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A new species of the genus *Taxillus* Tiegh. (Santalales: Loranthaceae) from the Coromandel Coast of Tamil Nadu, India, with a key to the Indian species

Sugaseelan Akash[1], Kathavarayan Manikandan[1], Ramachandran Rajaselvam[1], Thangavel Ponrathy[2], Murugappan Muthu Sheeba[2], Seetharaman Radhakrishnan[3] & Authinarayanan Rajesh[1&4*]

[1]Department of Botany, Annamalai University, Chidambaram, Cuddalore - 608002, Tamil Nadu, India
[2]Department of Botany, Kamaraj College (Autonomous), Thoothukudi – 628003, Tamil Nadu, India.
[3]Department of Botany, Government College for Women, Kumbakonam - 612001, Tamil Nadu, India.
[4]Department of Medicinal Botany, Government Siddha Medical College, Palayamkottai, Tirunelveli - 627002, Tamil Nadu, India.
***Email (Corresponding author): tselvarajes@gmail.com**

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Abstract

Taxillus coromandelianus sp. nov. is a newly described species from the Coromandel Coast of Tamil Nadu. It closely resembles *T. courtallensis*, *T. cuneatus* and *T. heyneanus*, but differs in several morphological characters, notably its leaves elliptic to broadly elliptic, base oblique to rounded, lateral nerves conspicuous, 3–4 pairs. Bract ovate to flabellate. Flowers strictly 4-flowered, calyculus tube cylindrical to funnel-shaped; corolla tube split to one-third of its length; corolla lobes lanceolate to oblanceolate. Anthers oblanceolate, recurved. Stigma capitate; style terete; ovary cylindrical. Fruit narrowly ovoid; seeds ovoid. A detailed morphological description, diagnostic characters, colour photographs, and a distribution map of the species are provided.

INTRODUCTION

The family Loranthaceae, first described by the French botanist Antoine Laurent de Jussieu, comprises flowering plants, most of which are hemiparasitic. The family includes approximately 1,000 species across 75 accepted genera and is widely distributed in tropical and temperate regions worldwide (Muhammad, 2024). One of its genera, *Taxillus* Tiegh., was established by the French botanist Philippe Édouard Léon van Tieghem in 1895. The genus comprises 35 accepted species distributed from tropical East Africa and China to temperate East Asia and tropical Asia (POWO 2026). In India, the genus includes 14 species, nine of which are endemic.

During a floristic exploration of wetlands and dune areas along the Coromandel Coast of Cuddalore District, the first author encountered an interesting parasitic species growing on the branches of *Lannea coromandelica* (Houtt.) Merr. We initially identified the specimen as belonging to the genus Taxillus Tiegh.; however, its morphology did not match any known species. The collected specimens were critically examined and compared

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with previously described species using relevant taxonomic literature (Barlow, 1997; Danser, 1929, 1931, 1933, 1936, 1940; Rajasekaran, 1986, pp. 157–160, 162, 164; Su et al., 2021; Tiegh. & Van Tieghem, 1895). Additionally, the specimen was compared with herbarium materials from major institutions, including the Royal Botanic Gardens, Kew (K), the Madras Herbarium (MH), Linnaean Herbarium (LINN). Muséum national d'Histoire naturelle, Paris (P), the Natural History Museum, London (BM), the Calicut University Herbarium (CALI), the Royal Botanic Garden Edinburgh (E) and the Central National Herbarium, Kolkata (CAL). These examinations confirmed that the specimen belongs to the genus *Taxillus*. However, its morphological characters did not match any previously described species; therefore, the authors conclude that it represents a species new to science.

The collected plant material was morphologically compared with closely allied taxa, including *Taxillus courtallensis* (Gamble) Danser, *Taxillus cuneatus* (B.Heyne ex Roth) Danser, and *Taxillus heyneanus* (Schult. & Schult.f.) Danser, using protologues, herbarium specimens, and flora, particularly *Flora of India*, Volume 23 (Balakrishnan et al., 2015). The specimen differs from these taxa in several key morphological characters. Detailed photographs, a comparative table, phenological observations, and a conservation status assessment are provided to facilitate understanding of this discovery. The genus now includes 15 species in India, up from 14.

