



First report of *Ashinaga eophthalma* meyrick (Lepidoptera: Oecophoridae) and *Pharambara micacealis* walker (Lepidoptera: Thyrididae) from India

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Abstract

The species, *Ashinaga eophthalma* Meyrick, 1931 and *Pharambara micacealis* Walker, 1866 are reported for the first time from India. The species *Ashinaga eophthalma* (Meyrick, 1931) was previously reported from China and Hong Kong. The species *Pharambara micacealis* (Walker, 1866) was previously reported from Sri Lanka, New Guinea and Australia. The genus *Pharambara* has about 25 species mostly reported from equatorial Africa and several are unnamed. There are 5 species reported from South East Asia (Regier, J.C. *et. al.*) and only one species was reported from India: *Pharambara splendida*. Diagnostic characters, figures and the distribution map of the newly recorded species are provided.

Keywords: heterocera, first report, India, cashew, coffee, ecosystems, diagnosis, taxonomy, distribution, comparison, bionomics

Introduction

Family Oecophoridae (superfamily: Gelechioidea) comprises eight subfamilies (Amphisbatinae, Autostichinae, Depressariinae, Hypertrophinae, Metachandinae, Oecophorinae, Stathmopodinae, Stenomatinae) and 506 genera. Where the subfamily: Oecophorinae is the nominate group. The phylogeny and systematics of gelechoid moths are still not fully resolved, and the circumscription of the Oecophoridae is strongly affected by this Hodge (1999). The genus *Ashinaga* is usually held to belong to the Oecophorinae. The genus was previously assigned to its own family, Ashinagidae and later, it was assigned to the subfamilies Chimabachinae as well as Stathmopodinae until it was finally placed in the Oecophoridae (A. L. Lvovsky, 2008) [8]. Only two species of the Genus *Ashinaga* are described from world: *Ashinaga eophthalma* (Meyrick, 1931) (previously in *Aeolarcha*) and *Ashinaga longimana* Matsumura, 1929. The species *Ashinaga eophthalma* (Meyrick, 1931) was previously reported from China and Hong Kong (Dr. Gary W.J. Ades 2020) [1]. The family Thyrididae comprises four subfamilies: Charideinae, Siculodinae, Striglininae and Thyridinae. *Pharambara micacealis* is first described by Francis Walker in 1866 and most species of the genus live in the tropics and subtropics. They are colourful and often day-flying moths. Their biology is little known. The genus *Pharambara* has about 25 species mostly reported from equatorial Africa and several are unnamed. There are 5 species reported from South East Asia (Regier, J.C. *et. al.*) [9] and only one species was reported from India: *Pharambara splendida* Butler ((Ahmet & Muhabbet, 2012) [6]. *Pharambara micacealis* (Walker, 1866) was previously reported from Sri Lanka, New Guinea and Australia (Ahmet & Muhabbet, 2012) [6]. The present study, the species *Pharambara micacealis* (Walker, 1866) and *Ashinaga eophthalma* (Meyrick, 1931) are newly reported from India are studied.

Material and Methods

The specimen *Ashinaga eophthalma* was collected from coffee plantations from kalpetta of the Wayanad district of Kerala (India) and *Pharambara micacealis* collected from cashew plantations from perambra, of the Kozhikode district of Kerala (India) using Light sheet traps. The specimens treated with ethyl acetate and were relaxed, pinned, and dry. The specimens are deposited in the laboratory of Zoological Survey of India, Kozhikode. The species were indentified from the literatures by Hampson (1894, 1910) and Holloway (1989), Walker, 1857; Swinhoe, 1890; Hampson, 1894, 1910; Holloway, 1989; Kononenko & Pinratana, 2013. The specimen was examined under LEICA® M205A stereomicroscopes and imaged using LEICA® DFC 500 digital cameras attached. Measurements were obtained using Leica® LAS (Leica Application Suite V3.80) microsystems and the final illustrations were post-processed for contrast and brightness using Adobe® Photoshop CS5 (ver. 12.0) software. Distribution map constructed using ArcGIS Online by Environmental Systems Research Institute, Redlands, California (ESRI, 2021).

Results and Discussion

Taxonomic Account for *Ashinaga eophthalma* Meyrick, 1931

Order: Lepidoptera Linnaeus, 1758

Superfamily: Gelechioidea

Family: Oecophoridae Bruand, 1851

Subfamily: Oecophorinae Bruand, 1851

Genus: *Ashinaga* Matsumura, 1929

Ashinaga eophthalma Meyrick, 1931

Aeolarcha eophthalma Meyrick, 1931. In: Caradja, *Bull. Sect. scient. Acad. roum.* 14: 212.

