

Description of a new species of *Hyospila* Guenee, 1852 (Lepidoptera, Erebidae) from Kerala, India

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ABSTRACT: A new species, *Hyospila polliceae* Abhilash & Adarsh **sp. nov.** of family Erebidae has been described from Kerala. All the specimens for this study were collected from the various localities of the Kerala state using light traps operated from dusk to dawn. The adult male and male genitalia features are illustrated to differentiate the new species with its congeners. An updated worldwide checklist for the species of *Hyospila* Guenee is also provided. © 2025 Association for Advancement of Entomology

KEY WORDS: Singappara, Erebinae, *polliceae*, costal process, Acantholipini, Pattikkad

INTRODUCTION

Erebidae is one of the most diverse families of moths in the superfamily Noctuoidea. In recent decades, there has been much debate regarding the taxonomic status and subfamilies that belong to the family Erebidae. However, a thorough molecular analysis conducted by Zahiri *et al.* in 2011 and 2012 on both Noctuoidea and Erebidae has confirmed the family status and subfamily level classification of Erebidae. Erebinae is one of the largest subfamilies of Erebidae, including more than 250 species from India (Kuniyil and Peter, 2022; Singh *et al.*, 2024). *Hyospila* is a genus of the Erebinae subfamily, which is most widely distributed in the tropics of South and Southeast Asia, as well as in Australasia. Earlier the genus was placed in various subfamilies such as Ophiderinae (Poole, 1989), later in Calpinae (Kristensen, 2003). According to Koshkin and Golovizin (2022) there has been a report of the species *Hyospila bolinoides*

migrating from China to Russia. Also recorded are a few species from South America (Moschler, 1880). The genus *Moepa* Walker and *Orrea* Walker were later synonymized under the genus *Hyospila* (Poole, 1989). Prior to the placement of the genus in the Acantholipini tribe (Kononenko and Pinratana, 2013), the genus was placed under miscellaneous genera by Holloway (2005). So far, the genus comprises 12 valid species worldwide; however, *Hyospila bolinoides* is the only species reported from India. In this information, a new species of *Hyospila* from India by analyzing the male genitalia is reported, with an updated worldwide checklist of the genus *Hyospila*.

MATERIALS AND METHODS

The adult specimens were collected from different localities of the Kerala state. The light trap method using a 160W mercury vapour lamp was used for moth collection. The collected specimens were

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killed using ethyl acetate, pinned and dried. It was then labelled and stored in airtight insect boxes. To study the genitalia structure, the last four abdominal segments were removed from the specimen and soaked in 10 per cent KOH solution overnight. It was then washed with water and dissected under the Labomed Luxeo 4D stereomicroscope. The genitalia images were taken using a Leica S8 APO stereomicroscope attached to the camera and Leica Montage software. The specimens were identified using Holloway (2005), Hampson (1894) and other published literature. The items under inspection were registered and deposited in the insect collection of WGRC, Zoological Survey of India, Kozhikode, Kerala. The genitalia and wing venation studies were conducted in accordance with Robinson (1976) and Zimmerman (1978). The terminology used in the genitalia description is based on Klotz (1970) and Orhant (1986, 2012).

RESULTS AND DISCUSSION

The adult morphology and genitalia analysis of *Hypospila* moths collected from various localities of Kerala state revealed a new species, *Hypospila polliceae* Abhilash & Adarsh sp. nov.

Systematic status

Superfamily: Noctuoidea Latreille; Family: Erebiidae Leach; Subfamily: Erebiniae Leach; Tribe: Acantholipini Fibiger & Lafontaine; Genus: *Hypospila* Guenee, 1852

Distribution: Russia, Japan South Korea, China, Taiwan, India, Sri Lanka, Nepal, Thailand, Cambodia, Vietnam, Malaysia, Indonesia, New Guinea, Australia, New Caledonia and Suriname (South America) (Moschler, 1880; Koshkin and Golovizin, 2022).

Taxonomic Note: *Hypospila* genus can be easily identified by the following characters: long, crenate antennae with densely packed cilia; palpi directed forward, conical and acute at tip; palpi brownish black coloured on upper side and clear white at lower side; thorax smoothly hairy and fairly wide; male abdomen extends well beyond hindwing and abdomen never extend beyond hindwing in female; terminal part of abdomen sub conical, smooth with

bunch of elongate hairs; legs long with long spurs; forewing elongated and apically produced; hindwing short and bit broad; wing patterns continue across both wings; a fine zigzag postmedial line, a straight distinct submarginal oblique line divides wing area to basal pale with gradually getting darker towards base and distal dark area; uncus apex possess hastate dorsal component and a bilobed ventral component with a patch of setae on each lobe; valvae simple, elongated and ovate with a broadly lobed costal process; juxta small unmodified.

