

A new record and a new synonym in *Amomum* Roxb. (Zingiberaceae) in Thailand

WITTAYA KAEWSRI¹, YINGYONG PAISOOKSANTIVATANA²& UAMPORN VEESOMMAI²

ABSTRACT. The new record *Amomum micranthum* Ridl. is reported for Thailand. *Amomum inthanonense* Chaveer. & Tanee is reduced to a synonym of *A. coriandriodorum* S.Q.Tong & Y.M.Xia.

KEY WORDS: *Amomum*, Zingiberaceae, Thailand, new records.

INTRODUCTION

The genus *Amomum* Roxb. comprises 150–180 species. They are widely distributed in Southeast Asia from the Himalayas to Northern Australia and extend into the central Pacific (Kam, 1982; Smith, 1985). Larsen (1996) listed 14 species of *Amomum* in his preliminary checklist of Zingiberaceae of Thailand. Sirirugsa (2001) estimated that there are around 15–20 *Amomum* species in Thailand. Larsen & Larsen (2006) in *Gingers of Thailand*, listed 16 species of *Amomum*. In the most recent account (Kaewsri, 2006), 31 species of Thai *Amomum* were enumerated but only 13 of these were previously recognised species, the rest being proposed as new species. Whilst examining herbarium collections of this genus for the Flora of Thailand, we found the recently described *Amomum inthanonense* Chaveer. & Tanee (Chaveerach et al., 2008) is a synonym of *A. coriandriodorum* S.Q.Tong & Y.M.Xia (Tong & Xia, 1988), and that *A. micranthum* Ridl. is newly recorded for Thailand.

1. *Amomum micranthum* Ridl., J. Straits Branch Roy. Asiat. Soc. 32: 138. 1899; Ridl., Fl. Malay Penins. 4: 267. 1924. Type: *Curtis* 2884 (lectotype **SING**, designated by Holttum, Gard. Bull. Singapore 13: 202 (1950)). Fig. 1C, D.

Rhizome elongate. *Leafy shoot* slender, 0.9–1.2 m tall. *Leaves* 19–25; sheath glabrous, margin ciliate; ligule entire, apex round, margin ciliate, papery, 1–2 mm long; petiole absent; lamina oblong to narrowly oblong, 15–22 by 2–3 cm, glabrous, base attenuate, apex acuminate, tip caudate, 1–2.5 cm. *Inflorescence* densely obovate or conical, 3–4 by 2–2.5 cm, dark red; peduncle 8–11 cm long; peduncular bracts ovate, ca 0.8–1.4 by 0.8–1 cm, reddish brown, apex hooded, mucronate. *Bract* oblong to obovate-oblong, 1.3–1.7 by 0.7–0.9 cm, brownish red, base pubescent, apex acuminate. *Bracteole* tubular, ca 8 mm long including ovary, apex unequally bifid, creamy white, base pubescent. *Calyx* 1.5–1.8 cm long including ovary, apex 3-fid, outer surface slightly

¹ Corresponding author: Agricultural Science Program, Mahidol University, Kanchanaburi Campus, 71150, Thailand.

² Department of Horticulture, Faculty of Agriculture, Kasetsart University, Chatuchak, Bangkok 10900, Thailand.

pubescent at base, creamy white. *Corolla* creamy white, tube glabrous, ca 1.8 cm long including ovary, dorsal lobe oblong, ca 8 by 4 mm, apex acuminate, hooded, lateral lobes narrower. *Staminodes* linear, ca 1–2 mm long, base swollen, apex truncate, with sparse hair. *Labellum* obovoid, spreading, 10–12 by 6–7 mm, base attenuate, apex truncate, slightly revolute, creamy white with pinkish red dots at base and radiating upward. *Stamen* glabrous, creamy white; filament ca 5 mm long, linear; anther 3–4 by 2–3 mm, dehiscing lengthwise; anther crest 3-lobed, ca 4 by 2 mm, creamy white, central lobe ca 3.5 by 1.0 mm, round, recurved, lateral lobes ca 2 by 1 mm, auriculate, apex acute, erect. *Ovary* cylindrical, ca 3.0 by 1.5 mm; stigma capitate, the aperture narrowly transverse, margin hairy; style pubescent; stylodes blunt, ca 2.5 mm long. *Fruit* subglobose, ca 1.0–1.6 cm diameter, sparsely covered with fleshy, curved spines, brownish green when young, turning dark red when ripe, with persistent calyx and stigma, 1.2–1.4 cm long at apex, fruitlets 1–6; seeds angular, ca 7 by 4 mm, aril white.

