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Croton fluviatilis (Euphorbiaceae), a new species from Thailand

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ABSTRACT. A new species of *Croton* (Euphorbiaceae), *C. fluviatilis*, is proposed. It is a rheophyte, only known from stream banks in few places in eastern Thailand. It can be distinguished by its linear leaf blades and the subglabrous leaves, flowers and fruits which bear only a few lepidote hairs.

KEY WORDS: *Croton*, Euphorbiaceae, rheophyte, taxonomy, Thailand.

INTRODUCTION

In the revision of Euphorbiaceae for the Flora of Thailand (Chayamarit & Welzen, 2005; Welzen & Chayamarit, 2007), two possibly undescribed species of *Croton* L. from Thailand were mentioned (Esser, 2005). For one of these ('*Croton* sp. 2'), several additional collections became available recently. With data from these additional specimens it is now obvious that indeed a new species is present, which is described here.

DESCRIPTION

Croton fluviatilis Esser, **sp. nov.** Species *Crotonis* foliis linearibus, indumento lepidoto inflorescentiis subglabris fructibus glabrescentibus distinguenda inter species siamenses. Typus: Thailand, Surin, Kap Choeng, trail from Chong Plot Tang to Wildlife Sanctuary Headquarters, fl. & fr., 3 March 2007, *Suddee*, *Trisarasri*, *Thanaros* & *Ritphet* 3110 (holotype **BKF!**). Figs. 1–2.

Shrub or small tree to 5 m tall; shoot apex distinctly pubescent, later sparsely pubescent to subglabrous. Indumentum consisting of lepidote, pale brown to yellowish-cream hairs with slightly darker centre, flat, ca 0.2–0.3(–0.5) mm diam., with ca 30–40 completely to nearly completely fused radii. Leaves alternate, deciduous, turning yellowish orange before they are shed; stipules 3–5 mm long, pubescent; petiole 1–3.5 cm long, sparsely pubescent; blade linear, (10–)12–17 by 1.5–2.4 cm, index (5.0–)7.5–10.5, thinly chartaceous, base acute, margin indistinctly serrate to subentire (teeth 5–7 mm apart), apex acute-acuminate, upper surface glabrous, lower surface with scattered hairs on the midvein below and otherwise subglabrous, hardly brighter than above, not glaucous; basal glands (on junction with the petiole) adaxial-lateral, flat, 0.7–1 mm in diam., additional marginal glands absent; side veins 11–16 pairs, hardly connected into loops (eucamptodromous), not to very indistinctly triplinerved. Inflorescences apical, solitary, 7–19 cm long; subglabrous to glabrous on axis and bracts; pistillate flowers 4–11, these with or without lateral staminate flowers (i.e. cymules bisexual or not); bracts of staminate flowers ovate, 2–3.5 by 1.5–2 mm, membranaceous. Staminate flowers 1–3(–4) per bract; pedicel 4–5 mm long, glabrous; sepals ca 2.5 by 1.5 mm, slightly fused at base, apex acute to mucronate, glabrous outside but distinctly ciliate at apex; petals similar to sepals but narrower, ca 2.5 by 0.5 mm; stamens 10–12, filaments 2–2.5 mm long, anthers ca 0.6 mm long. Pistillate flowers with subglabrous pedicel ca 2 mm long; sepals ca 2 by 1 mm, apex acute to mucronate, quite glabrous; petals not seen; ovary ca 1.5 mm long, smooth, densely pubescent; styles free, 3–5 mm long, bifid

