



A new species of *Amischotolype* Hassk. (*Commelinaceae: Tradescantieae*) from Thailand

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Key words

Amischotolype
Commelinaceae
fruit
sepal
Thailand

Abstract *Amischotolype balslevii* (*Commelinaceae*), a new species from Ban Dung, Udon Thani, northeastern Thailand is presented. The new species is distinguished from the resembling taxa, *A. divaricata* and *A. gracilis*, by its puberulent to glabrous stem nodes, glabrous leaf sheaths and pseudo-petioles, longer sepals, and ellipsoid and purplish white fruits. A morphological description and illustrations are provided, along with information on the species distribution, habitat, and conservation status.

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INTRODUCTION

Amischotolype Hassk. belongs to the family *Commelinaceae*, subfamily *Commelinoideae*, tribe *Tradescantieae*, subtribe *Colectrypinae* (Faden & Hunt 1991, Evans et al. 2003, Lee et al. 2022). The genus is palaeotropic and consists of approximately 26 species distributed primarily in Asia, excluding Sri Lanka, with four species found only in tropical Africa (Nandikar & Gurav 2014). *Porandra* D.Y.Hong was distinguished from *Amischotolype* by having anthers dehiscent by apical pores, growing out of the elongated stem, climbing, and branching at the top (Hong 1974, Nandikar & Gurav 2014). Duistermaat (2012) reported that the anthers of *A. gracilis* (Ridl.) I.M.Turner, *A. griffithii* (C.B.Clarke) I.M.Turner, and *A. rostrata* (Hassk.) Duist. have the same apical pore-opening thecae as those of *P. ramosa* D.Y.Hong and *P. scandens* D.Y.Hong, indicating that the members of the genera *Amischotolype* and *Porandra* are closely related. Following phylogenetic analysis by Lee et al. (2022), *Porandra* is synonymous with *Amischotolype* and all three members have been transferred to the latter already. In addition, *P. scandens* was changed to the new name *A. neoscandens* Idrees because *A. scandens* (D.Y.Hong) C.K.Lee, Fuse & M.N.Tamura was an illegitimate later homonym of *A. scandens* Burg & E.Bidault (Idrees 2022). Today, the genus *Amischotolype* contains approximately 29 species worldwide. The genus is distinguished by its persistent sepals, inflorescences that penetrate the sheaths, flowers with six fertile stamens, capsular fruits, and seeds with orange arils.

Duistermaat (2012) in the revision of *Amischotolype* in Asia recorded three (of eight) new species from Thailand. Pooma & Suddee (2014) enumerated eight species of the genus in the plant checklist of Thailand: *A. barbarossa* Duist., *A. divaricata* Duist., *A. griffithii* (C.B.Clarke) I.M. Turner, *A. hispida* (A.Rich.) D.Y.Hong, *A. hookeri* (Hassk.) H. Hara, *A. irritans* (Ridl.) I.M.Turner, *A. mollissima* (Blume) Hassk., and *A. welzeniana* Duist., while *A. glabrata* Hassk. and *A. marginata* (Blume) Hassk. were recognized as synonyms of *A. mollissima* in the checklist (Pooma & Suddee 2014). Duistermaat (2012) provided a clear distinction between *A. marginata* and *A. glabrata*, which are now clearly separate species. The gathered new data necessitate an updated account of the genus for the Flora of Thailand project.

During our revision of the Thai *Commelinaceae*, herbarium specimens of *Amischotolype* (including *Porandra*) were consulted from AAU, BK, BKF, KKU, PSU, and QBG and type specimens housed at K, L, and SING were viewed and investigated virtually (for herbarium abbreviations see Thiers continuously updated). During one of our field trips to Ban Dung district, Udon Thani Province, in July 2021, the first author collected *Amischotolype* with white-purple fruits, which differed from the hitherto known species in the genus. It is here described and illustrated as a new species. The diagnosis characteristics, etymology, distribution, ecology, threat status, and discussion are provided. Line drawings and photographs provide more details of the type specimens in the protologue.

