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Cover: Mixed media with fine liners, colour pencils, and watercolour background of an Indian funnel web spider. © Elakshi Mahika Molur.



Habenaria spencei (Orchidaceae): rediscovery other than its type locality and new distribution record to Karnataka, India

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Orchidaceae are one of the largest families in the world comprising about 26,000 species (Mabberley 2017). *Habenaria* is the genus, comprises about 898 species (Choudhury 2012; Mabberley 2017; POWO 2024). India contributes 64 species (Singh et al. 2019a,b; Prasad 2019; Prasad & Naik 2020). The flowering plants of Western Ghats, India represents 38 *Habenaria* (Nayar et al. 2014) where Karnataka has a record of 28 species (Lakshminarasimhan et al. 2019; Sringshwara & Sanjappa 2019; Ravikumar et al. 2021). Orchids of Maharashtra reports 23 *Habenaria* species in which *Habneraia spencei* is not recorded (Jalal 2019). Total 40 species were recorded for Western Ghats of which 24 species are endemic. After reviewing recent available literature on *Habenaria* from India and abroad, it revealed that the genus was represented by 66 species with 30 endemic species to India (Dangat & Gurav 2015).

During our field survey in the Western Ghats of Karnataka, authors collected *Habenaria* from Shri Seetalayanagiri temple road, on the way to Mullayanagiri Peak, Chikkamagaluru district. After analysis of the specimen, is identified as *Habenaria spencei* Blatt. & McCann. The species which was never been collected since its type collection from Mahableshwar, Fitzgerald Ghat in dense jungle at 1,220m altitude in (McCann

type: BLAT3026; Cotype: BLAT3027) on 28 August 1930 (Blatter & McCann 1932). May be this species is confused and has not been reported by any other authors from that location until now. So, after 94 years it has been rediscovered other than its type location with 10–15 individuals at one location at 1,624 m. This species has not been reported from Karnataka State until now (Image 2). *Habenaria spencei* Blatter and McCann has got a new distribution record to Karnataka, other than its type location Mahableshwar, Maharashtra after 94 years.

Taxonomic treatment

***Habenaria spencei* Blatt. & McCann**, J. Bombay Nat. Hist. Soc. 36: 17 (1932). *Habenaria gibsonii* var. *foliosa* (A. Rich.) Santapau & Kapadia J. Bomb. Nat. Hist. Soc. 56: 194 (1959); *Habenaria foliosa* A. Rich. Dangat & Gurav, Studies Genus *Habenaria*, 75. (2015).

Type: McCann type: BLAT 3026; cotype: BLAT 3027

Terrestrial, up to 20–60 cm tall. Tubers ellipsoid, 1–2, greyish-black. Leaves arranged 8–12 cm above ground. Leaves alternate forming leaf sheaths, oblong-lanceolate, acuminate apex, margin wavy, 3 main nerved, 8–12 × 3–4 cm. Flowers in lax raceme of 5–12 flowers, 1.5 × 1 cm, scape yellowish-green turns scarlet

