



## A new species of *Lysionotus* (Gesneriaceae) from Northeastern India

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**ABSTRACT:** *Lysionotus bijantiae*, a new species of *Lysionotus* is described from Potin, Lower Subansiri District, Arunachal Pradesh, northeastern India. Detailed description, distribution along with color photographs are provided. A comparison chart of related species and a key to the taxa found in northeastern India are also provided.

**KEY WORDS:** Arunachal Pradesh, Gesneriaceae, India, *Lysionotus bijantiae*, New species.

### INTRODUCTION

During recent studies on the family Gesneriaceae, some new taxa have been described from northeastern India, viz. *Didymocarpus moellerii* (A. Joe *et al.*, 2016) and *L. gamosepalus* var. *biflorus* (A. Joe *et al.*, 2017). In this paper, a new species of *Lysionotus* from Arunachal Pradesh, northeastern India is described and illustrated with color plates. This species is similar to *L. chingii* (Wang, 1983), *L. gamosepalus*, *L. gamosepalus* var. *biflorus* and *L. sangzhiensis* (Wang, 1986) with its calyx 5-lobed above the middle (Table 1). However, *L. bijantiae* is more allied to *L. gamosepalus* (Wang, 1983). According to Sinha and Datta (2016) there are only 3 species of *Lysionotus* have been reported from India. Later, Joe *et al.* (2017) described a new variety from Arunachal Pradesh, northeastern India. With this new species described herein, there are currently four species and a variety of *Lysionotus* recorded from northeastern India, viz., *L. atropurpureus* (Hara, 1973), *L. bijantiae*, *L. gamopetalus* var. *biflorus*, *L. palinensis* (Pal, 2000) and *L. serratus* (Don, 1822).

