



## *Thrixspermum yei* (Aeridinae, Vandaeae, Epidendroideae, Orchidaceae) - a new species from Xizang, China

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**ABSTRACT:** A new species *Thrixspermum yei* M. K. Li, Z. Xing & Y. Luo is described and illustrated from Xizang, China. It is similar to *T. fantasticum* and *T. duplocallosum* but differs from them in having a yellowish, ovate, indistinctly 3-lobed lip, disk with 4 yellow papillary front calli densely covered with yellow powder, and base with a cone-like appendage.

**KEY WORDS:** *Thrixspermum fantasticum*, *Thrixspermum duplocallosum*, taxonomy, Xizang, China.

### INTRODUCTION

The genus *Thrixspermum* Lour. comprises approximately 161 species (Chase *et al.*, 2015), and is a monopodial genus in the family Orchidaceae. It is distributed from tropical and subtropical Asia to the western Pacific Islands. *Thrixspermum* is characterized by the laterally flattened or swollen inflorescence rachis, ephemeral flowers, a basally saccate lip usually with a partly hairy or papillose front wall callus, and a short column with a long foot (Chen and Wood, 2009). Sixteen species have been recorded in China, mostly occurring in the southern provinces (Lin, 1988; Chen and Shui, 2005; Chen and Wood, 2009; Song *et al.*, 2009; Huang *et al.*, 2018).

During the course of orchid investigations of Xizang, an unusual orchid species was collected by the first author from the tropical monsoon rain forest. By careful observation of its fresh plant with flower and capsule, consultation of PE, KUN, HITBC, XZE and other herbaria, and evaluation of literature (Hooker, 1890; King and Pantling, 1898; Seidenfaden, 1988; Seidenfaden and Wood, 1992; Pearce and Cribb, 2002; Kumar and Kumar, 2005; Lucksom, 2007; Chen, 2009), we believe that the specimen belongs to section *Dendrocolla* (Blume) J. J. Sm of *Thrixspermum* because of its terete inflorescence rachis with bracts pointing in all directions. The specimen is related to *T. fantasticum* L. O. Williams and *T. duplocallosum* Holttum in mini-miniature sized, slender inflorescence rachis, flowers not opening widely, white tepals, lip shallowly saccate, but it is quite distinct from them in having a yellowish, ovate, indistinctly 3-lobed lip, disk with 4 yellow papillary front calli densely covered with yellow powder, and base with a cone-like appendage. De-Ping Ye found the same species in Yunnan, China, in

2020, and regarded it as a new species, *T. simaoense* D. P. Ye (Xu *et al.*, 2010). It should be noted that this name had not been validly published at that time. Therefore, it is redescribed here as a new species using the new name *T. yei* with illustrations based on living plants. With the present species, the total number of *Thrixspermum* species occurring in China becomes 17. Morphological comparisons between *T. yei* and allied species are shown in Table 1.

### TAXONOMIC TREATMENT

*Thrixspermum yei* M.K.Li, Z.Xing & Y.Luo, *sp. nov.*

**Figs. 1-2**

**Type:** CHINA. Xizang, Mêdog County, Dexing village, 95°14'42.89"E, 29°13'48.19"N, 1184 m, epiphytes on tree trunks in evergreen broad-leaved forest, 08 June 2022, M. K. Li 2022160 holotype: T000167542 (TAAHUC!); isotype: 022016 (XZE!).

**Diagnosis:** *Thrixspermum yei* is morphologically similar to *T. fantasticum* and *T. duplocallosum*, but can be clearly distinguished from them by having a yellowish, ovate, indistinctly 3-lobed lip, disk with 4 yellow papillary front calli densely covered with yellow powder, and base with a cone-like appendage.

**Description:** Epiphytic herb, **stem** erect, short, less than 2 cm, bearing 1–2 inflorescences. **Leaves** narrowly elliptic, 2–4 × 0.5–0.7 cm, acute or slightly bilobed, the base has a sheath, which is closely interspersed with each other. **Inflorescence** raceme, extra axillary, sub-erect, ca. 3 cm long, several flowered; peduncle slender; **floral bracts** triangular, ca. 1 mm long, persistent, apex acute. **Flowers** 5–6 mm; Sepals and petals white, lip yellowish; **Pedicel** and **ovary** ca. 5 mm long, erect, green. **Dorsal sepal** elliptic, 6.0–6.2 × 3.0 mm, base cuneate, apex obtuse,

