no further specimen is found in this study. There is some uncertainties in its identification.

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스리랑카産 Lecithoceridae 科의 분류학적 정리

III. Lecithocerinae 亞科: *Frisilia* 屬

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요 약

Sri Lanka의 Lecithoceridae 科, Lecithocerinae 亞科중 *Frisilia* 屬을 정리한 결과 총 11種이 밝혀졌으며, 그중 *Frisilia thapsina*, *F. tricrosura*, *F. trizeugma*, *F. ancyllosana*, 그리고 *F. neocantha* 등 5種을 新種으로 기재, 발표한다.