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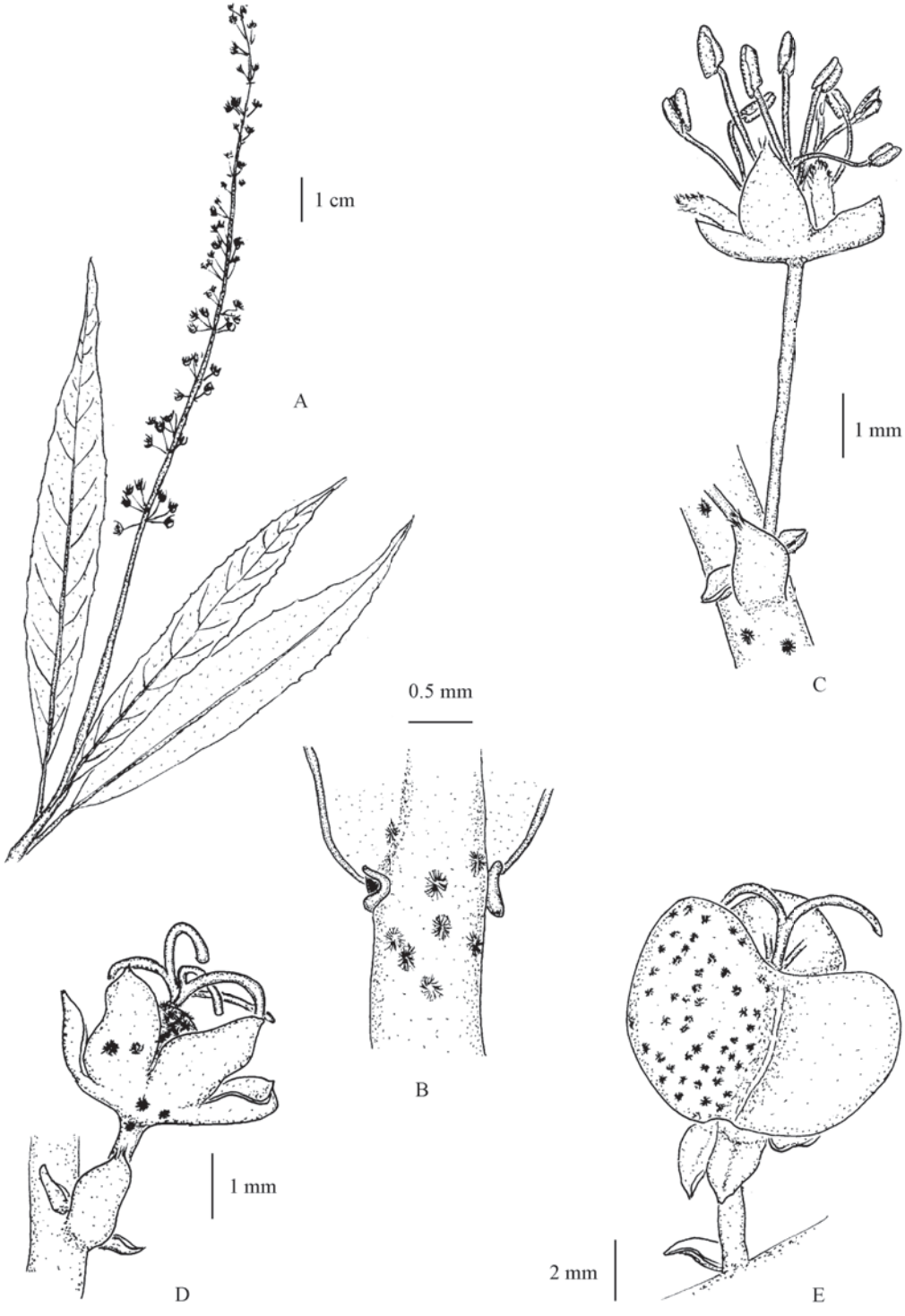

Figure 1. *Croton fluviatilis* Esser: A. habit with staminate inflorescence; B. leaf base, showing basal glands; C. staminate flower with bract; D. pistillate flower; E. fruit. Drawn from *Phonsena* 3695 (A), *Pooma* 7386 (B, C, D), *Suddee et al*. 3110 (E), all BKF.

