

First record of the genus *Tospitis* Walker, 1863 (Lepidoptera: Erebidae: Arctiinae: Lithosiini) from India, with description of a new species

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ABSTRACT

A new species of a lichen moth, *Tospitis indica* sp. n., is described from Maharashtra, central India, representing the first record of the genus *Tospitis* Walker, 1863 from India. The description is based on two adult specimens, supplemented with illustrations of the male and female habitus, along with their genitalia. This finding extends the known distribution of *Tospitis* to as far west and north as the central India.

KEYWORDS: Erebidae, Arctiinae, Lithosiini, lichen moths, India, new species, taxonomy.

सारांश

मध्य भारतातील महाराष्ट्र राज्यातून दगडफूल पतंगाच्या एका नवीन प्रजातीचा शोध घेऊन तिचे वर्णन करण्यात आले आहे. या नवीन प्रजातीचे नामकरण टॉस्पिटिस इंडिका (*Tospitis indica* sp. n.) असे करण्यात आले असून, टॉस्पिटिस वॉकर, १८६३ (*Tospitis* Walker, 1863) या वंशाची भारतातील ही पहिली नोंद आहे. हे वर्णन दोन प्रौढ नमुन्यांवर आधारित असून, त्यासोबत नर व मादीच्या बाह्य शारीरिक रचनेची तसेच त्यांच्या जननेंद्रियांची चित्रे दिली आहेत. या नवीन प्रजातीच्या शोधामुळे टॉस्पिटिस या वंशाच्या ज्ञात भौगोलिक प्रसार पश्चिम आणि उत्तरेकडे मध्य भारतापर्यंत असल्याचे स्पष्ट झाले आहे.

प्रमुख शब्द: एरेबिडी, आर्क्टिनी, लिथोसिनी, दगडफूल पतंग, भारत, नवीन प्रजाती, वर्गीकरणशास्त्र.

INTRODUCTION

The genus *Tospitis* Walker, 1863 belongs to the subfamily Arctiinae Leach, 1815, tribe Lithosiini Billberg, 1820 within the family Erebidae Leach, 1815, representing a small but distinct lineage of lichen moths in Southeast Asia, with the type species *Tospitis nulliferana* Walker, 1863, described from Borneo. At present, the genus comprises 21 described species (see [Checklist](#), p. 174) (Bucsek 2012, 2014, 2020; Bayarsaikhan *et al.* 2023). Members of *Tospitis* are characterized by having a moderately stout body and short proboscis, smooth, slender, very short, porrect palpi, not extending beyond the head, simple antennae, abdomen just a little longer than hind wings, smooth, moderately long and slender legs, relatively short and broad wings, with a forewing rounded at apex, with the costa convex and pubescent near

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base, slightly convex and oblique outer margin (Walker 1863). Prior to the present research, the genus *Tospitis* was considered to be limited to Southeast Asia, with no species documented from India. Although the species *Tospitis brunneiplaga* Hampson, 1918 was described from Bhutan, based on a single female specimen, its taxonomic position within the genus *Tospitis* remains uncertain (Holloway 2001). Therefore, I have not included *T. brunneiplaga* in the current species count of *Tospitis*. A total of 16 species were described as *Tospitis* (Bucsek 2012, 2014, 2020) in recent years, and a few species were described in other genera and subsequently transferred to *Tospitis* from *Diduga* Moore, [1887] and *Stictosia* Hampson, 1900 (Černý & Pinratana 2009; Bayarsaikhan *et al.* 2023).

In the present study, a new species *Tospitis indica* sp. n. is described from Nagpur, Maharashtra State. This constitutes the first record of the genus from India and significantly extends its known geographic range westward into the Indian subcontinent. The discovery highlights the importance of continued systematic surveys and taxonomic investigations in the relatively understudied regions of the central India. Additionally, an updated global checklist of the genus *Tospitis* is provided to facilitate future taxonomic and biogeographic studies.

MATERIALS AND METHODS

Two specimens were collected in Nagpur, Maharashtra, India (21.140°N 79.046°E, 357 m a.s.l.) using a light trap fitted with a 250 W mercury vapour bulb. Specimens were euthanized in a jar with ethyl acetate. The collected specimens were carefully examined, mounted in an appropriate position, labelled, and preserved in fumigated entomological boxes. For genitalia examination, the abdomen was detached and macerated overnight in a 10% potassium hydroxide (KOH) solution. The dissected genitalia were subsequently cleaned and preserved in glycerol in microvials. Adult specimens were photographed using a Sony A7 III camera, and genitalia images were captured with a Leica M205 A camera attached to a stereomicroscope.