### TAXONOMIC TREATMENTS

*Lysionotus bijantiae* D. Borah & A. Joe, *sp. nov.*

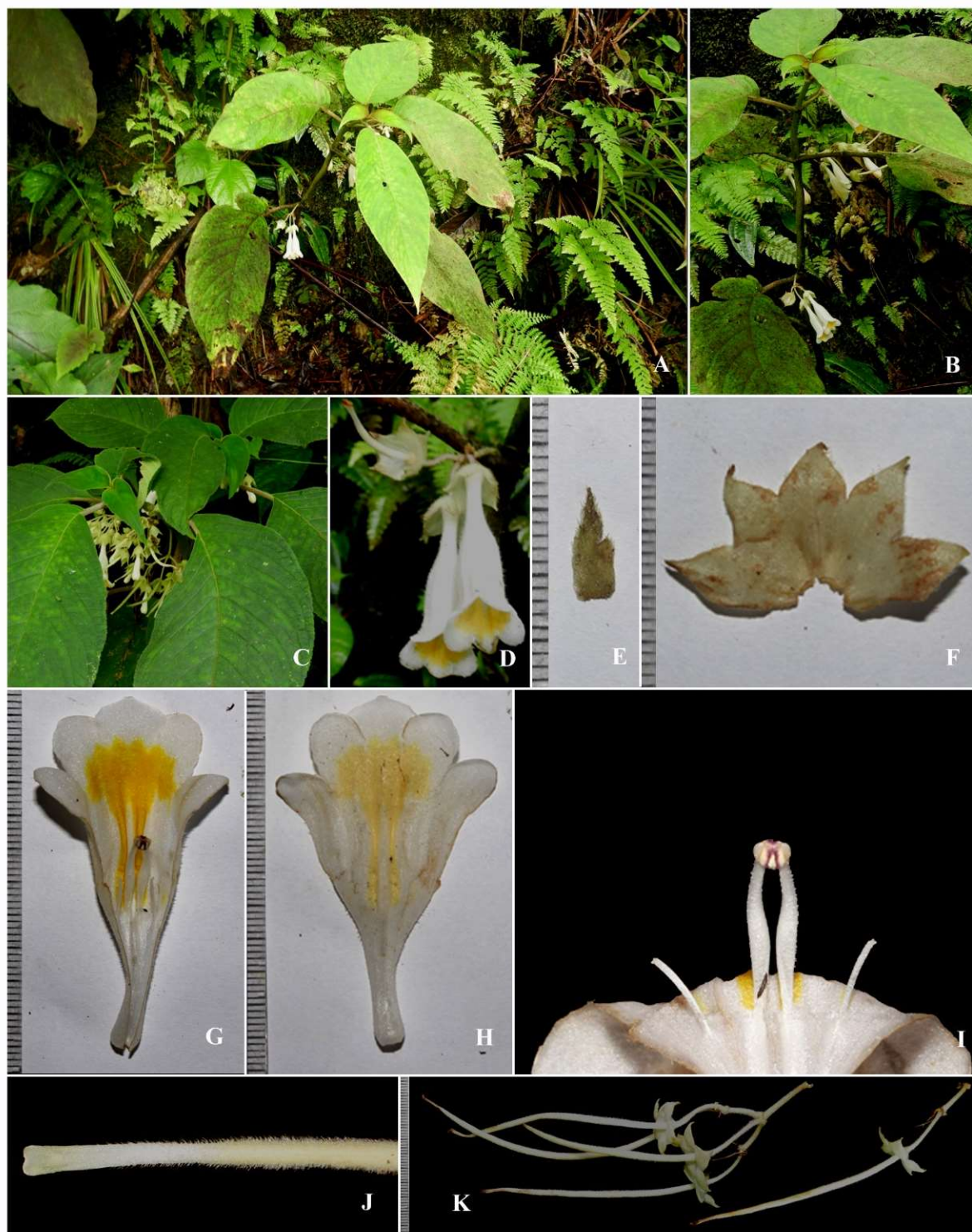
**Fig. 1**

*Lysionotus bijantiae* is morphologically similar to *L. gamosepalus* but can be easily distinguished by a combination of characters such as erect sub-shrub (vs decumbent sub-shrub), stems pubescent (vs glabrous), leaves pubescent (vs glabrous), peduncles and petioles pubescent (vs glabrous), bracts lanceolate, villous (vs broadly ovate to orbicular, green, glabrous), calyx hairy, (vs glabrous), corolla cream (vs purplish), filaments curved (vs coiled), without connective appendage (vs horn-like connective appendage), pistil cream, pubescent (vs green, glabrous).

**TYPE:** INDIA: Arunachal Pradesh. Lower Subansiri

District, Potin, 27°33'88.75"N 93°79'79.64"E, 22 Oct. 2017, Dipankar Borah 121989 (holotype CALI; isotypes CALI, ARUN)

Terrestrial erect sub-shrub, stems 40–130 cm long, terete, hairy, more towards apex, green. Leaves 12–25 cm long, opposite decussate, petioles 3–7 cm long, pubescent. Laminae 10–20 × 4.2–8 cm, oblanceolate, oblique, apex acute to acuminate, base asymmetric and oblique, margin crenulate, dark green above and pale beneath, lateral veins 5–12 on each side, lamina pubescent on both sides. Inflorescences axillary, 3–10 flowers from each axil. Peduncle 1.7–2.2 cm long, terete, cream or pale green, pubescent. Bracts 2, 0.8–1 × 0.3–0.4 cm, lanceolate, apex acuminate, margin entire, cream or pale green, villous, somewhat persistent. Pedicel 1.6–2.3 cm long, terete, cream or pale green, pubescent. Calyx 1.2–1.5 × 0.8–0.9 cm, cup-like, wide open towards apex, reflexed back at maturity and almost star-like at fruiting stage, cream or pale green, pubescent outside and glabrous within, persistent, calyx tube 0.6–0.8 cm long, 5-lobed, divided from above middle of calyx, 0.6–0.7 × 0.5–0.6 cm, ovate or triangular, apex acuminate, cream or pale green, pubescent outside and glabrous within. Corolla 5.3–5.7 cm long, funnel-shaped, cream with yellow throat, yellow throat extending towards base by two yellow lines, hairy outside and glabrous within; corolla bi-lipped, upper lip 2, lower lip 3, cream, lower lip bases with yellow color, lobes broadly ovate with rounded apex, glabrous or slightly hairy outside and glabrous within; corolla tube 3.6–3.8, cream with yellow towards throat, hairy outside and glabrous within. Stamens 2, 1–1.3 cm long, filament 1.1–1.2 × 0.1–0.2 cm, flattened, white, curved, anthers adnate at thecae, cream with violet-purple lines on thecae, without connective appendage; staminodes 2, 0.5–0.7 cm long, white, straight. Disc annular, cream. Pistil 2.5–2.8 cm long, cream, pubescent; ovary 1.2–1.4 cm long, cream, pubescent; style 1.3–1.4 cm long, cream, pubescent at base, apex glabrous; stigma cream, slightly bilamellate.



**Fig. 1.** *Lysionotus bijantiae*: **A:** Habitat. **B:** Habit. **C:** Flowering stem. **D:** Flowers. **E:** Bract. **F:** Calyx. **G:** Cut corolla inner surface with stamens and staminodes. **H:** Cut corolla outer surface. **I:** Stamens and staminodes. **J:** Stigma, style and a portion of ovary. **K:** Immature infructescence with persistent calyx.