MATERIALS AND METHODS

The specimens of the new species were collected from the study area, along with GPS coordinates and elevation data. The phenology of this species was documented over 12 months, from January 2025 to January 2026. The plant specimen was dissected under a dissection microscope and an OLYMPUS CX31 light microscope equipped with an OPTIKA camera. Images were captured using a Nikon D5300 camera to create a Lankester Composite Dissection Plate (LCDP). A map of the study area and a distribution map were generated using the software Quantum Geographic Information System (QGIS), and the extent of occurrence (EOO) and area of occupancy (AOO) were estimated using the Geospatial Conservation Assessment Tool (GeoCAT). The conservation status of the species was assessed according to the IUCN Red List Categories and Criteria (IUCN, 2024). Herbarium acronyms follow the standardisation of Thiers (Thiers, 2026).

RESULT AND DISCUSSION

Taxonomic Treatment

Taxillus coromandelianus S. Akash, K. Manikandan & A. Rajesh, **sp. nov.** (Figures 1 & 2)

Type: India, Tamil Nadu, Cuddalore District, Coromandel coast, Killai, 11°27'17.7"N 79°46'01.0"E, 10 m, 25.07.2025, *S. Akash, K. Manikandan & A. Rajesh* 640 (holotype: MH!, isotype: RHT!)

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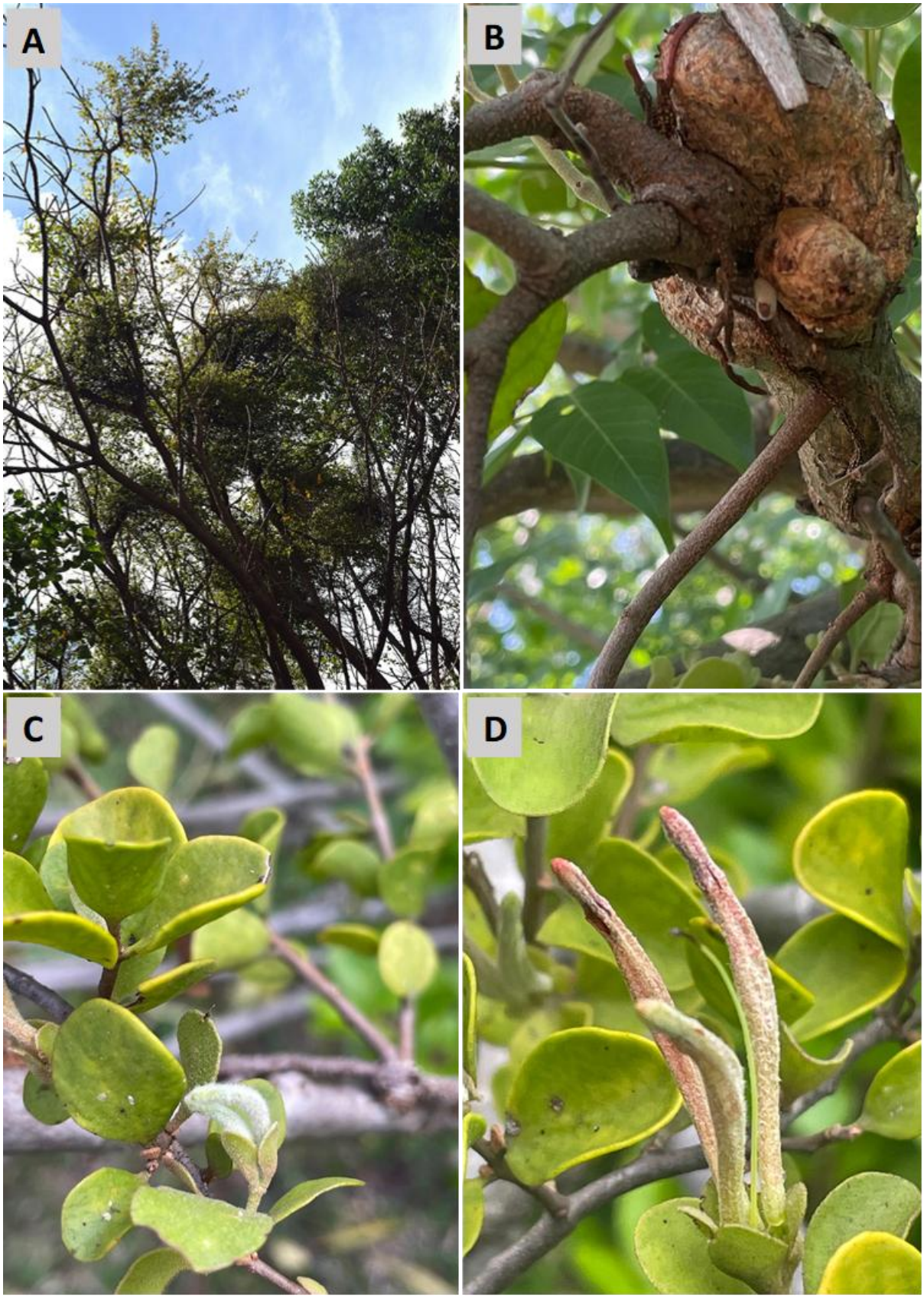


Figure 1. A. Habit and habitat; **B.** Attached to host plant; **C.** Mature twig; **D.** Inflorescence of *Taxillus coromandelianus* sp. nov. (Photo credit: Sugaseelan Akash).