Both type specimens are deposited in the Zoological Survey of India, Western Regional Centre, Pune, Maharashtra, India (ZSIW).

TAXONOMY

Family Erebidae Leach, 1815

Genus *Tospitis* Walker, 1863

Tospitis indica sp. n.

Figs 1–6

LSID: [urn:lsid:zoobank.org:act:5E6F7B9B-C134-4994-8DE1-3C25D8074E75](https://zoobank.org/act:5E6F7B9B-C134-4994-8DE1-3C25D8074E75).

Etymology: The species is named after India, its homeland.

Diagnosis: *Tospitis indica* sp. n. is distinguished from its congeners by the combination of the following characters: in the male genitalia the valva is symmetrical, elongate and gradually tapering distally, with a conspicuous dense tuft of long, stout



Figs 1, 2. Habitus of *Tospitis indica* sp. n.: (1) male, holotype; (2) female, paratype. Scale bar: 5 mm.

setae arising from the medial inner surface; the costa is moderately sclerotized and extends almost to the apex of the valva, without distinct separate distal costal process; the sacculus is strongly sclerotized and reaches approximately the middle of the valva, with the saccular process shorter than the costal margin. The vesica bears two long, slender, curved cornuti. *Tospitis indica* sp. n. differs from *T. straminis* Bucsek, 2012 in having the forewing creamy-white, with non-pearly luster, and a small black discoidal dot; the hindwing is creamy-white, semi-hyaline (not straw-yellow with brown sprinkling); the basal sacculus is strongly developed, the valvae are medially setose, and two long, slender, curved cornuti are present. *Tospitis indica* sp. n. is distinguished from *T. diversus* Bucsek, 2012 by larger, predominantly creamy-white forewing with distinct apical and marginal brownish suffusion, the absence of small black stain at the anal angle and dark brown scales along middle of the hindwing outer margin; by the narrow, conical uncus and the symmetrical valvae without distinct costal or ventral processes. *Tospitis indica*

sp. n. differs from *T. aurantimaculus* Bucsek, 2012 in the larger wingspan, the absence of paired black dots in discal and postdiscal fields, the absence of irregular orange stain on the lower forewing and of series of small black dots along the apical margin, hindwing creamy-white, with diffuse brownish marginal suffusion, rather than whitish with regular light grey sprinkling. *Tospitis indica* sp. n. differs from *T. variabilis* Bucsek, 2012 in the symmetrical, gradually tapered valvae with a conspicuous medial tuft of long stout setae and the short broad saccus. *Tospitis indica* sp. n. differs from *T. abstractus* Bucsek, 2012 by the narrow, acute uncus and the presence of the conspicuous medial tuft of setae on the valvae. The female genitalia of *T. indica* sp. n., long and narrow, with completely membranous ductus bursae, a large subglobular corpus bursae and a single centrally positioned, oval, denticulate scobination, differ it from those in all known female congeners.

Description: Male holotype (Fig. 1): Forewing length 6 mm, wingspan 13 mm; female paratype (Fig. 2): forewing length 6 mm, wingspan 13 mm.

Head: Frons and clypeus creamy white; mouthparts well developed. Labial palpi porrect, slender, ventrally pale cream with slight ochreous suffusion laterally. Proboscis well developed, pale. Compound eyes large, blackish and prominent in ventral aspect. Antennae filiform, pale ochreous.

Thorax: Thoracic venter creamy white, clothed with fine appressed scales. Coxae pale cream; meso- and metathoracic sternites smooth, without distinct markings.