The leaf blades, leaf sheaths, inflorescences, fruits, and sepals provide important characters for distinguishing the species. Plants with infructescences are commonly collected. Several species have fruits that protrude the persistent sepals like in the new species described here, in Thailand these are *A. divaricata*, *A. griffithii*, *A. marginata*, *A. microphylla*, *A. neoscandens*, and *A. ramosa*. The new species most closely resembles *A. divaricata*, but *A. gracilis*, a species from Malaysia Singapore and Indonesia (Sumatra) (Duistermaat 2012), is also morphologically very similar. Therefore, we will closely compare the new species with *A. divaricata* and *A. gracilis*, the results are

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Table 1 Comparison of morphological differences between *Amischotolype balslevii*, *A. divaricata*, and *A. gracilis*.

Characters	<i>A. balslevii</i>	<i>A. divaricata</i> *	<i>A. gracilis</i> **
Stem			
Node	minutely puberulent to glabrous	with a ring of 0.5–1 mm long hairs	glabrous
Leaf sheath			
Indumentum	glabrous	with a few lines of 1–3 mm long hairs	glabrous, rarely with 1 or a few lines of 0.5–2 mm long hairs
Leaf blade			
Submarginal hairs	0.2–0.3 mm long, whitish	0.2–0.5 mm long, yellowish	1–2.5 mm long, yellowish brown
Pseudo-petiole	lower surface glabrous	lower surface hairy	lower surface hairy
Sepal			
Size	10–14 by 3–4.5 mm	7–10.5 by 3–4.5 mm	4–7 by 2.5–5 mm
Stamen			
Filament	glabrous	hairy	hairy
Capsule			
Shape	ellipsoid	ovoid	obovoid
Size	16–18 by 8–10 mm	11.5–16 by 6–8 mm	7–11 by 5–8 mm
Colour	purplish white	dark green to pink or reddish	white to purplish red, purple

* Based on all Thai specimens and Duistermaat (2012).

** Based on Duistermaat (2012) and type specimens from SING (*Ridley* 2381, 2382, 6320, 16512).

presented in Table 1. An artificial key to the *Amischotolype* species with fruits protruding from the sepals in Thailand is provided, also included is the non native *A. gracilis*.

TAXONOMIC TREATMENT

Amischotolype balslevii Boonsuk, Chantar. & Kantachot, *sp. nov.* — Fig. 1, 2; Map 1

Nodes puberulent to glabrous; leaf sheaths, lower surface of pseudo-petioles, sepals and filaments glabrous; sepals 10–14 mm long; fruits ellipsoid, 16–18 mm long, purple-white. — Type: *B. Boonsuk* 896 (holotype KKU!; isotype AAU!, QBG!), Thailand, Udon Thani, Ban Dung district, Ban Dung subdistrict, N17°42'34" E103°12'47", 183 m alt., 19 July 2021.

Etymology. The name of this species honours Professor Henrik Balslev, Aarhus University, Denmark, who encouraged the authors to conduct research on the *Commelinaceae* for the Flora of Thailand Project.

Herbs, ascending, decumbent or scrambling; nodes puberulent to glabrous; internodes 6.5–10 cm long, glabrous, green. **Leaf sheaths** 4–5 by 1–1.2 cm, glabrous, mouth ciliate. **Leaf blades** elliptic-lanceolate, 24–32 by 4.5–8 cm, base cuneate-attenuate, margin entire, apex acuminate-caudate; upper surface dark green, glabrous except for the whitish submarginal hairs, 0.2–0.3 mm long; lower surface pale green, glabrous; pseudo-petioles 1.5–2 by 0.9–1.2 cm, slightly winged, margin minutely ciliate, lower surface glabrous. **Inflorescences** with 12–16 flowers, densely grouped, ovoid, 3–5.5 by 2–2.5 cm, borne on decumbent or scrambling stems, glabrous; inflorescence bracts ovate, c. 5 by 4 mm, apex acute, glabrous; bracteoles ovate, c. 5 by 4 mm, margin entire, glabrous. **Sepals** 10–14 by 3–4.5 mm, light green with pink or violet tip (in flower) to pinkish purple (in fruit), glabrous, with hooded tip. **Petals** oblong-oblancheolate, 7–8 by 3–3.5 mm, white. **Stamens:** filaments 9–11 mm long, white, glabrous; anthers oblong, 1.8–1.9 by 1–1.8 mm, white, longitudinally dehiscent. **Ovary** obconical, 2.7–3 by 1.5–1.7 mm; styles 10–12 mm long, white; stigma simple. **Capsule** ellipsoid, 16–18 by 8–9 mm, exceeding the sepals by 5–9 mm, purplish white, apex obtuse and slightly depressed, distally densely hairy, hairs 0.5–1 mm long, style remnant present. **Seeds** 2 per locule, with orange aril, 6.5–7 by 3.5–4 mm (without aril), with a ventral groove.