Thailand.— SOUTH-EASTERN: Chanthaburi [Khlung Khrua Wai, 25 March 2004, *Kaewsri* 63 (**BK**, **BKF**)]; PENINSULAR: Ranong [Krom Luang Chumphon Wildlife Sanctuary, 7 April 2004, *Kaewsri* 84 (**BK**, **BKF**)].

Distribution.— Peninsular Malaysia: Penang, Perak, Selangor, Negeri Sembilan.

Ecology.— Tropical rain forest, dry evergreen forest or bamboo forest, altitude ca 250 m. Flowering and fruiting April–July.

Note.— The specimens collected in Thailand are more robust than the type specimen.

2. *Amomum coriandriodorum* S.Q.Tong & Y.M.Xia, *Acta Bot. Yunnan.*, 10: 208. 1988. Wu & Larsen, *Fl. China* 24: 350. 2000. Type: *Tong, S.Q. & Liao, W.D.* 24839 (holotype **HITBC**).— *Amomum inthanonense* Chaveer. & Tanee, *Taiwania* 53: 7. 2008, **synon. nov.** Type: Thailand: Northern, Chiang Mai, Chom Thong District, Doi Inthanon National Park, 17 May 2006, *Mokkamul & Chaveerach* 316 (holotype **BKF**, isotype **BK**). Fig. 1A, B.

Rhizome short. *Leafy shoot* stout, 1.2–3.0 m tall. *Leaves* 12–14; sheath green, reddish-tinged at base; ligule entire, apex drying papery, 0.6–2.0 cm long; petiole 0.3–1.0 cm long; lamina oblong, ovate-oblong or elliptic-oblong, 20–68 by 3–18 cm, base attenuate or cuneate, apex acuminate. *Inflorescence* ovoid, cylindrical or conical, emerging near base of pseudostem, 5.0–11.0 by 3.5–4.0 cm, purplish red; peduncle stout, 4–6 cm long; peduncular bract broadly ovate or orbicular, red, apex acuminate, 1.0–1.5 by 1.0–2.0 cm. *Bract* ovate to broadly ovate, 3.5–7.5 by 1.0–2.0 cm, apex acuminate, red. *Bracteole* tubular, 3.6–4.0 cm long, apex 2-lobed, shallowly split ca 2 cm on one side, outer surface pubescent, pinkish white. *Calyx* ca 4 cm long including ovary, apex shallowly bifid, split on one side, pinkish white, glabrous. *Corolla* pinkish white, tube ca. 4 cm long including ovary, dorsal lobe hooded, oblong, ca 2.5 by 1.0 cm, apex acuminate, lateral lobes narrower. *Staminodes* absent. *Labellum* elliptic or broadly ovate, spreading, ca 3.7 by 1.5 cm, base attenuate, apex round, margin wrinkled, pale yellow, darker towards apex, pale red band from base to middle, lateral crimson lines along the band from base to middle, with crimson streaks at both sides of base, base white pubescent.

Stamen glabrous, pale yellow; filament ca 6–9 mm long; anther ca 1.3 by 0.3 cm, pale yellow, dehiscent lengthwise; anther crest entire, truncate-emarginate or slightly 3-lobed, lateral lobes distinct, reflexed, the middle lobe usually disintegrating, spreading, 5 by 3 mm, pale yellow. *Ovary* cylindrical, ca 13 by 6 mm, smooth; stigma triangular, aperture narrowly transverse, margin hairy; stylodes blunt, ca 8 mm long. *Fruit* narrowly ovate or elliptic, smooth, 4.5–5 by 2.0–3.0 cm, pale green when young, fruit stalk 1.0–1.5 cm long; seeds many, angular, ca 5 by 4 mm, brown.