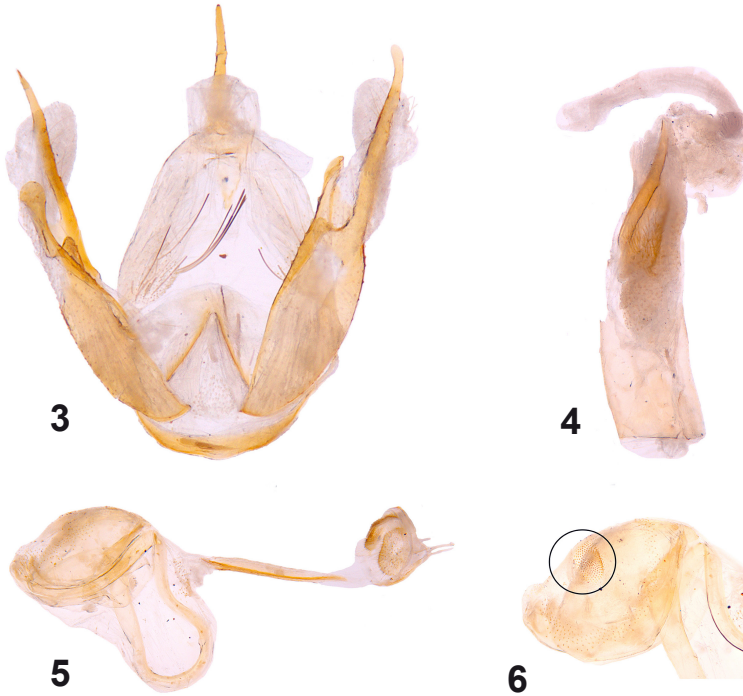
Legs: Forelegs slender, pale cream; femora and tibiae with faint brownish suffusion externally. Mid- and hindlegs longer, hind tibia clothed with elongated scales. Tarsi pale, segmented, with minute spines; tibial spurs pale and moderately developed.

Abdomen: Abdominal sternites creamy white to pale ochreous; slightly darker in male. Segmentation clearly visible. Anal segment with pale scaling; ventral surface smoother and lighter than dorsal side.

Forewing: Ground colour pale creamy white. Brownish suffusion visible primarily toward apical and marginal areas. In male, darker brown patch distinct near apical region and along outer margin; female with reduced and diffuse shading. Fringe pale cream, slightly darker at tips in male.

Hindwing: Semi-hyaline creamy white; marginal area with diffuse brownish suffusion in male, nearly uniform in female. Anal area slightly darker. Fringe long, pale cream.

Male genitalia (Figs 3, 4). Uncus elongate, conical, narrow throughout, gradually tapered to an acute apex; moderately sclerotized, gently curved ventrad. Tegumen wide, with rounded dorsal arch. Vinculum strong, broad, U-shaped ventrally; saccus short, broad and rounded anteriorly. The valves are symmetrical, elongate, and moderately broad at the base, gradually tapering distally; apex is rounded. Costa moderately sclerotized, almost reaching apex of valva. Sacculus well developed, strongly sclerotized and thickened basally, reaching to about middle of valva. Valva with conspicuous dense tuft of long, stout setae arising from near median region



Figs 3–6. Genitalia of *Tospitis indica* sp. n.: (3) genitalia capsule of male, holotype; (4) aedeagus of male, holotype; (5) female genitalia, paratype; (6) scobination of the corpus bursae of female, paratype.

on medial surface; otherwise valva lacking distinct costal or ventral processes and uniformly sclerotized. Juxta shield-shaped, weakly sclerotized; transtilla absent.

Aedeagus: Elongate, cylindrical, slightly curved, well sclerotized. Vesica membranous, with central field of minute scobination, and with two long slender delicately curved cornuti near vesica ejaculatorius.

Female genitalia (Figs 5, 6). Papilla analis moderately large, rounded to sub-ovate, densely covered with short to moderately long setae; anal region weakly sclerotized. Posterior apophysis long, slender, distinctly longer than anterior apophysis; anterior apophysis short but well developed. Ostium bursae broad, medially situated, opening into short, weakly sclerotized antrum. Antrum simple, cup-shaped to short-tubular, weakly sclerotized. Ductus bursae long, narrow, membranous, of nearly uniform width for much of its length, slightly dilated anteriorly before junction with corpus bursae. Corpus bursae large, broadly ovate to subglobular, membranous; its internal surface finely granulate internal surface, central scobinate field with numerous minute denticles. The copulatory bursa of female posterior tract contains spermatophore, comprising collar and corpus. Ductus seminalis originating from anterior region of corpus bursae.

Holotype: ♂ **India:** Maharashtra, Nagpur, RTM Nagpur University campus, 21.140°N 79.046°E, 357 m a.s.l., 27.i.2026, R.B. Bhende (RB-513, ZSIW).

Paratype: 1♀ **India:** Maharashtra, Nagpur, RTM Nagpur University campus, 21.140°N 79.046°E, 357 m a.s.l., 15.xii.2025, R.B. Bhende (RB-502, ZSIW).