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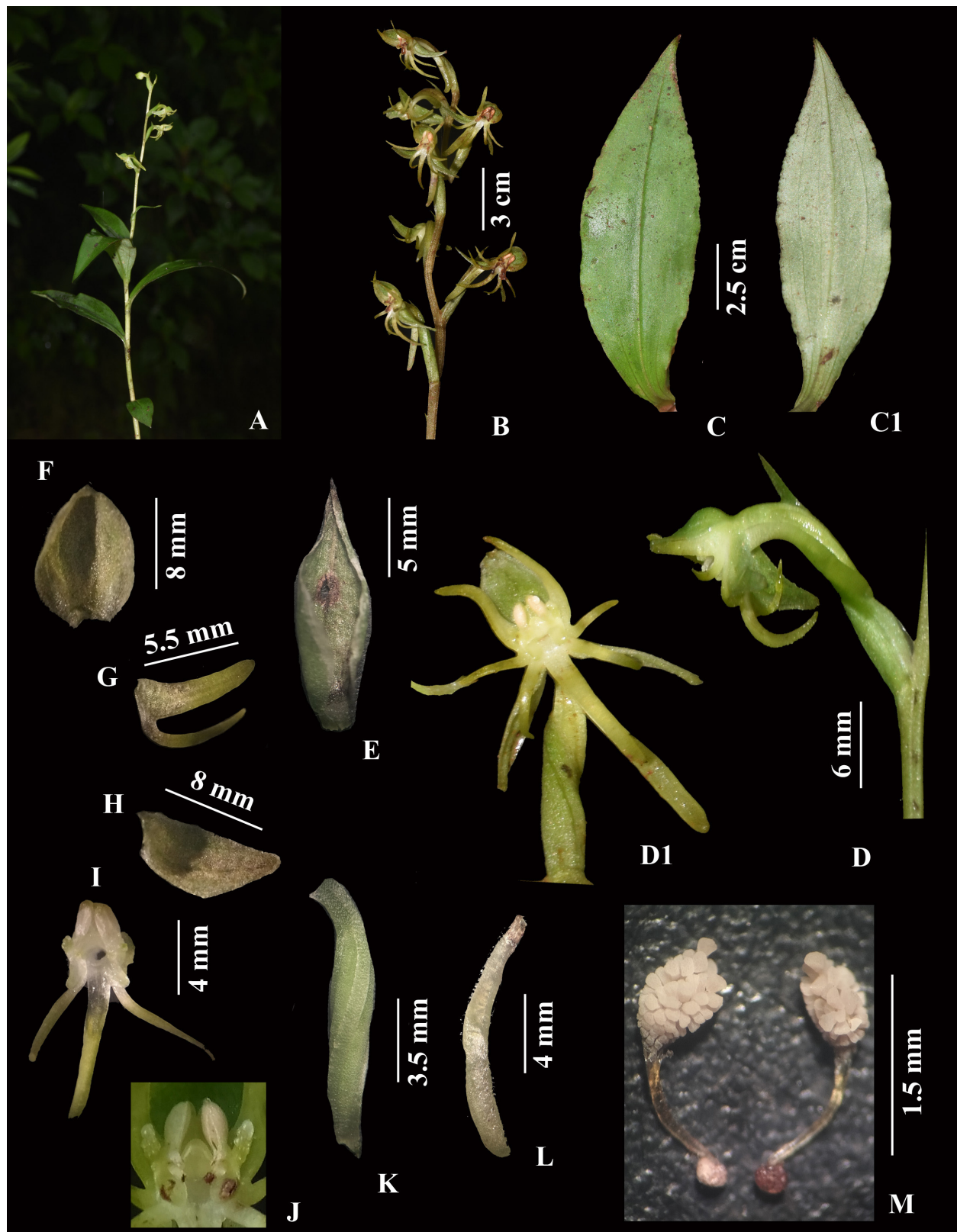


Image 1. *Habenaria spencei* Blatter & McCann.: A—Habit | B—Inflorescence | C & C1—Adaxial & Abaxial leaf | D—Side view of Flower | D1—Front view of flower | E—Bract | F—Dorsal sepal | G—Petal | H—Lateral sepal | I—Labellum | J—Rostellum with stigmatic lobes | K—Ovary | L—Spur | M—Pollinarium. © Shreyas Betageri.