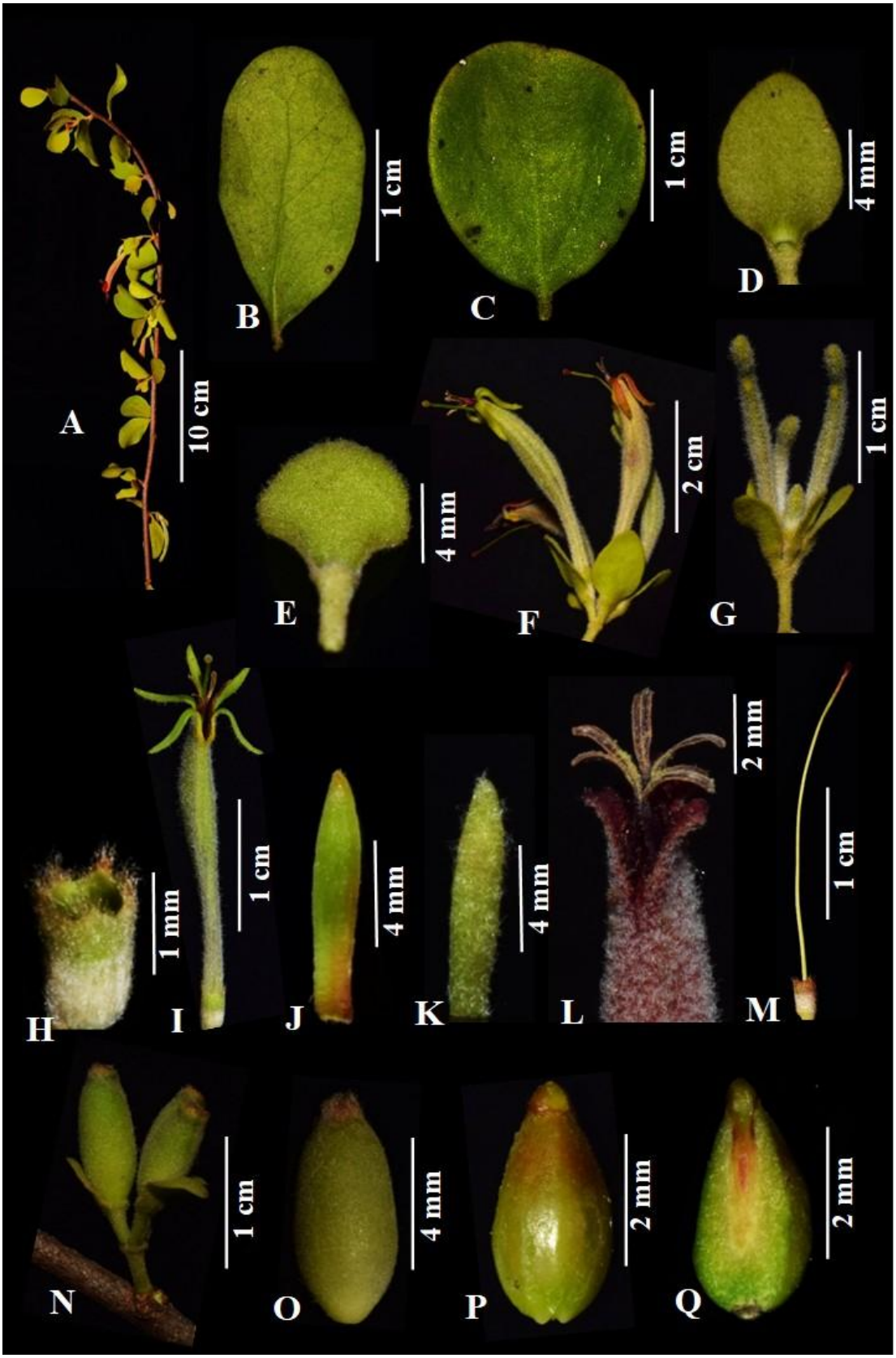


Figure 2. A. Habit; B-C. Leaf; D-E. Bract; F. Inflorescence; G. Flower Buds; H. Calyx tube; I. Flower; J-K. Adaxial and abaxial surfaces of corolla lobes; L. Androecium; M. Gynoecium; N. Cluster of fruits; O. Fruit; P. Seed; Q. Longitudinal section of seed (Photo credit: Kathavarayan Manikandan & Sugaseelan Akash).