Distribution: India (Maharashtra).

Habitat: The specimens studied were collected in the city of Nagpur, Maharashtra State, in the north-east part of the Deccan Plateau, in the tropical dry deciduous biogeographic zone (Joshi & Dhyanani 2018). The area is under a warm tropical climate with three well-defined seasons, namely summer, monsoon and winter. The collection site is a semi-urban habitat with patches of secondary vegetation (mixed deciduous trees, shrubs, ornamental cultivated plants, grasses and undergrowth) in a moderately disturbed environment close to urban green spaces. The surrounding vegetation was dominated by *Tectona grandis* L.f., *Azadirachta indica* A.Juss., *Mangifera indica* L. and *Ficus* spp. The presence of *T. indica* sp. n. in this habitat probably indicates the tolerance of the species to anthropogenic disturbance and its survival ability in fragmented dry deciduous ecosystems. This ecological setting is much different from the humid habitats reported earlier for *Tospitis* in Southeast Asia, suggesting that the genus may have a wider ecological amplitude and tolerance to the environment than previously known.

Checklist of the *Tospitis* species of the world along with their distribution

Species	Type locality	Distribution
<i>Tospitis abstractus</i> Bucsek, 2012	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis ambigua</i> (Bucsek, 2014)	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis amoenusa</i> (Bucsek, 2012)	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis apexinigrum</i> Bucsek, 2012	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis aurantimaculus</i> Bucsek, 2012	Malaysia, Pahang district	Peninsular Malaysia, Cambodia
<i>Tospitis denisae</i> Bucsek, 2020	Laos, Huaphanne	Laos
<i>Tospitis diversus</i> Bucsek, 2012	Malaysia, Pahang district	Peninsular Malaysia, Cambodia
<i>Tospitis floccula</i> Bucsek, 2012	Malaysia, south west	Peninsular Malaysia
<i>Tospitis imonigra</i> Bucsek, 2014	Malaysia, Negeri Sembilan	Peninsular Malaysia

Species	Type locality	Distribution
<i>Tospitis indica</i> sp. n.	India, Maharashtra	India (Maharashtra)
<i>Tospitis lanosus</i> Bucsek, 2014	Malaysia, Perak	Peninsular Malaysia
<i>Tospitis metaleuca</i> (Hampson, 1918)	Philippines, Luzon	Philippines (Luzon)
<i>Tospitis nigripuncta</i> Bucsek, 2014	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis nulliferana</i> Walker, 1863	Malaysia, Sarawak	Indonesia (Borneo), Malaysia
<i>Tospitis occasus</i> Bucsek, 2012	Malaysia, Pahang district	Peninsular Malaysia, Cambodia
<i>Tospitis ochreus</i> Bucsek, 2014	Malaysia, Perak	Peninsular Malaysia
<i>Tospitis ogriagra</i> Bucsek, 2020	Laos, Khammouane	Laos
<i>Tospitis pastelflava</i> Bucsek, 2014	Malaysia, Negeri Sembilan	Peninsular Malaysia
<i>Tospitis pida</i> (Černý, 2009)	Thailand, Nakhon Si Tammarat	Thailand, Peninsular Malaysia
<i>Tospitis straminis</i> Bucsek, 2012	Malaysia, Perak	Peninsular Malaysia
<i>Tospitis submontana</i> Bucsek, 2014	Malaysia, Pahang district	Peninsular Malaysia
<i>Tospitis variabilis</i> Bucsek, 2012	Malaysia, Perak	Peninsular Malaysia, Cambodia, Laos

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Editor's note: The grammatical gender of the genus *Tospitis* is feminine as is evident from Walker's (1863) publication and the gender of names of all 17 species of *Tospitis* he described therein. According to Articles 31.2 and 34.2 of the the Fourth Edition of the International Code of Zoological Nomenclature (1999), species-group names, if they are or end in a Latin or latinized adjective or participle in the nominative singular, must agree in gender with the generic name with which they are at any time combined and if the gender ending is incorrect it must be changed accordingly. In recent years, several species names that appear to be Latin or latinized masculine or neuter adjectives have been published in combination with the genus name *Tospitis* (see Checklist in this article, pp. 174–175), which may constitute a violation of the provisions of the Code. Notwithstanding the above, the author of the present article has requested to proceed with the original spellings of the previously published binomens in the genus *Tospitis* until further investigation into this matter is conducted.