Material examined. India: Kerala, Wayanad district, Chundale (11.5721° N, 76.0580° E.), 1♀, 22.viii.2020, coll. Swafvan. K

Diagnosis (Fig 3): Adult Female. Wing expanse: 26 mm. Head, thorax and abdomen dark brown with white markings in thorax; antennae brownish, filiform (Fig 4); wings span 26–28 mm. Fore wing (Fig 5A) pale brown with small black dots and dark upper margin; outer margin curved; underside grayish with the inner margin paler and glossy; the vein Sc originating from cell. R1, R2, R3, R4 and R5 stalked; M1 beyond the middle of cell. M2 and M3 from lower angle of cell; CuA₁, CuA₂ from lower angle of cell;. 1A from cell; hind wing (Fig 5B) transparent with dark inner margin, fringed by cilia; cilia brown, glossy; underside greyish-brown; the vein Sc and R1 originating from base; Rs from upper angle of cell; M1 from upper angle of cell. M2 and M3 from cell; CuA₁ beyond middle of cell. and CuA₂ from middle of cell. 1A and 2A from base.

Distribution (Fig 2): India: Kerala (New Report). *Elsewhere:* China, Hong Kong (Dr. Gary W.J. Ades *et.al.*, 2020)

Bionomics: The present specimen was collected from the coffee agroecosystem of Regional Coffee Research Station, Coffee Board of India of the Wayanad district of Kerala (India). The moths were collected during August 2020 from altitudes ranging from 780 - 807m.

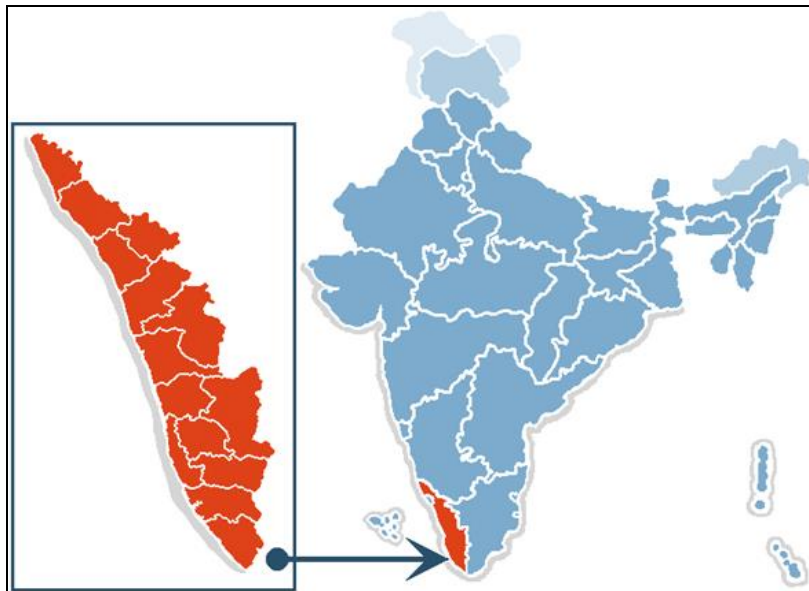


Fig 1: Study area: Map of Kerala (Source: Google map)



Fig 2: Distribution map of *Ashinaga eophthalma* (Meyrick, 1931) from India, China and Hong Kong



