

Croton yangchunensis (Euphorbiaceae), a new species from Guangdong, China

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Croton yangchunensis H.G. Ye & N.H. Xia, *sp. nova* is described from Guangdong Province, China, and compared with its congeners. It is somewhat similar to *C. purpurascens*, but is distinguished by its acute apex of leaf blade, with a cupular gland on each side of midrib at base, its longer raceme, and its lanceolate sepals of female flowers, 3.5–4 mm long. It also resembles *C. tiglium*, but differs in having an entire leaf blade, smaller and oblate fruit, and smaller seeds.

Key words: *Croton*, Euphorbiaceae, new species, taxonomy

The genus *Croton* consists of about 1200 species of the tropics and subtropics (Berry 2001, Gov-aerts *et al.* 2002). The majority of species occur in the West Indies and South America (Secco *et al.* 1992), and there are 21 species in China, which are mostly distributed in the southern regions (Chang 1996). *Croton* is characterized by having male flowers with filaments inflexed in the bud, and female flowers with the petals usually reduced, always with a terminal thyrse of flowers that have mostly solitary female flowers below and cymules of staminate flowers distally (Esser 2002). In a comprehensive treatment of sectional classification, Webster (1993) divided *Croton* into 40 sections.

In a recent scientific survey of the E'huang-zhang Nature Reserve, which lies in Yangchun city in southeastern Guangdong Province, China, some interesting specimens of *Croton* were collected. On further visits to the same locality, more material was gathered providing a range of

specimens with flowers and fully mature fruit. After comparison with material of morphologically similar taxa we concluded that the present specimens belong to a new species close to *C. purpurascens* and *C. tiglium*. There are three species of *Croton*, i.e. *C. lachnocarpus*, *C. tiglium* and the new species in the Nature Reserve.

***Croton yangchunensis* H.G. Ye & N.H. Xia, *sp. nova* (section *Tiglium*) (Fig. 1)**

Species affinis C. purpurascens et C. tiglio, sed a C. purpurascens differt foliis ellipticis (nec oblongo-ellipticis et elliptico-ovatis), apice acutis interdum cuspidatis (nec mucronatis nec acuminatis), glandulis patelliformibus costis basibus insertis (nec poculiformibus petiolorum apicibus insertis), racemis 10–20 cm longis (nec 7–11 cm longis), sepalis florum feminorum lanceolatis, 3.5–4 mm longis (nec oblongo-