Thailand.— NORTHERN: Chiang Mai [Doi Inthanon, 28 July 1988, *Phengkklai et al.* 7183 (**BKF**); 18 May 2004, *Kaewsri* 111 (**BK, BKF**); Doi Suthep, 8 May 1988, *Maxwell* 88-604 (**CMU**); 15 Sept. 1988, *Maxwell* 88-1081 (**CMU, BKF**); 21 May 1990, *Maxwell* 90-541 (**CMU**); Chom Thong, 7 May 1991, *Maxwell* 91-410 (**CMU**); 16 June 1991, *Maxwell* 91-557 (**CMU**); Pang Sa Det, 21 May 2004, *Kaewsri* 114 (**BK, BKF**); Doi Lon, 16 July 2005, *Maxwell* 05-451 (**CMU**)], Kamphaeng Phet [Mae Wong, 8 July 2001, *Wattana* 1395 (**QBG**)], Nan [Tham Pha Toop, 2 Sept. 1999, *Middleton* 155 (**BKF**); Doi Phu Kha, 5 July 2004, *Kaewsri* 137 (**BK, BKF**); Doi Phu Kha, 22 Aug. 2001, *Srisanga & Maknoi* 2057 (**QBG**)], Lampang [Chae Son, 24 June 1996, *Maxwell* 96-876 (**CMU, BKF**)]; NORTH-EASTERN: Loei [Na Haeo, 25 April 1994, *Nanakorn* s.n. (**QBG**)].

Distribution.— China: Yunnan.

Ecology.— Hill evergreen and pine forest, under shade of trees or shrubs, moist areas along streams, granite bedrock, altitude 850–2300 m. Flowering and fruiting May–September



Figure 1. *Amomum coriandriodorum* S.Q.Tong & Y.M.Xia: A. inflorescence; B. infructescence; *A. micranthum* Ridl.: C. inflorescence; D. infructescence. (Photographed by W. Kaewsri).

Note.— This species is found only at high altitude in Northern and Northeastern Thailand. The species differs from the original description in its entire labellum (not lobed or auriculate) and the fruit lacks the coriander smell. These characters, however, are not sufficient to recognise *Amomum inthanonense* as a species distinct from *A. coriandriodorum*. *Amomum coriandriodorum* is similar to *A. tsaoko* Crevost & Lemarie in its fruit shape and yellow labellum, but differs in the anther crest lateral lobes of *A. coriandriodorum* being narrower and distinctly reflexed (versus broader and spreading), and the labellum base of *A. coriandriodorum* with clearly crimson streaks (versus obscure or absent in *A. tsaoko*). Although we have not seen the type of *Amomum coriandriodorum* the identity of the Thai plant has been confirmed by Y.M. Xia.

ACKNOWLEDGEMENTS

The authors are very grateful to Prof. Y.M. Xia for her helpful suggestions. We should like to thank the curators and staff of BK, BKF, PSU, CMU, QBG and SING for their kind permission to access their herbaria and for suggestions made during this study. This work was supported by the TRF/BIOTEC Special Program for Biodiversity Research and Training, grant BRT T_14009.

REFERENCES

- Chaveerach, A., Mokkalul, P., Sudmoon, R. & Tanee, T. (2008). A New Species of *Amomum* Roxb. (Zingiberaceae) from Northern Thailand. *Taiwania* 53: 6–10.
- Kam, Y. K. (1982). The genus *Elettariopsis* (Zingiberaceae) in Malaya. *Notes from the Royal Botanic Garden Edinburgh* 40: 139–152.
- Kaewsri, K. (2006). Systematic Studies of the Genus *Amomum* Roxb. (Zingiberaceae) in Thailand. Ph.D. Thesis, Kasetsart University.
- Larsen, K. (1996). A preliminary checklist of the Zingiberaceae of Thailand. *Thai Forest Bulletin (Botany)* 24: 35–49.
- Larsen, K. & Larsen, S. S. (2006). *Gingers of Thailand*. Queen Sirikit Botanic Garden.
- Sirirugsa, P. (2001). Zingiberaceae of Thailand, pp. 63–77. In: V. Baimai and R. Kumhom. BRT Research Reports 2001. Biodiversity Research and Training Program. Jirawat Express Co., Ltd., Bangkok (in Thai).
- Smith, R.M. (1985). A review of Bornean Zingiberaceae: 1 (Alpineae p.p.). *Notes from the Royal Botanic Garden Edinburgh* 42: 261–314.
- Tong, S.Q. & Xia, Y.M. (1988). Some New Taxa of *Amomum* from Yunnan. *Acta Botanica Yunnanica* 10: 205–211.