***Hypospila polliceae* Abhilash & Adarsh sp. nov.**

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Holotype (Fig. 2)

Diagnosis: Antenna long crenate, two third length of forewing costa; proboscis small and moderately developed; eyes smooth blackish brown; palpi three segmented, first segment upper side blackish brown lower side white; 2nd segment upwardly directed, blackish brown, reaching just above the vertex; 3rd segment half the length of 2nd segment, projecting outward, blackish brown towards base with pale white shade in the end; vertex covered with tuft of comparatively longer hair projecting outward to head; thorax, tegula and collar uniformly brown scaled without any markings; abdomen long, reaching well beyond the hindwing in male; legs long, hairy, blackish brown on outer side, mid tibia with one pair of elongated spur.

Wing maculation: Forewing long, acute, apex produced, comparatively long and straight costa; a black discontinuous indistinct antemedial line; forewing reniform pale centered with blackish halo, diffuses weakly towards costa; an indistinct zigzag postmedial black line present; a prominent, straight, basal pale brown and distal dark brown oblique submarginal line divide wing area; outer margin of submarginal line bordered with black scales and pale inner scales; median and submarginal lines continuous across both wings; hindwing short and broad; inner margin clothed with dense white hairs; anal margin and basal part of hindwing area covered with pale brown dense hairs; medial black band

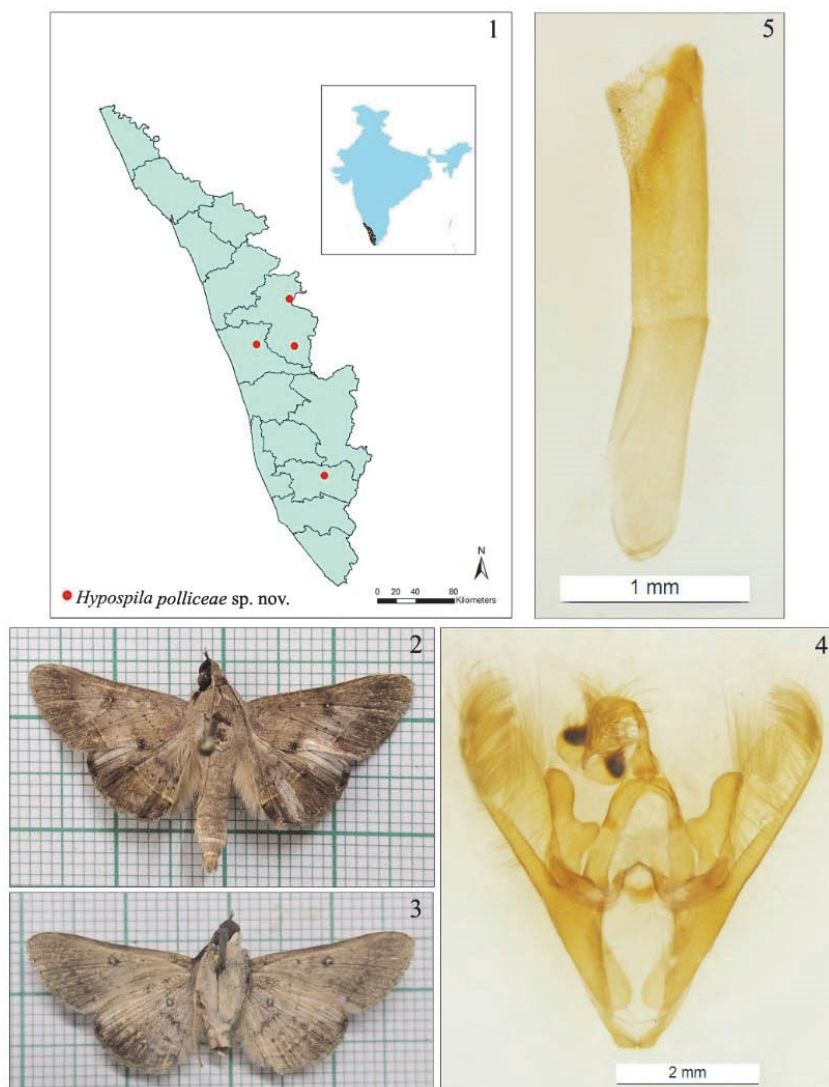


Fig. 1. Distribution map of *Hyospila polliceae* sp. nov. in Kerala; Fig. 2. Holotype male- *H. polliceae* sp. nov. Dorsal view; Fig. 3. Ventral view; Fig. 4. Male genitalia of *H. polliceae* sp. nov.; Fig. 5. Aedeagus

prominent in hindwing compared to forewing. Under side of wings marked differently; hindwing possess indistinct and incomplete submarginal, postmedial, medial lines and prominent orbicular spot on basal area (Fig. 3); forewing underside possess a clear reniform as in upper side; lower median black marking and medial line completely absent; an indistinct submarginal and zigzag post medial line present.

Wing span: 34-36mm.

Male genitalia: Genital capsule elongated; uncus dorsally hastate in shape and ventrally bilobed; lobes black; a patch of setae present on lobes; juxta large with hexagonal appearance; saccus simple, U shaped with broad base; tegumen long and broad, with a tiny ventral sclerotized protrusion in middle; sacculus long and well developed; valvae simple,

long ovate, covered with dense hair from middle to apex; valvae possess well developed unequally bilobed costal process; lobes broad; longer upwardly directed lobe, thumb-like in appearance, lateral lobe short, touching sclerotized ventral prominence of tegumen; base of costal process extends to lower part of sacculus and connected to transtilla (Fig. 4); aedeagus long, straight with well sclerotized distal half; vesica with a small scobinated area devoid of spines (Fig. 5).