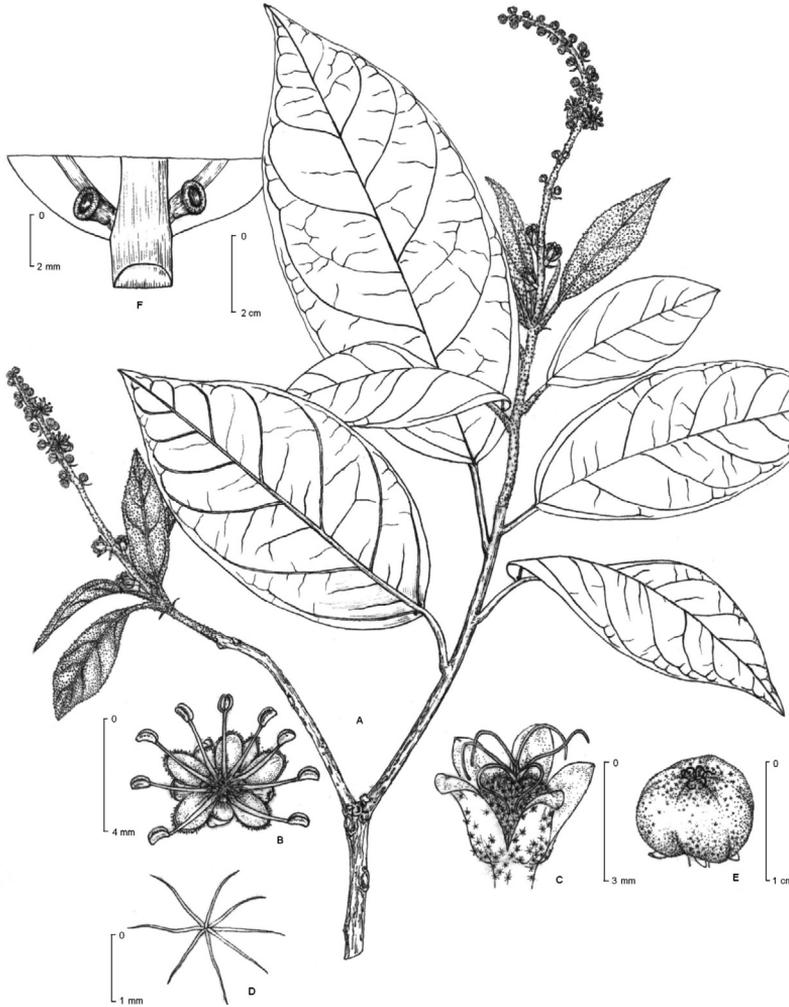


Fig. 1. *Croton yangchunensis* (from holotype, drawn by Yunxiao Liu). — **A:** Habit with inflorescence showing male and female flowers. — **B:** Male flower. — **C:** Female flower. — **D:** Stellate hair. — **E:** Mature fruit. — **F:** Base of leaf blade with glands.

elliptis, ca. 2.5 mm longis), et a *C. tiglio foliis integris* (nec serrulatis), fructibus oblatiis, ca. 10 mm diametro (nec ellipsoideis, ca. 2 × 1.4–2 cm), seminibus ca. 5 × 4 mm (nec 10 × 6–7 mm) magnitudine.

TYPE: China. Guangdong Province, Yangchun County, Hweishan, Bibotan, in forests, alt. 300 m, 13.V.2001 Ye Hua-gu et al. 5710 (holotype IBSC).

Shrubs to small trees, 3–6 m tall; branchlets green, sparsely appressed grayish to brown stellate hairy. Petiole 2–5 cm long, densely stellate hairy at first, later glabrescent. Leaf blades alternate, thick papery, elliptic or oblong, 9–13 × 3.5–7 cm, base broadly cuneate or rotund, apex acute or acuminate, sometimes with a mucro, margin entire or slightly wavy

or inconspicuous crenate at upper half, with a gland on each sinus, olive and nearly concolor on both surfaces when dry, densely grayish stellate hairy on both surfaces when young, subglabrous above and sparsely hairy beneath when matured, hairs flat, 1–2 mm in diam., radii 5–12, later indumentum gradually deciduous, with a stipitate cupular gland on each side of midrib at base of abaxial surface; basal veins 3, lateral veins 4–6 pairs, prominent on both surfaces, midrib and lateral veins subglabrous adaxially and sparsely stellate hairy beneath. Racemes terminal, 10–20 cm long, covered with grayish to brown stellate hairs. Staminate flowers numerous; pedicel 2 mm long; flower buds globose, 2 mm in diam.; bracts deciduous, eglandular, lanceolate, ca. 2.5 × 0.5–0.8 mm,

brown stellate hairy outside; sepals 5, ovate, 2.5 mm long, brown stellate hairy outside; petals 5, oblong, ca. 2 mm long, apex white lanuginose at margin; stamens 10, filaments ca. 2 mm long, base white lanuginose. Pistillate flowers usually 5–6 at lower half of inflorescences; pedicel ca. 2 mm long, stellate hairy; sepals 5, lanceolate, 3.5–4 mm long sparsely stellate hairy outside; petals 5, subulate, ca. 1 mm long; glands 5; ovary subglobose, densely fulvous stellate hairy, stigmas 3, ca. 6 mm long, 2-partite, lobes linear. Capsule oblate, ca. 10 mm in diameter, 3-locular, sparsely stellate hairy. Seeds elliptoid, fuscous, ca. 5 × 4 mm. Flowering from April to June; fruiting from May to September.

ETYMOLOGY. The specific epithet is derived from Pinyin of city's name Yangchun, where the holotype of *Croton yangchunensis* was collected.

ECOLOGY AND DISTRIBUTION. In evergreen secondary forest, granite mountains, altitude 300–500 m, in association with *Trema cannabina*, *Uvaria grandiflora*, *Eurya subintegra*, *Syzigium hancei*, *Melastoma sanguineum*, *Cratoxylon cochinchinense*, *Garcinia oblongifolia*, *Beilschmiedia fordii*, *Cryptocarya chinensis*, *Glochidion eriocarpum*, *Triadica sebifera* and some herbs such as *Woodwardia japonica*, *Cyclosorus parasiticus*, *Dianella ensifolia*, *Gahnia tristis* and *Lophatherum gracile*.