Fig 3



Fig 4

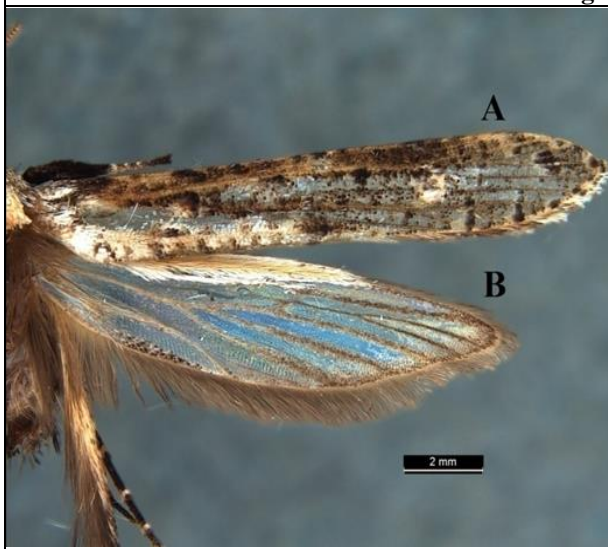


Fig 5

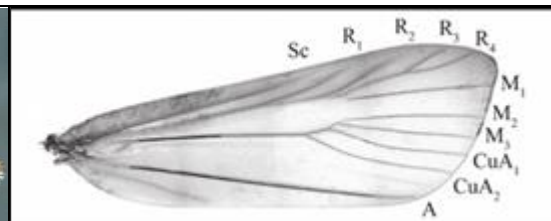


Fig 6

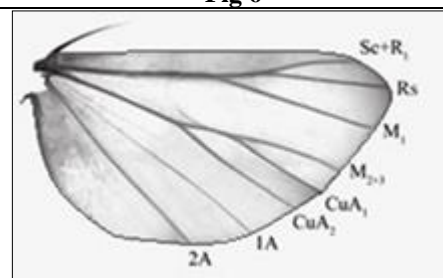


Fig 7

Fig 3-7: *Ashinaga eophthalma* (Meyrick, 1931), Filiform antennae, A- Forewing, B- Hindwing, Forewing venation, Hindwing venation

Taxonomic Account for *Pharambara micacealis* Walker, 1865

Order: Lepidoptera Linnaeus, 1758

Superfamily: Thyridoidea Herrich-Schäffer, 1846

Family: Thyrididae Herrich-Schäffer, 1846

Subfamily: Siculodinae Meyrick 1884

Genus: *Pharambara* Walker, [1866] 1865

Pharambara micacealis Walker, 1865

Pharambara micacealis Walker, 1865. *List Spec. lepid. Insects Colln Br. Mus.* 1275

Material examined. India: Kerala, Kozhikode district, Perambra (11.5836° N, 75.8170° E.), 1♀, 20.viii.2020, coll. Swafvan. K

Diagnosis (Fig 9): Adult Female. Head, thorax and abdomen brownish orange coloured with pale black markings; antennae filiform (Fig 10); Wing expanse: 23 mm. Its wings are fawn coloured with some dark wavy

lines. Fore wing (Fig 11A) brownish orange with black wavy lines in sub basal, antemedial, medial, post medial and subterminal regions; The vein Sc originating from base. R1, R2, R3, R4 and R5 stalked; M1, M2 and M3 beyond from cell; CuA₁ and n CuA₂ from lower angle of cell; 1A and 2A from base; hind wing (Fig 11B) also brownish orange with pale black antemedial line; the vein Sc and R1 originating from base; M1, M2, M3, M4 from cell; CuA₁ and CuA₂ from base. 1A and 2A from base; Underside pale brownish orange coloured; both wings outer margins fringed by cilia.

Distribution: India: Kerala (New Report). *Elsewhere:* Australia; New Guinea; Sri Lanka (Ahmet & Muhabbet, 2012)^[6].

Bionomics: The present species was collected from the cashew plantations from perambra, of the Kozhikode district of Kerala (India). The moths were collected from January, February, April, May, August and October months of 2021.

Remarks: The presence of large dark medial spot and small dark spot in lower angle of cell distinguishes *Pharambara splendida* from *Pharambara micacealis*.



Fig 8: Distribution map of *Pharambara micacealis* (Walker, 1866) from India; Australia; New Guinea; Sri Lanka.