(ISSN: 0973-7049(P))

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Diagnosis

Taxillus coromandelianus is closely allied to *T. courtallensis*, *T. cuneatus* and *T. heyneanus*, but it can be easily differentiated by having Leaves elliptic to broadly elliptic, base oblique to rounded, lateral nerves conspicuous, 3–4 pairs. Bract ovate to flabellate. Flowers strictly 4-flowered, calyculus tube cylindrical to funnel-shaped; corolla tube split to one-third of its length; corolla lobes lanceolate to oblanceolate. Anthers oblanceolate, recurved. Stigma capitate; style terete; ovary cylindrical. Fruit narrowly ovoid; seeds ovoid (Table 1).

Table 1. *Taxillus coromandelianus* is compared with the morphologically allied species *T. courtallensis*, *T. cuneatus* and *T. heyneanus*.

Characters	***T.coromandelianus***	***T. courtallensis***	***T. cuneatus***	***T. heyneanus***
Leaf shape	Elliptic to broadly elliptic	Obovate	Obovate	Orbicular to ovate
Leaf base	Oblique to rounded	Narrowly cuneate	Narrowly cuneate and merging with petiole	Attenuate
Venation	Lateral nerves conspicuous, 3–4 pairs	Lateral nerves obscure, sometimes with 1 or 2 distinct pairs	Lateral nerves usually obscure; when visible, 2 or 3 pairs	Lateral nerves 3–5 pairs
Petiole length	2–3 mm long	3–6 mm long	4–6 mm long	1–1.5 cm long
Peduncle	1 in each axil	2 in per axil	3 in per axil	1–2 in per axil
Bract	Ovate and occasionally flabellate	Boat-shaped	Elliptic to ovate-elliptic	Obovate to oblanceolate
Flower	Strictly 4-flowered	2 or 3-flowered	2–3-flowered	3 or 4-flowered
Pedicle	2–4 mm long	2–3 mm long	1.5–2.5 mm long	2–2.5 cm long
Calyx tube	Funnel-shaped	Subcylindrical	Subcylindrical	Cylindrical
Corolla tube	Split one-third of the tube	Split up to half of the tube	Split up to half ot the tube	Split up to two-thirds the length
Corolla lobe	Lanceolate-oblanceolate	Linear to oblong	Linear-elliptic	Linear-lanceolate
Corolla Colour	Green to reddish brown	Orange-yellow	Greenish-yellow or orange inside	Greenish yellow
Anther	Oblanceolate, recurved	Oblong, straight	Linear-oblong, straight	Oblong, straight
Stigma	Capitate	Subcapitate	Subcapitate	Bifid or depressed
Style	Terete	4-gonous	4-gonous	4-gonous
Ovary	Cylindrical	Turbinate	Oblong-cylindric	Turbinate
Fruit	Narrowly ovoid	Oblong-ellipsoid	Obconic, truncate	Broadly ellipsoid
Seed	Ovoid	Ellipsoid	Obconic	Ellipsoid