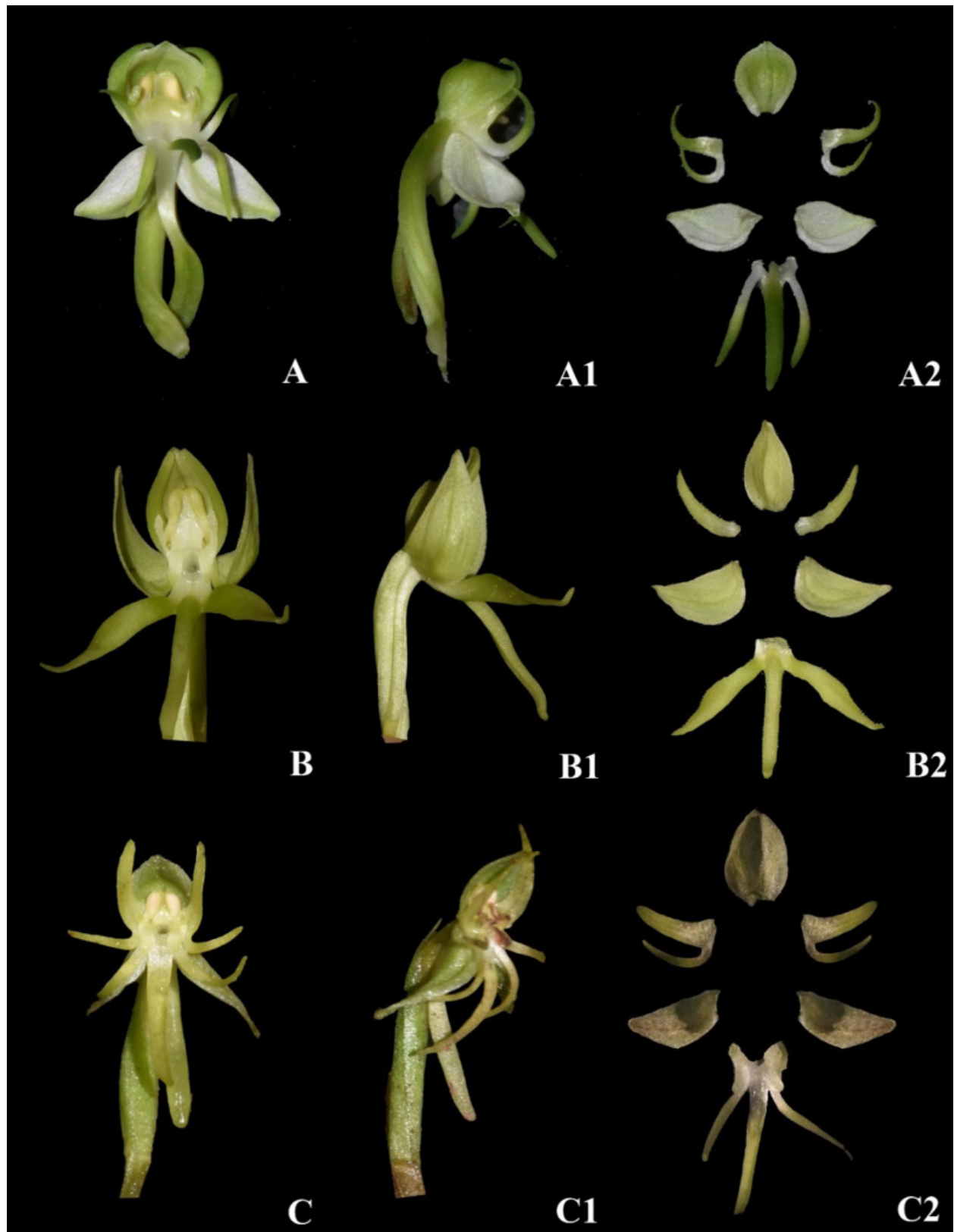


Image 2. Comparative account of congeneric species: front view of flower, side view of flower & dissected sepals, petals & labellum: A, A1, A2—*Habenaria gibsonii* | B, B1, B2—*Habenaria digitata* | C, C1, C2—*Habenaria spencei*. © Shreyas Betageri.

Table 1. A comparative account of congeneric species (*Habenaria digitata* Lindl.; *Habenaria gibsonii* Hook.f.) (Image 2).