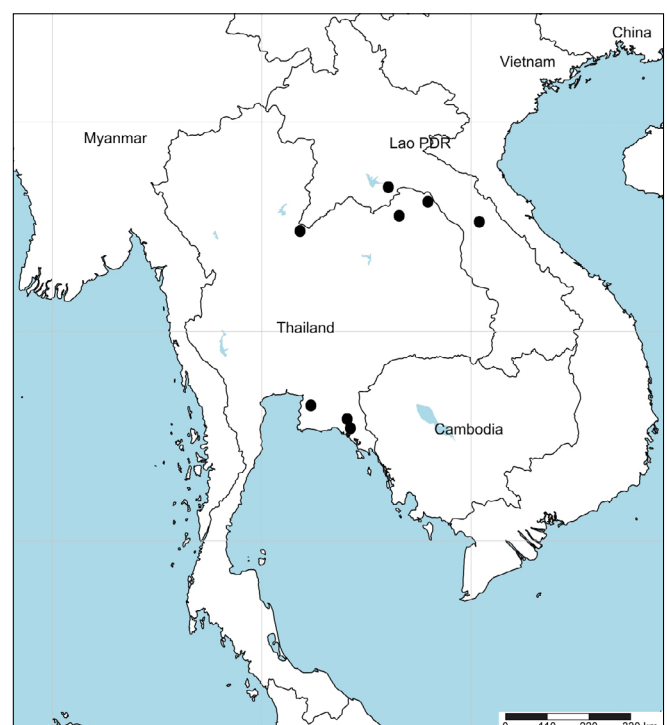
Distribution — Thailand (NE: Loei, Udon Thani, Nakhon Phanom, SE: Chon Buri, Chanthaburi), Lao PDR (Bolikhambxai, Khammouane) (see also under the notes and Map 1).

Habitat & Ecology — Along open streams, nearby waterfall, in moist exposed area in gallery forest or in disturbed evergreen forest.

IUCN threat status — *Amischotolype balslevii* has no record of utilization and was mostly found in conserved forests in Thailand and also in Lao PDR. Its population is stable enough in these habitats, it should be rated as Least Concern (LC) based on the IUCN Standards and Petitions Committee (2022).

Vernacular name — Muang si udon (ม่วงศรีอุตร).

Additional specimens examined (paratypes). LAO PDR, Khammouane, Nakai, Udum Souk, 3 Apr. 2005, *Svensuksa et al.* 32 (BKF); Bolikhambxai, Tha Phabat, Tad Leuk Waterfall, 31 May 2006, *Newman et al.* 1935 (BKF). — THAILAND, Loei, Na Haeo, 20 June 1995, *Nanakorn et al.* 3805 (QBG); Udon Thani, Ban Dung district, Ban Dung subdistrict, 25 Apr. 2022, *Boonsuk* 935 (AAU, KKU, QBG); Nakhon Phanom, Ban Phaeng, Phu Langka NP, 25 Aug. 2001, *Pooma et al.* 2619 (BKF); Chonburi, Khao Khiao Opened Zoo, 9 Sept. 2000, *Phengklai* 12932 (BKF); Chanthaburi, Khao Khitchagut NP, Krathing Waterfall, 7 June 2000, *Thitimetharoch* 331 (BKF, KKU); Laem Sing, Namtok