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Description

A pendulous perennial hemiparasitic plant, 25–40 cm long, with root haustoria. Stem terete, woody, solid, 0.5–1 cm in diameter, irregularly branched near the base; densely covered with stellate hairs intermixed with abietiform hairs when young, becoming glabrous and developing cracked bark with prominent leaf scars at maturity. Leaves alternate, simple, elliptic to broadly elliptic, 1.5–3 × 1–2 cm; apex obtuse to rounded; base oblique to rounded; margin ciliate when young, becoming entire at maturity; lamina densely covered with stellate hairs on both adaxial and abaxial surfaces when young, becoming sparsely pubescent and succulent at maturity, light to dark green; venation pinnate-reticulate; lateral veins 3–4 pairs, arcuate, forming a reticulate network; petiole short, 2–3 mm long. Inflorescence axillary, a reduced dichasial cyme, strictly 4-flowered; peduncle solitary in each leaf axil, 4–6 mm long, pubescent; pedicels 2–4 mm long; buds 1.5–2.5 cm long. Bracts 4, ovate and occasionally flabellate, 4–6 × 2–4 mm; apex obtuse to rounded; base cuneate and rounded; margin ciliate; both surfaces densely covered with stellate hairs; pale green and fleshy. Flowers 5-merous, complete, zygomorphic, bisexual, epigynous, with valvate aestivation. Calyx tube funnel-shaped, 2–3 × 1–2 mm, mouth truncate, green, pubescent, gamosepalous, 5-toothed; teeth triangular, equal in size, 1.5–2 × 0.5–0.8 mm, margin ciliate, covered with reddish-brown tomentose hairs. Corolla gamopetalous, tubular, 2.5–3 cm long, pubescent; tube slightly curved, splitting in the distal one-third into 5 distinct, equal lobes; lobes lanceolate to oblanceolate, 6–8 × 3–5 mm; apex acute; margin ciliate; adaxial surface glabrous, abaxial surface pubescent; green to reddish-brown. Stamens 5, epipetalous, apostemonous; filaments 2–2.5 mm long, reddish-brown, glabrous; anthers 3–4 mm long, didymous, exserted, adnate, oblanceolate, recurved, dark brown. Stigma capitate, green-red, glabrous; style 1.3–1.6 cm long, terete, glabrous, yellowish-green; ovary inferior, cylindrical, 1-locular, outer surface densely covered with white stellate hairs. Fruit berry, narrowly ovoid, with calyx persistent at the apex, 4–6 mm in diameter and 0.8–1 cm long, yellowish-green, densely pubescent; seed ovoid, 2–4 mm in diameter and 4–6 mm long, greenish-brown.

Phenology

Flowering and fruiting occur throughout the year, from January to December.

Etymology

The specific epithet *coromandelianus* is derived from the name of the Coromandel Coast, where the species was collected.

Distribution and ecology.

Taxillus coromandelianus is a native hemiparasitic species distributed in southern India, particularly along the Coromandel Coast of Cuddalore District, Tamil Nadu (Figure 3). The species was observed exclusively parasitising *Lannea coromandelica* (Houtt.) Merr. It forms a parasitic association with the host through a specialised structure known as the haustorium, which penetrates the host bark and vascular tissues to facilitate the absorption of water and mineral nutrients (Muche et al., 2022).

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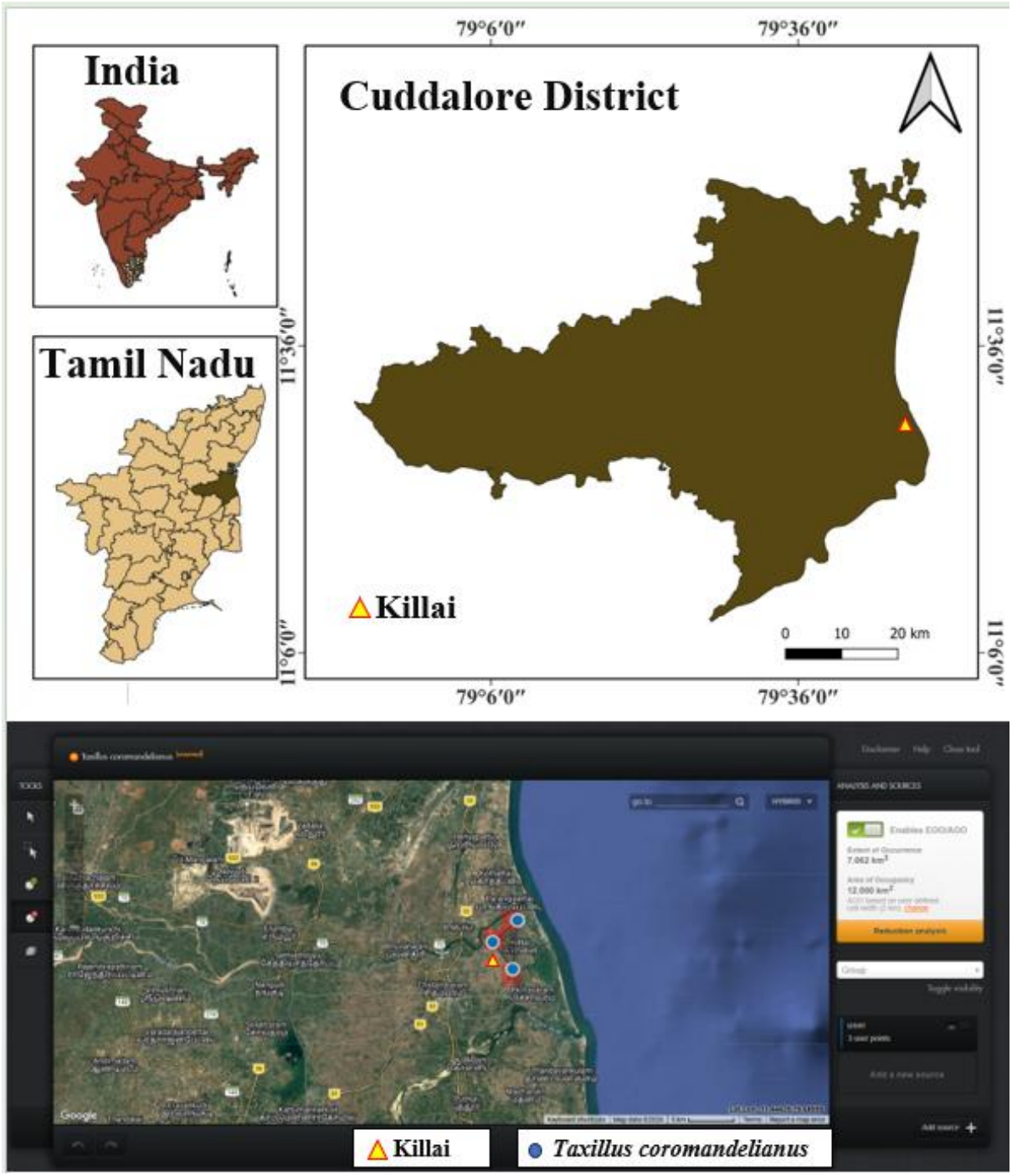