**Table 1.** Differences between *Thrixspermum yei* and allied species.

	<i>Thrixspermum yei</i>	<i>T. fantasticum</i>	<i>T. duplocallosum</i>
Stem size	less than 2 cm	ca. 4 cm	2 cm or longer
Leaves	2-4 × 0.5-0.7 cm	2-5 × 0.8 cm	ca. 5 × 1 cm
Floral color	tepals white, lip yellowish	tepals whitish, lip white tinged with yellow	tepals white, lip orange
Sepals	6-6.2 × 3.0 mm, elliptic, apex obtuse	4-5.5 × 2.5-3 mm, obovate, apex obtuse	ca. 6 × 3 mm, obovate, apex subacute
Petals	4.5-5 × 2.5 mm, narrowly ovate, apex obtuse	4-4.5 × 2.5 mm, broadly elliptic, apex obtuse	ca. 7-8 × 2-2.5 mm, ovate, apex obtuse
Lip	ovate, 3-3.5 × 2-2.5 mm, indistinctly 3-lobed, lateral lobes semicircular, ca. 1 mm	oblong, ca. 3 × 7 mm, 3-lobed, lateral lobes erect, ca. 3 mm	3-lobed, lateral lobes erect, ca. 2 mm
Disk	4 yellow papillary calli densely covered with yellow powder, base with a cone-like appendage	2 revolute tubelike calli, base with a tuft of yellow hairs	2 dark crimson calli, base with a large triangular, cone-like appendage
Column	ca. 1.1 mm, foot ca. 0.5 mm	ca. 1 mm, foot ca. 1.5 mm	1.2-1.5 mm, foot ca. 1 mm

**Fig. 1.** *Thrixspermum yei* M. K. Li, Z. Xing & Y. Luo **A-B.** plant and inflorescence; **C.** inflorescence; **D-F.** flower; **G-H.** split flower; **I-K.** close-up of lip; **L.** lip and column. **M-N.** column and ovary; **O-P.** anther cap; **Q.** pollinia. (Photos: by Shen-shen Pang).

5-veined; **lateral sepals** slightly oblique, broadly elliptic, ca. 6 × 4 mm, apex acute, 5-veined. **Petals** narrowly ovate, 4.5–5 × 2.5 mm, apex obtuse, 3-veined; **lip** ovate, 3–3.5 × 2–2.5 mm, shallowly saccate, indistinctly 3-lobed, lateral lobes semicircular, ca. 1 mm, entire; mid-lobe ovoid, ca. 3 mm, somewhat irregularly shallowly undulate at margin; disk with 4 yellow papillary calli densely covered with yellow powder, base with a cone-like appendage. **Column** white, ca. 1.1 mm, foot short, ca. 0.5 mm. **Anther cap** sub-orbicular, white, membranous. **Pollinia** 4, in two unequal pairs, ovate-triangular. **Capsule** transverse to the rachis, ca. 4.5 × 0.5 cm, narrowly cylindrical, ridged.