Characters	<i>Habenaria digitata</i> Lindl.	<i>Habenaria gibsonii</i> Hook.f.	<i>Habenaria spencei</i> Blatt. & McCann
Habit	Terrestrial herbs, 20–40 cm tall. Leaves arranged 5 cm above ground.	Terrestrial herbs, 20–50 cm tall. Leaves arranged 6–8 cm above ground.	Terrestrial herbs, 20–60 cm tall. Leaves arranged 8–12 cm above ground.
Leaves	Leaves alternate, coriaceous 4–8 x 2–4 cm, elliptic-lanceolate, acute apex, entire, 3-nerved, pale green.	Leaves alternate, not-coriaceous, 3–5 x 1.2 cm, ovate-lanceolate, acute apex, wavy margins, 1-nerved, pale green.	Leaves alternate, 8–12 x 3–4 cm, oblong-lanceolate, acuminate apex, margin wavy, 3-nerved, dark green
Inflorescence	Densely arranged	Densely arranged	Laxly arranged
Flower	Yellowish-green, sweet-scented, 2.5 cm long	Whitish-green, foul-scented, 2 cm long	Yellowish-green, foul-scented, 2.5 cm long
Sepals	Ovate, 1 cm long, oblique 8 mm long.	Boat-shaped, 5 mm long, ovate, 5 mm long	Boat-shaped, 8 mm long, sickle-shaped, 8 mm long.
Petal	Linear, sub-falcate, 1 cm long	Petals are bi-partite, sickle-shaped, 4 mm long.	Petals bi-partite, recurved upwards, 5.5 mm long.
Labellum	Labellum 3 partite, yellowish-green, 1.2 cm long; mid lobe equal to sidelobes; sidelobes broad, acute.	Labellum 3-partite, greenish-white, 1 cm long; mid lobe larger than sidelobes; sidelobes linear, acute.	Labellum 3-partite, yellowish-green, 1 cm long, side lobes smaller than mid lobe and recurved backward
Spur	1.4 cm long, yellow-green, fully flat all along.	1.2 cm long, greenish-white, flat at the tip.	1 cm long, yellowish green, flat all along.

light pink after pollination of flowers. Bracts 1.5 cm long, linear-lanceolate, 1-nerved, covering width of half ovary. Flower pale green, faintly scented, ca. 2 × 1 cm. Dorsal sepal boat-shaped, 3-nerved, ovate-acuminate, ca. 8 mm long. Lateral sepals lanceolate-acute, 1-nerved, sickle shape, 8 mm long, reflexed backward. Labellum tri-partite, mid lobe straight linear, 10 mm long, side lobes smaller than mid lobe and recurved backward. Petals bi-partite, linear, recurved upwards, and 5.5 mm long. The ovary is twisted, 1.2 cm across, green, and brown when mature. The spur is attached to the labellum, flat, shorter than the ovary, and 1 cm long. Stigma clavate-oblong, appressed to the labellum. Pollinaria sac upcurved, rostellum shorter, obtusely triangular. Pollinarium is present in two sacks, one pair with a viscidium pad at the base, and 1.5 mm long. The fruit is brown with ridges (Image 1).

Ecology and phenology: prefers forest undergrowth and grows at more than 1,220 m altitude. Flowering starts in August followed by fruit.

Associations: *Habenaria spencei* is associated with *Malaxis versicolor*, *Peristylus aristatus*, *Liparis wightiana*, *Lycopodium* sp., *Funaria* sp., and *Paspalum* sp.

Threats: As the location of species is not in protected area, may be in future it may go to extinct, as this species found its particular location with threats like small landslides, road widening and coffee plantations.