**Map 1** Distribution map of *Amischotolype balslevii* in Thailand and Lao PDR.

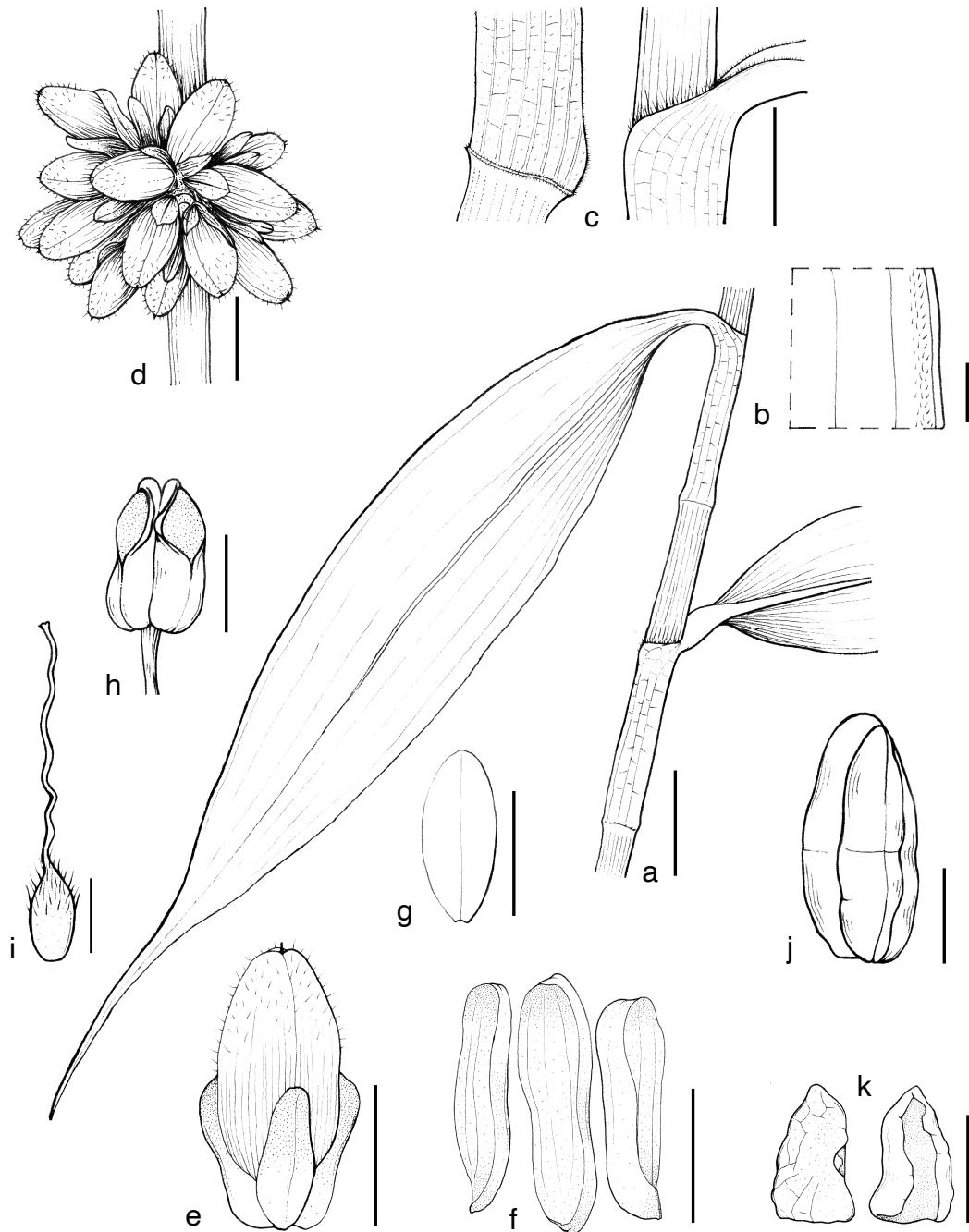


Fig. 1 *Amischotolype balslevii* Boonsuk, Chantar. & Kantachot. a. Portion of stem and leaves; b. upper leaf margin showing submarginal hairs; c. lower and upper parts of the leaf sheath; d. inflorescence; e. capsule with persistent calyx; f. sepals; g. petal; h. anther; i. pistil; j. seeds with aril covering; k. seed without aril. — Scale bars: a = 2 cm; b–e = 1 cm; f, g, j, k = 5 mm; h = 1 mm; i = 2 mm. — Drawn by W. Thammarong.

Phlio NP, 4 Apr. 1971, *Maxwell* 71-251 (BK); *ibid.*, 26 Mar. 1972, *Maxwell* 72-155 (AAU, BK); *ibid.*, 13 Oct. 1972, *Maxwell* 72-317 (AAU, BK).