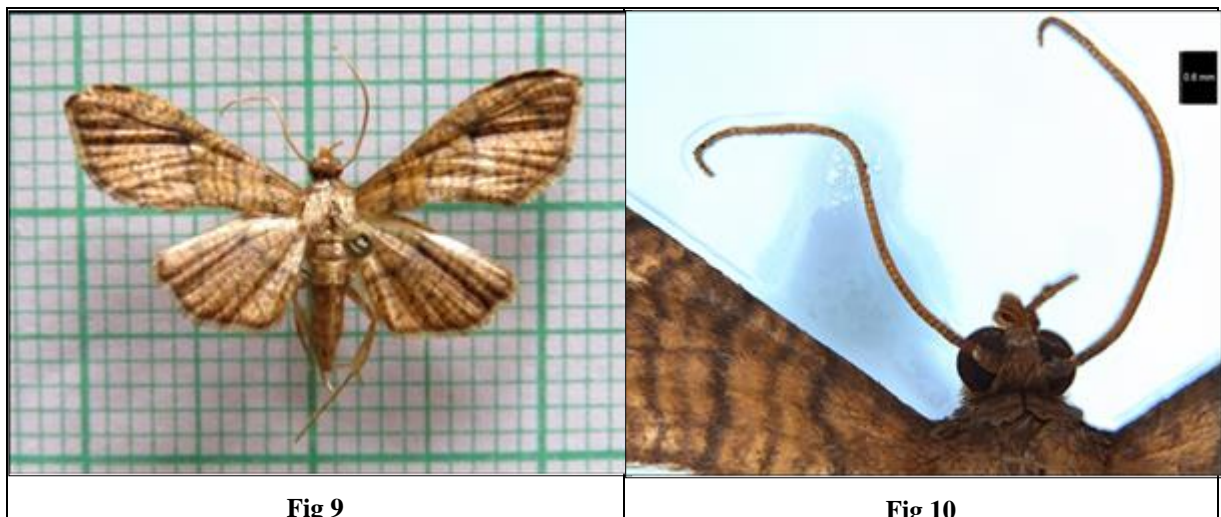


Fig 9

Fig 10

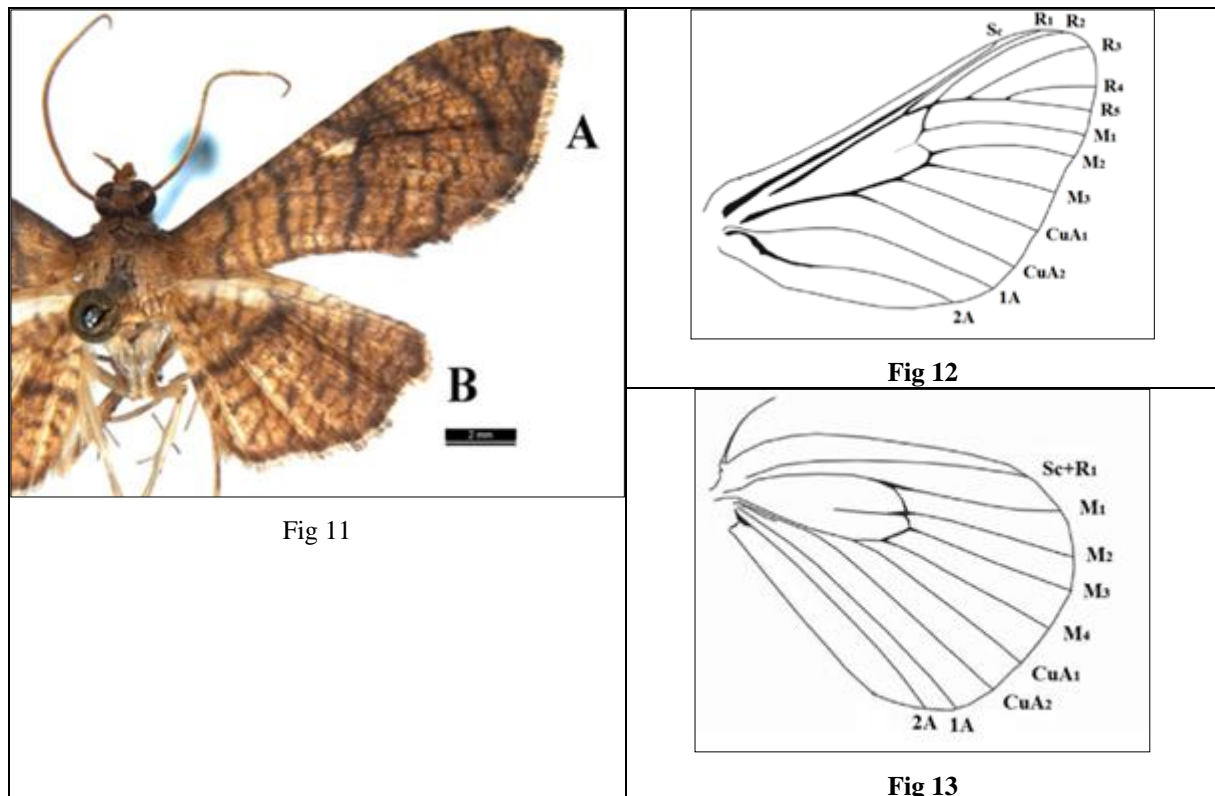


Fig 9-13: *Pharambara micacealis* (Walker, 1866), Filiform antennae, A-Forewing, Hindwing, Forewing venation, Hindwing venation

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