Figure 2. *Croton fluviatilis* Esser: A. habit with bisexual inflorescence, pistillate stage; B. habit with bisexual inflorescence, staminate stage; C. infructescence; D. fruit; E. open fruit and seeds; F. apex of branch with remnants of dehisced fruit. Photographed by R. Pooma.

for more than half of length. Fruits with pedicel 4–8 mm long; capsule 5–7 by ca 8 mm, smooth, distinctly sulcate, glabrescent with scattered hairs to subglabrous. Seeds 4–4.5 by 3–3.5 mm, ?ecarunculate.

Thailand.— EASTERN: Surin [Kap Choeng, trail from Chong Plot Tang to Wildlife Sanctuary Headquarters, fl. & fr., 3 March 2007, *Suddee*, *Trisarasri*, *Thanaros* & *Ritphet* 3110 (**BKF!**)]; Ubon Ratchathani [Phu Chong Nayoi National Park, planted at Sa Kaeo RFD Centennial Botanical Garden, fr., 15 Aug. 2002, *Phonsena* 3362 (**BKF**, **M!**); same locality, fl., 12 March 2003, *Phonsena* 3695 (**BKF!**, 4 sheets); Kaeng Lam Duan [Nam Yuen, fl., 24 July 2008, cultivated in Bangkok, Chatuchak, Chom Phon, fl., 24 June 2009, *Pooma* 7386 (**BKF!**, 2 sheets); Khong Chiam District, Phu Lone, fl., 23 Feb. 2003, *Wongprasert et al*. 032-06 (**BKF!**, 2 sheets)].

Distribution.— Known from a few localities in eastern Thailand; likely to also occur in Cambodia.

Ecology.— In areas of dry evergreen forest, but only along streams, in sandy soil over sandstone, ca 100–250 m altitude. Flowering February, March, June; fruiting March, August.

Etymology.— The name of the species refers to its connection with rivers.

Notes.— This new species is a rheophyte with narrow, linear leaf blades and is only found along stream banks. It is the only rheopyte among the 31 known Thai species. Although *Croton* is a large genus with a least 80 species in SE Asia, only few species with linear leaves are known from this area: *Croton ensifolius* Merr. (from the Malay Peninsula and Borneo) has very narrow leaf blades only 7 mm wide, and mature leaves and inflorescenes are glabrous; *C. rheophyticus* Airy Shaw (from Borneo) differs by smaller leaf blades up to 1.6 cm wide and stellate hairs; *C. iteophyllus* Radcl.-Sm. & Govaerts (= *C. salicifolius* Gagnep. non Geiseler,. from Vietnam) has smaller (up to 1.2 cm wide) and completely glabrous leaf blades and glabrous fruits.

Croton fluviatilis is also the only species among those from Thailand that combines lepidote hairs with subglabrous inflorescences and fruits (the few other species with subglabrous inflorescences have stellate hairs, e.g., *C. kerrii* Airy Shaw). The orange colour of the leaves before they are shed is also noteworthy.

The species is possibly vulnerable (VU) according to the IUCN (2001) Red List categories, as it is known from few specimens from a restricted range, but probably not threatened immediately.

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REFERENCES

Chayamarit, K. & Welzen, P.C. van (2005). Euphorbiaceae (Genera A–F). Flora of Thailand 8(1). The Forest Herbarium, National Park Wildlife and Plant Conservation Department, Bangkok, Thailand.

Esser, H.-J. (2005). *Croton*. In: K. Chayamarit & P.C. van Welzen (eds.), Euphorbiaceae (Genera A–F). Flora of Thailand 8(1): 189–226. The Forest Herbarium, National Park Wildlife and Plant Conservation Department, Bangkok, Thailand.

IUCN (2001). IUCN Red List Categories and Criteria, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.

Welzen, P.C. van & Chayamarit, K. (2007). Euphorbiaceae (Genera G–Z). Flora of Thailand 8(2). The Forest Herbarium, National Park Wildlife and Plant Conservation Department, Bangkok, Thailand.