**Distribution and habitat:** *Thrixspermum yei* was

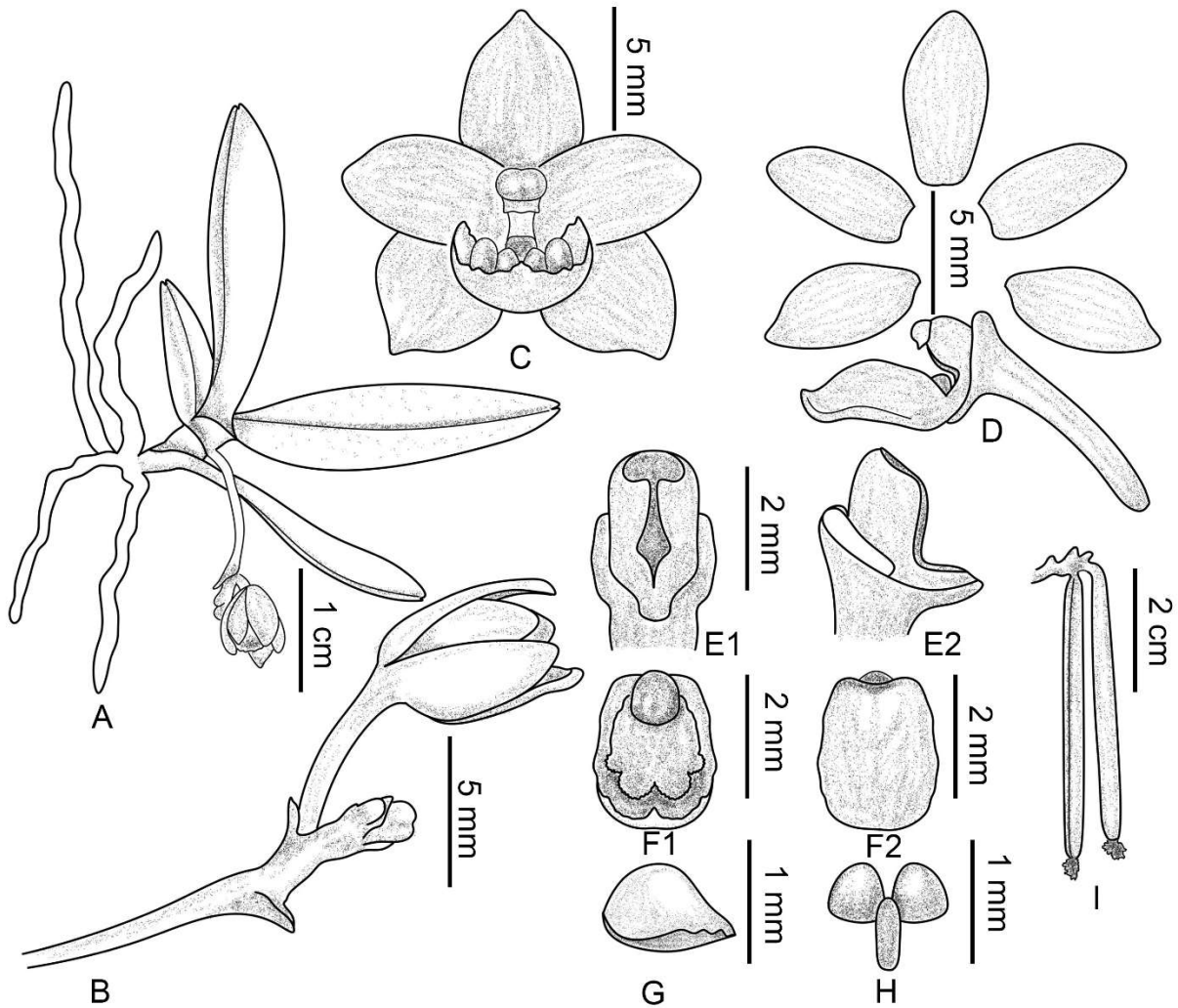
collected from Dexing and Beibeng town of Mêdog, Xizang, China. It was found epiphytically on the trunks of monsoonal evergreen broad-leaved forests at an elevation range of 1184–1610 m.

**Phenology:** Flowering from May to June.

**Etymology:** The specific epithet "yei" is in honor of Mr. De-Ping Ye (1977-2020), who dedicated over twenty years to the botanical surveys and conservation of wild orchids in China.

**Vernacular name:** Ye Shi Bai Dian Lan, 叶氏白点兰

**Conservation status:** Based on field investigations, *Thrixspermum yei* is known from Nyingchi City (Xizang) and Pu'er City (Yunnan Province, Xu *et al.*, 2010), four populations of 5 individuals were found in Nyingchi.



**Fig. 2.** *Thrixspermum yei* M. K. Li, Z. Xing & Y. Luo **A.** plant and inflorescence; **B.** inflorescence; **C.** flower; **D.** split flower; **E1-E2.** Column. **F1-F2.** close-up of lip; **G.** anther cap; **H.** pollinia. (Drawn by Jian-ping Deng).

There is no individual information in Pu'er population (Xu *et al.*, 2010). We regard its status as Data Deficient following IUCN guidelines (IUCN, 2022). In the future, we will conduct a detailed investigation and assess its endangered status.

**Additional specimen examined (paratype):** CHINA. Xizang, Mêdog County, De'ergong Village, 95°8'49.74"E, 29°11'27.54"N, 1609 m, epiphytes to tree trunks in subtropical evergreen broad-leaved forests, 15 December 2021, M. K. Li & S. S. Pang 20210654 (TAAHUC).

**Notes:** This species was first found and named after *T. simaoense* in 2010 (Xu *et al.*, 2010). However, according to Art. 40.1 of International Code of Nomenclature for algae, fungi and plants (Shenzhen Code) (Turland *et al.*, 2018), this name was not validly published because the authors failed to provide a diagnosis or description and designate the type material. Therefore, the name "*T. simaoense* D. P. Ye" cannot be accepted.

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