Capsule 6.3–7 cm long, linear, cream, pubescent, with persistent calyx, dehisce loculicidally. Seeds numerous with hair-like appendages on each end.

**Flowering and Fruiting:** Flowering starts from

August and fruiting ends in December.

**Etymology:** The species is named after Bijanti Borah, mother of first author for her constant support.

**Table 1.** Comparison of *Lysionotus bijantiae* with *L. chingii*, *L. gamosepalus*, *L. gamosepalus* var. *biflorus* and *L. sangzhiensis*.

Character	<i>L. bijantiae</i>	<i>L. chingii</i>	<i>L. gamosepalus</i>	<i>L. gamosepalus</i> var. <i>biflorus</i>	<i>L. sangzhiensis</i>
Habit	Erect sub-shrubs	Prostrate herbs or subshrubs or lianas	Sub-shrubs	Sub-shrubs	Sub-shrubs
Stems	Up to 1.3 m tall, hairy	Up to 9 m tall, glabrous	Up to 0.5 m tall, glabrous	Up to 0.4 m tall, glabrous	0.1 m tall, glabrous or slightly hairy
Leaves	Opposite decussate, oblanceolate, oblique, hairy, margin crenulate, apex acute to acuminate, pubescent, petiole pubescent	Opposite, elliptic to narrowly elliptic to oblong, margins entire to denticulate, glabrous, petiole glabrous	Three-whorled, elliptic to ovate, oblique, margins serrate to dentate, glabrous, petiole glabrous	Three-whorled, ovate to ovate-elliptic, oblique, margins serrate to dentate, glabrous, petiole glabrous	Opposite or alternate, oblanceolate to narrowly oblong, glabrous, margin serrulate to denticulate, apex acute to obtuse, glabrous, petiole glabrous
Inflorescence	3–10 flowered, peduncle pubescent	1-flowered, pedicel glabrous	2–11 flowered, peduncle glabrous	2-flowered, peduncle glabrous	1–2 flowered, peduncle glabrous
Bracts	Lanceolate, villous	Orbicular-ovate to ovate, glabrous	Broadly ovate, glabrous	Broadly ovate or orbicular, glabrous	Orbicular-ovate to obovate, glabrous
Calyx	5-lobed, divided above middle, cup-like, wide open and star-like at fruiting stage, pubescent	5-lobed, divided above middle, cup-like, glabrous	5-lobed, divided above middle, cup-like, glabrous	5-lobed, divided above middle, cup-like, glabrous	5-lobed, divided above middle, campanulate, glabrous
Corolla	Cream with yellow throat, hairy	Cream or tinged green, glabrous outside	Purple, glabrous	Purplish, Villous	Pink with purple lines towards throat, glabrous
Stamens	Anthers without connective appendage	Anthers without connective appendage	Two long horn-like connective appendages	Two small horn-like connective appendages	Connective appendage triangular
Staminodes	2, straight, without anther	2, straight, without anther	3, straight without anther	2, coiled	3, straight, with one empty anther at apex
Pistil	Pubescent, stigma bilamellate	Glabrous, stigma truncate	Glabrous, stigma truncate	Glabrous, stigma truncate	Glabrous, stigma truncate

**Distribution and ecology:** *Lysionotus bijantiae* is known only from the type locality. The plant was found growing in wet shady areas. According to the IUCN red list categories and criteria (IUCN, 2012), *L. bijantiae* should be assessed as Critically Endangered (CR) based on the present situation: restricted geographic range of less than 2 km<sup>2</sup> with only one single location (CR:B2a) and an estimated number of mature individuals of about 100.

**Additional specimens examined (Paratypes):** INDIA: Arunachal Pradesh. Lower Subansiri District, Potin, 27°33'88.75"N 93°79'79.64"E, 01 Nov. 2017, *Dipankar Borah 121990* (CALI).

#### Key to the taxa in northeastern India

- 1 Calyx divided from base ..... 2
- 1 Calyx divided above the middle..... 4
- 2 Anther connective unappendaged..... *L. atropurpureus*
- 2 Anther connective appendaged ..... 3
- 3 Leaf margin spinulose ..... *L. palinensis*
- 3 Leaf margin serrate ..... *L. serratus*
- 4 Bracts lanceolate, hairy; calyx hairy; corolla cream; filaments curved; anther connective unappendaged; staminodes straight; pistil pubescent ..... *L. bijantiae*
- 4 Bracts ovate to orbicular, glabrous; calyx glabrous; corolla purplish; filaments coiled; anther connective with horn-like appendage; staminodes coiled; pistil glabrous ..... *L. gamosepalus* var. *biflorus*

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