Notes — 1. *Amischotolype balslevii* is distinctive in having puberulent stem nodes, leaf sheaths and blades, a brownish ciliate sheath mouth, 0.2–0.3 mm long submarginal hairs on the upper leaf surface, and the largest capsules within the genus, which are purplish white and 16–18 mm long and attached to and protruding from the sepals. The sepals are glabrous, 10–14 mm long, hooked, succulent, and persistent in fruiting (Fig. 1, 2). The sepals and capsules of this species are the largest in the genus in Asia based on Duistermaat (2012). The new species shared some morphological characters with *A. divaricata*, a common Asian species, and *A. gracilis*, a Malaysian/Indonesian species, in that they have green to purple sepals (when young) that are shorter than the capsules, as well as hairy fruits. It differs from the first in having puberulent to glabrous nodes,

glabrous leaf sheaths and glabrous lower leaf surface, larger sepals and capsules, and ovoid and purplish white fruits. It can be distinguished from the latter by having shorter and different coloured submarginal hairs (0.2–0.3 mm long, whitish vs 1–2.5 mm long, yellowish brown), longer sepals, glabrous filaments, and longer and ellipsoid capsules (see also Table 1).

2. In Thailand, it is found disjunctly in provinces of North-eastern Thailand (Loei, Udon Thani, and Nakhon Phanom), as well as in provinces of Southeastern Thailand (Chonburi and Chanthaburi), in moist areas such as along streams or near waterfalls. It has not been recorded from Eastern Thailand, possibly due to a lack of collection in this region. Additionally, the two specimens from Lao PDR (Bolikhambxai and Khammouane) are from locations near NE Thailand, show that the new species is also present in Lao PDR (Map 1).