Geographic disjunction: As first type specimen is collected from Mahabaleshwar, Maharashtra at 4,000 m. Therefore, this species is very common at high altitudes under tree shades. This species has been collected from Kolaphur (Maharashtra), Gudehalli gudda (Karwar), Mullayanagiri peak (Chikkamagaluru

district) and Pusphgiri Hills (Kodagu). The altitude mentioned above provides a clue for us to explore other unexplored places in the Western Ghats to learn more about this species.

Species examined: India, Karnataka, Shri Sitalayyanagiri Gudi road, on the way to Mullayanagiri peak, Chikkamagaluru district, 13.3873N, 75.7070E, 23 August 2024, Shreyas B. & K. Kotresha, Herbarium of Karnatak Science College, Dharwad (HKSCD) [20372] (Image 3).

IUCN Threat Assessment: After several investigations throughout the Shri Seetalayanagiri temple road, on the way to Mullayanagiri peak observed with 5–10 individuals in two spots. This species is not present on adjacent hills near Bababudangiri Hills, as this species has threats like small landslides, road widening, and coffee plantations. As per IUCN Red List status, this species is 'Data Deficient' (IUCN 2024).

Historical context: *Habenaria spencei* was first time discovered by Blatter & McCann in August 1930. Later Santapau & Kapadia collected the same species (1966) renamed as conspecific to *Habenaria gibsonii* var. *foliosa* and also reported it from Poona in Deccan, Karwar in N. Kanara (Type: BLAT: Kapadia 14, 622). Dangat & Gurav (2015) collected *H. spencei*, misconception with *Habenaria foliosa* A. Rich (Plate 2C,D) in his doctoral thesis work, Studies on Systematics of the Genus *Habenaria* Willd. (Orchidaceae) in Western Ghats. Patil & Lakshminarasimhan (2020) recorded six *Habenaria* species from Pushpgiri Wildlife Sanctuary, misconception *Habenaria spencei* Blatt. & McCann with *Habenaria digitata* Lindl. (Sameer Patil 207358; Plate 7H.) from Kodagu district, Karnataka.

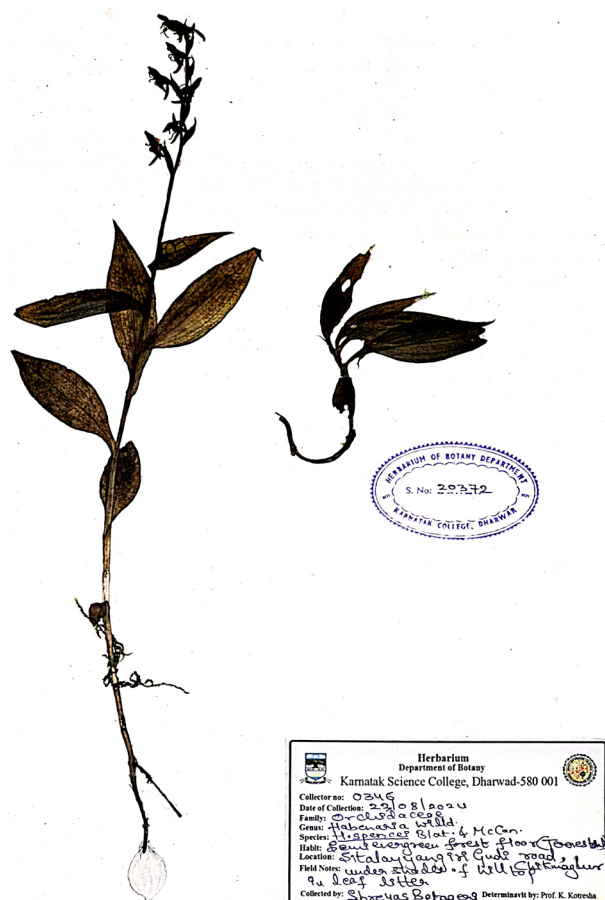


Image 3. Herbarium specimen of *Habenaria spencei* Blatter & McCann. submitted to Herbarium of Karnatak Science College Dharwad. © Shreyas Betageri.

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