Figure 3. Study area and distribution map of *Taxillus coromandelianus sp. nov*. (Photo credit: Sugaseelan Akash).

Conservation status. The preliminary conservation status of the species was assessed following the IUCN Red List Categories and Criteria (Version 3.1) and the Guidelines for Using the IUCN Red List Categories and Criteria (Version 16, 2024). The species is currently known only from Cuddalore District. A total of 257 mature individuals were recorded on 28 host plants within an Area of Occupancy (AOO) of 12 km². Using three georeferenced occurrence records, we initially calculated the Extent of Occurrence (EOO) as 7.062 km² using GeoCAT. As the calculated EOO was

smaller than the AOO, the EOO was set equal to the AOO, resulting in an EOO of 12 km². Although the species has a restricted known distribution, no significant threats from anthropogenic activities or other environmental disturbances were observed during the present surveys, and sufficient information is not currently available to determine population trends or continuing decline. Therefore, the species is provisionally assessed as Data Deficient (DD). Further field surveys are required to determine its full distribution, population status and trends, and potential threats, thereby enabling a more robust assessment of its conservation status.

Key to the species of *Taxillus* Tiegh in India

1a Cinnamomeous stellate hairs intermixed with a few abietiform hairs……*T. assamicus*

1b Rusty brown abietiform hairs intermixed with stellate hairs…...……...2a

2a Leaves opposite……..……..….*T. reflexilobus*

2b Leaves alternate……..…….……3a

3a Leaves narrowly obovate……...….*T. courtallensis*

3b Leaves elliptic…….……4a

4a Bract conical……*T. erectiflorus*

4b Bract broadly ovate…….5a

5a Inflorescence umbel……..……...*T. umbellifer*

5b Inflorescence cymes……...…….6a

6a Inflorescence strictly 4-flowered……*T. heyneanus*

6b Inflorescence 2–3-flowered…….7a

7a Flower buds glabrous……...…….*T. cuneatus*

7b Flower candelabra hairs mixed with abietiform hairs…….……8a

8a Flower 4-merous……...….*T. danserianus*

8b Flower 5-merous…….…..…..9a

9a Corolla tube split up to one-third the length……..……..……*T. coromandelianus*

9b Corolla tube split up to half the length…...…….……....……10a

10a Corolla lobe spathulate……...……..……*T. vestitus*

10b Corolla lobe narrowly elliptic to lanceolate……11a

11a Stigma deeply bilobed……...……..*T. tomentosus*

11b Stigma conical…….……12a

12a Ovary oblong-cylindrical…….……*T. kuijtii*

12b Ovary subturbinate……..13a

13a Fruit urceolate……*T. recurvus*

13b Fruit ellipsoid……..14a

14a Seed subcylindrical……...*T. sericus*

14b Seed ovoid……*T. rugosus*

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