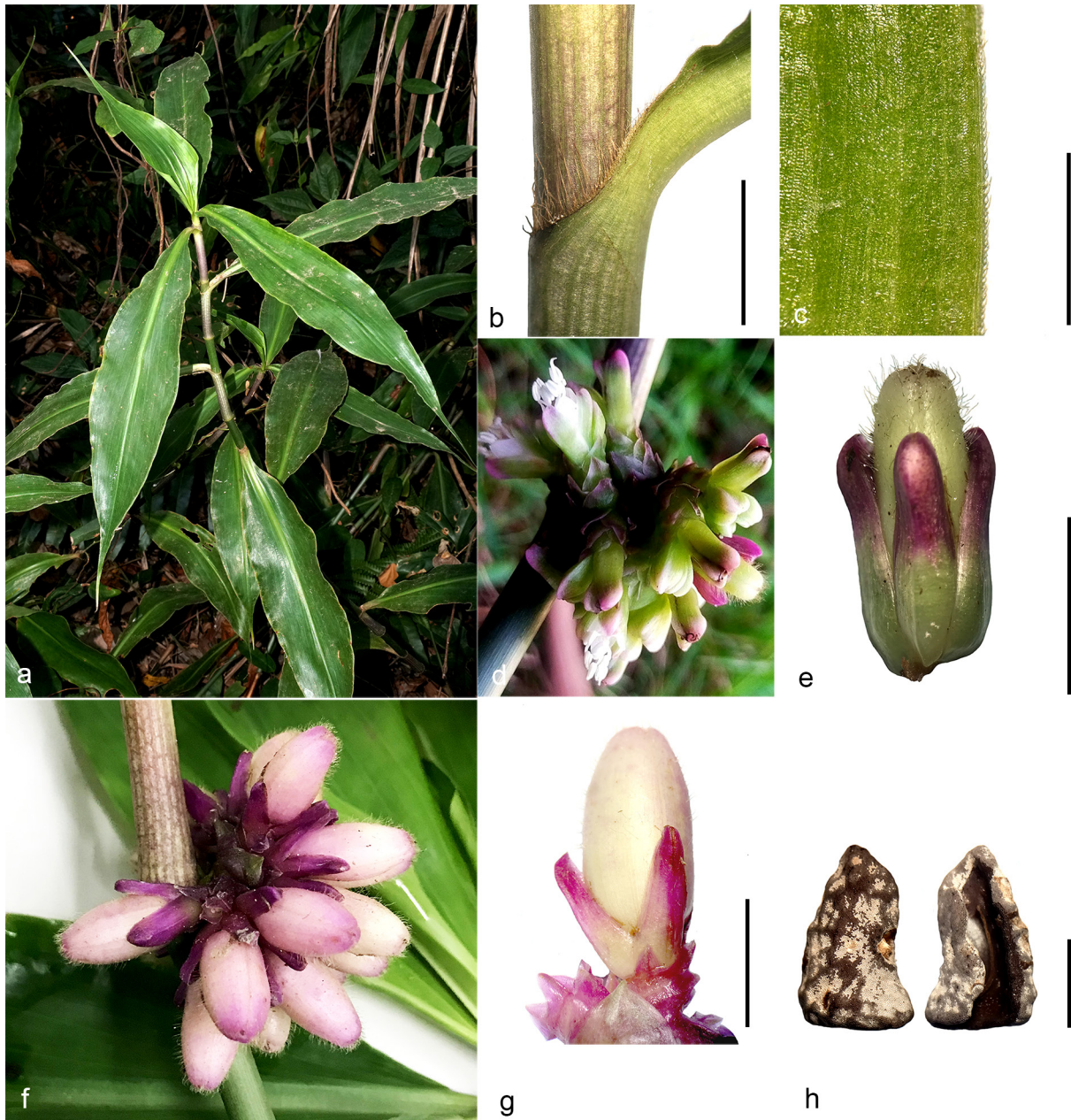


Fig. 2 *Amischotolype balslevii* Boonsuk, Chantar. & Kantachot. a. Habit; b. leaf sheath, mouth, and pseudopetiole; c. leaf margin and submarginal hairs on upper surface; d. inflorescence; e. young capsule with sepals; f. infructescence; g. mature capsule with sepals and bracteoles; h. seeds. — Scale bars: b, e = 1 cm; c = 2 cm; g = 1 mm; h = 3 mm. — Photographs by B. Boonsuk.

Key to *Amischotolype* species in Thailand having fruits protruding the sepals

(Based on fruits and vegetative parts)

- | | |
|--|-----------------------|
| 1. Inflorescences on rhizome at knee or on prostrate stem. Peduncles distinctly present | <i>A. marginata</i> |
| 1. Inflorescences on erect stem or on scrambling stem over the knee. Peduncle absent | 2 |
| 2. Infructescence composed of 1–6 capsules | 3 |
| 2. Infructescence composed of at least 9 capsules | 5 |
| 3. Lamina 18–25 by 3–5 cm. Submarginal hairs present on upper surface and along margin, 1.2–2 mm long, brownish. Sepals glabrous to glabrescent | <i>A. neoscandens</i> |
| 3. Lamina 5–16 by 1.5–4 cm. Submarginal hairs absent or present along margin and lower leaf surface, 0.5–1 mm long, whitish. Sepals pubescent | 4 |
| 4. Lower surface of leaves glabrous | <i>A. microphylla</i> |
| 4. Lower surface of leaves pubescent with dense, velvety hairs throughout | <i>A. ramosa</i> |
| 5. Submarginal hairs 1–2.5 mm long | 6 |
| 5. Submarginal hairs 0.2–0.5 mm long | 7 |
| 6. Leaf surfaces glabrous. Capsules obovoid | <i>A. gracilis</i> |
| 6. At least the lower leaf surface tomentose. Capsules ellipsoid | <i>A. griffithii</i> |
| 7. Stem nodes minutely puberulent to glabrous. Leaf sheaths glabrous; mouth ciliate. Lower surface of pseudo-petiole and midrib glabrous to minutely puberulent. Sepals 10–14 mm long. Filaments glabrous. Capsules ellipsoid, purplish white, 16–18 mm long | <i>A. balslevii</i> |
| 7. Stem nodes with a ring of 0.5–1 mm long hairs. Leaf sheaths with a few lines of 1–3 mm long hairs; mouth densely ciliate. Lower surface of pseudo-petiole and midrib densely hairy. Sepals 7–10.5 mm long. Filaments hairy. Capsules ovoid, green or greenish purple, 11.5–16 mm long | <i>A. divaricata</i> |

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