Material Examined: Holotype. 1 ♂, INDIA, Kerala, Singappara, Palakkad District (10.975N, 76.642E), 29-ii-2024, Coll. Adarsh P.K. (ZSIK Regd. No. ZSI/WGRC/IR-INV 30046); Paratype. 2 ♂, INDIA, Kerala, Singappara, Palakkad District (10.975°N; 76.642°E), 29-ii-2024, Coll. Adarsh P.K. (ZSIK Regd. No. ZSI/WGRC/IR-INV 30047; CZR 977); 2 ♂, INDIA, Kerala, Pattikkad, Thrissur District (10.5496°N; 76.3352°E), 20-xii-2023, Coll. Joslin Treesa Jacob (Regd. No. CZR 132; CZR 976); 1 ♂, INDIA, Kerala, Vettolipadi, Pathanamthitta District (9.3225°N, 76.9709°E), 16-x-2023, Coll. Adarsh P.K. (Regd. No. CZR 980); 1 ♂, INDIA, Kerala, Nelliampathy, Palakkad District, (10.5354°N; 76.6936°E), 20-vi-2024, Coll. Joslin Treesa Jacob (Regd. No. CZR 981).

Distribution: India (Kerala: Palakkad, Thrissur, Pathanamthitta).

Etymology: The species name is derived from the Latin word “*pollice*” meaning ‘thumb’. The costal process of valvae in male genitalia has a thumb-like appearance, making it distinct from other species.

Remarks: The genus *Hypospila* comprises species that are very similar in their adult morphology. The species can only be distinguished by their genitalia structure. Prior to genitalia analysis, the specimens, including the proposed new species collected from various localities of Kerala, were tentatively identified as *Hypospila bolinoides* based on the morpho features. However, a detailed analysis of the genitalia of both holotype and paratype showed much difference in the costal process of valvae from the other congeners. This new species can be easily distinguished from *H.*

bolinoides by the following morphologic characters a) costal process unequally bilobed; b) long upwardly directed lobe, thumb-like in appearance; short lobe directing to the tegument region; c) juxta large, well sclerotized and hexagonal in shape.

Updated world checklist of *Hypospila* Guenee, 1852, with type locality in parenthesis

1. *Hypospila elongata* Holloway (Type locality: Solomon Island)
2. *Hypospila laurentensis* Viette (Type locality: Madagascar)
3. *Hypospila bolinoides* Guenee (Type Locality: Java)
 - = *orientalis* Leech
 - = *signipalpis* Walker
 - = *dochomotoma* turner
 - = *thermesina* Guenee
 - = *concisa* Walker
 - = *andamana* Swinhoe
4. *Hypospila biplagula* Heyden (Type locality: Namur Belgium)
5. *Hypospila infima* Moschler (Type locality: Surinam)
6. *Hypospila infimoides* Moschler (Type locality: Surinam)
7. *Hypospila iridicolor* Pagenstecher (Type locality: Amboina)
8. *Hypospila ochracea* Holloway (Type locality: Solomon Island)
9. *Hypospila pseudobolinoides* Holloway (Type locality: Solomon Island)
10. *Hypospila similis* Tams (Type locality: Samoa)
11. *Hypospila tamsi* Viette (Type locality: New Hebrides Condominium)
12. *Hypospila brunnescens* (Roepke) (Type locality: Sulawesi)

13. *Hypospila polliceae* Abhilash & Adarsh sp. nov. (Type locality: Palakkad, Kerala, India)

Discussion: It is very challenging to identify the species in the wild since proper differentiation requires genitalia investigation. Primary sorting, which was only possible in the field, was based on the appearance of the median and submarginal lines as well as the size of the hyaline on the hindwing. The adult morphology and genitalia of *Hypospila bolinoides* depicted on the website page, Moths of Borneo (Holloway, 2005) are used to compare with *H. polliceae* sp. nov. This new species can be easily distinguished from *H. bolinoides* by the following morphologic characters:

a) costal process unequally bilobed in *H. polliceae* sp. nov., whereas the costal process of *H. bolinoides* is star-shaped with three well-separated lobes.

b) long upwardly directed lobe, thumb-like in appearance in *H. polliceae* sp. nov., and a short lobe directing to the tegument region. However, in the species *H. bolinoides*, the lateral lobe is short, directed to the ventral part of the valvae, and remaining two lobes are long, and widely separated.

c) juxta large, well sclerotized and hexagonal in *Hypospila polliceae*; juxta small and weak in *H. bolinoides*. *Hypospila bolinoides* is primarily found in North, Central, and Northeast India (Assam, Manipur, Meghalaya, Mizoram, Nagaland, N. India, Tripura, Chhattisgarh, Maharashtra) (Joshi *et al.*, 2025). The endemicity of the species *Hypospila polliceae* in southern India and the limited distribution of *H. bolinoides* in the aforementioned places imply that allopatric speciation may have occurred among them.

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