Croton yangchunensis is closely allied to *C. purpurascens* (Chang 1986), which is distributed in Ruyuan and Yangshan of Guangdong Province, but *C. purpurascens* differs from *C. yangchunensis* in having an oblong-elliptic and elliptic-ovate leaf blade, apex mucronate to acuminate, with two cyathiform glands near apex of petiole, raceme 7–11 cm long, sepals of female flowers oblong-elliptic, ca. 2.5 mm long. *Croton yangchunensis* also resembles *C. tigium*, but the

latter can be distinguished by its serrulate leaf blade, its bigger, ellipsoid fruits, ca. 2 × 1.4–2 cm, and its bigger seeds, ca. 10 × 6–7 mm. In the same area, *C. lachnocarpus* also occurs. *Croton yangchunensis* is easily distinguished from *C. lachnocarpus* by the olive leaves, with margin entire or slightly wavy. The morphological differences among the four species are given in the Appendix.

ADDITIONAL SPECIMEN EXAMINED (paratype): **China.** Guangdong Province, Yangchun County, Heweishan, Bibotan, in forests, alt. 300 m, 2.IX.2004 Ye Yu-shi 583 (IBSC).

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References

- Berry, P. E. 2005: *Croton research network*. — Available on the web at <http://www.botany.wisc.edu/croton>.
- Chang, Y. T. 1986. *Materiae ad floram Euphorbiacearum sinensium* (III). — *Acta Phytotax. Sin.* 24: 143–146.
- Chang, Y. T. 1996: *Croton*. — In: Kiu, H.-S. (ed.), *Florae Reipublicae Popularis Sinicae* 44(2): 123–138. Sci. Press, Beijing.
- Esser, H. J. 2002: Novelties in *Croton* (Euphorbiaceae) from Southeast Asia. — *Novon* 12: 42–46.
- Govaerts, R., Frodin, D. G. & Radcliffe-Smith, A. 2000: *World checklist and bibliography of Euphorbiaceae*. — Royal Bot. Gardens, Kew.
- Secco, R. S. & Nelson, A. R. 1992: *Croton ascendens* (Euphorbiaceae), a new liana from Eastern Amazonia. — *Novon* 2: 252–254.
- Webster, G. L. 1993: A provisional synopsis of the sections of the genus *Croton* (Euphorbiaceae). — *Taxon* 42: 793–823.

Appendix. Morphological comparison of *C. yangchunensis* with three similar species.

	<i>C. yangchunensis</i>	<i>C. purpurascens</i>	<i>C. tigilium</i>	<i>C. lachnocarpus</i>
Habit	small tree, 3–6 m	shrub, 1–2 m	shrub or small tree, 3–6 m	shrub, 1–3 m
Branchlets	sparsely hairy	sparsely hairy	glabrous	densely hairy
Petiole	densely hairy at first, later glabrescent	densely hairy	subglabrous	densely hairy
Leaf shape	elliptic or oblong	oblong or elliptic-ovate	ovate, rarely elliptic	oblong-lanceolate
Leaf texture	leathery	leathery	thin papery	thin papery
Leaf size	9–13 × 3.5–7 cm	9–13 × 3–5 cm	7–12 × 3–7 cm	4–13 × 1.5–5 cm
Leaf apex	acute, acuminate or rounded, sometimes with a mucro	long acuminate to cuspidate	acute to acuminate	long acuminate
Leaf base	broadly cuneate or rounded	rounded	cuneate to subrounded, slightly cordate	rounded to minutely cordate
Leaf margin	entire, slightly wavy or inconspicuously crenate and with a gland on each sinus	subentire to shallowly crenate	finely serrulate and with a gland on the tip of serrae	serrulate, with a gland on each sinus
Color of leaf	olive on both surfaces when dry	yellowish brown when dry	pale-yellow to pale-brown when dry	brown above and grayish brown when dry
Leaf indumentum	densely hairy at first, upon maturing becoming sparsely hairy abaxially	sparsely hairy along veins abaxially	subglabrous abaxially	abaxially densely hairy when mature
Midrib and lateral veins	prominent above, subglabrous	slightly prominent and subglabrous above	prominent and glabrous above	impressed and densely stellate hairy above
Gland	cupular, large, stalked, on leaf base abaxially	cylindric, large, stalked, on top of petiole abaxially	platform, small, not stalked, on margin of leaf base	cupular, middle-size, stalked, on leaf base abaxially
Bract	lanceolate, 2 mm		subulate, 2 mm	subulate, ca. 1 mm