

***Curcuma vitellina* (Zingiberaceae), a New Species from Vietnam**

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Abstract

Curcuma vitellina, a new species of Zingiberaceae from Tây Nguyên, Vietnam, is described, illustrated and compared to its closest ally, *C. pierreana*.

Introduction

Cambodia, Laos and Vietnam reportedly form a diversity hotspot for the family Zingiberaceae, although detailed data are lacking because the most recent comprehensive account of the family there is over a century old (Gagnepain, 1908). The main centres of diversity of the genus *Curcuma* are usually said to be India, Burma and Thailand (e.g. Leong-Škorníčková *et al.* 2008), but our recent explorations of Zingiberaceae for the *Flora of Cambodia, Laos and Vietnam* indicate that these countries are at least as rich in *Curcuma* and other Zingiberaceae.

Three *Curcuma* species, *C. bicolor* Mood & K. Larsen, *C. glans* K. Larsen & Mood from Thailand and *C. rhomba* Mood & K. Larsen from Vietnam were described in 2001 (Mood & Larsen 2001). As a revision of *Curcuma* in Cambodia, Laos and Vietnam progresses, specimens collected at two localities in Vietnam have been shown to represent a new species which is described and illustrated here. Like the species described by Mood and Larsen, this new one lacks a clear distinction between fertile and coma bracts, but differs in overall shape and coloration of the flower as well as anther morphology.

Curcuma vitellina Škorníčk. & H. Đ. Trần, *sp. nov.*

Curcuma *pierreanae* *comae absentia*, *bractearum formae*, *anthera basi calcaribus filamentaceis 2 similis*, *sed rhizomate ramis lanceolatis verticaliter fasciculatis (contra rhizomate ramis horizontaliter repentibus)*, *corollae lobis*

dilute luteis (contra albis), labello staminodiisque lutee aurantiacis (contra albis vel albis apicibus profunde rosee purpurascensibus), lamina tenui valide plicata basi rotundata (contra coriacea venis principalibus minus prominentibus, basi cuneata ad attenuata) differt. –**Typus:** Vietnam, Lâm Đông Prov., Pongour waterfall; 11° 41' 07.0" N, 108° 16' 06.1" E; 787 m; 23 Jun 2008, *Trần et al.* 70 (holotype, SING incl. spirit; isotype, E, P, VNM, National University of Laos).

Rhizome ovoid, *ca* 2.5-5 × 1.5-3 cm, with lanceolate to narrowly lanceolate branches held upright, 3-8 × 1-1.5 cm, brown externally, light yellow internally, slightly aromatic, root tubers elliptic, 2-4 cm long, light brown externally, cream white internally, at 5-15 cm from rhizome. **Pseudostem** to 15 cm long, green, composed of leaf sheaths and enclosed by 2 sheathing bracts, ligule to 5 mm long, bilobed, hyaline, greenish white, translucent, turning papery with age, hairy at the apex, hairs *ca* 0.3 mm long; **leafy shoot** to 70 cm tall with up to 5-6 leaves when flowering; petiole 5-20 cm long (petiole of first leaf shortest, innermost leaves longest), green, glabrous; lamina elliptic to elliptic-ovate, 20-45 × 8-15 cm, glabrous on both surfaces, prominently plicate, adaxially bright green, shiny, abaxially lighter green, shiny; midrib glabrous, green; base rounded, margin hyaline, translucent white, *ca* 0.5 mm wide, glabrous; apex acute, shortly hairy. **Inflorescence** central, many flowered. Peduncle 4-20 cm long, up to 1 cm diam., greenish-white, puberulent, embedded within pseudostem. Spike 8-15 cm long, *ca* 4-5 cm diam. at the middle, without coma. Fertile bracts 15-60, larger at the base of the inflorescence, *ca* 3.5-4.5 × 2.5-3.5 cm, ovate to trullate, smaller and ovate at the apex, cream white or pale greenish, sometimes with slight pinkish tinge, both sides shortly densely pubescent, connate in the lower 1/3 to 1/4. Cincinni with 4-6 flowers at the base of the inflorescence, 2-3 flowers at the top. Bracteoles one per flower, ovate, boat-shaped, *ca* 7 × 4 mm to 15 × 7 mm (outer ones larger, inner ones are gradually smaller), hyaline, translucent white, glabrous, but for the apex, upper part and margins sparsely hairy. **Flowers** 5-5.5 cm, exerted from bracts. Calyx *ca* 17 mm long, teeth 3, unilaterally split *ca* 7 mm, translucent white, sparsely hairy on the three main veins leading from the tooth to the base. Floral tube *ca* 3 cm long, narrowly cylindrical at base for *ca* 2 cm above the ovary, funnel-shaped at apex, externally white turning pale yellowish towards the apex, with glandular hair, internally white with dorsally placed groove holding the style; dorsal corolla lobe *ca* 20 × 11 mm, triangularly ovate, concave, glabrous, cream white with pale yellowish apex, apex mucronate, mucro less than 1 mm long with a few short hairs; lateral corolla lobes *ca* 18 × 9 mm, triangular with a rounded, slightly concave apex, cream white with pale yellowish apex, glabrous. Lateral staminodes obovate, *ca* 18 × 11 mm, light yellow at base, yellow-orange towards the apex, glandular

hairs present on the raised middle portion facing the centre of the flower. Labellum *ca* 21 × 20 mm, obscurely trilobed, lateral lobes folding upwards, middle lobe emarginate with an incision up to 8 mm long, which splits at the apex of the lobe as flowering progresses, cream white at base, yellow at apex with deep yellow-orange band running through the centre (golden median band). Filament 4-6 mm long, pale yellowish, 4.5 mm at base, 2 mm at apex, with glandular hair at the back. Anther spurred, connective densely covered with short glandular hairs, anther spurs *ca* 0.5 mm long, filamentous, cream white, anther crest present, 1-1.5 × *ca* 2 mm, deep yellow, anther thecae 5 mm long, white, dehiscing along their whole length. *Style* white, glabrous, stigma *ca* 1 mm wide, white, ostiole facing upwards, ciliate. Epigynous glands two, cream, 4 × 0.8 mm, with blunt apex. Ovary 3 × 2 mm, trilocular, hairy, hairs *ca* 0.2 mm long. **Fruits** not seen.

Flowering: June to August.

Distribution & habitat: So far known only from two localities (Bảo Lộc Pass and Pongour Waterfall) in Lâm Đồng province, Tây Nguyên, Vietnam. It grows among rocks in open and semi-open shrubby vegetation.

Vernacular names & uses: None so far recorded.

Etymology: Medieval Latin *vitellinus*, from Latin *vitellus*, egg yolk, referring to the deep yellow colour of the flowers.

Other specimens examined: Among the vast amount of *Curcuma* herbarium material revised and digitised by the first author, we have found only one collection from Pongour (24 Aug 1924, *Evrard 1193* × 2, P), which can be identified with certainty as *C. vitellina*. There are a few other specimens collected within a radius of 100 km of Pongour, which might represent *C. vitellina* (e.g. *Poilane 30582*, P and *Poilane 5031* × 2, P), but the condition of the specimens and poor accompanying notes do not allow a definite identification to be made.

IUCN preliminary assessment: Endangered (E): B2 ab (iii). The area of occupancy is estimated to be less than 500 km². The species is known to exist at only two locations with continuing decline in extent and quality of habitat, which is disturbed by erosion and development for tourism.

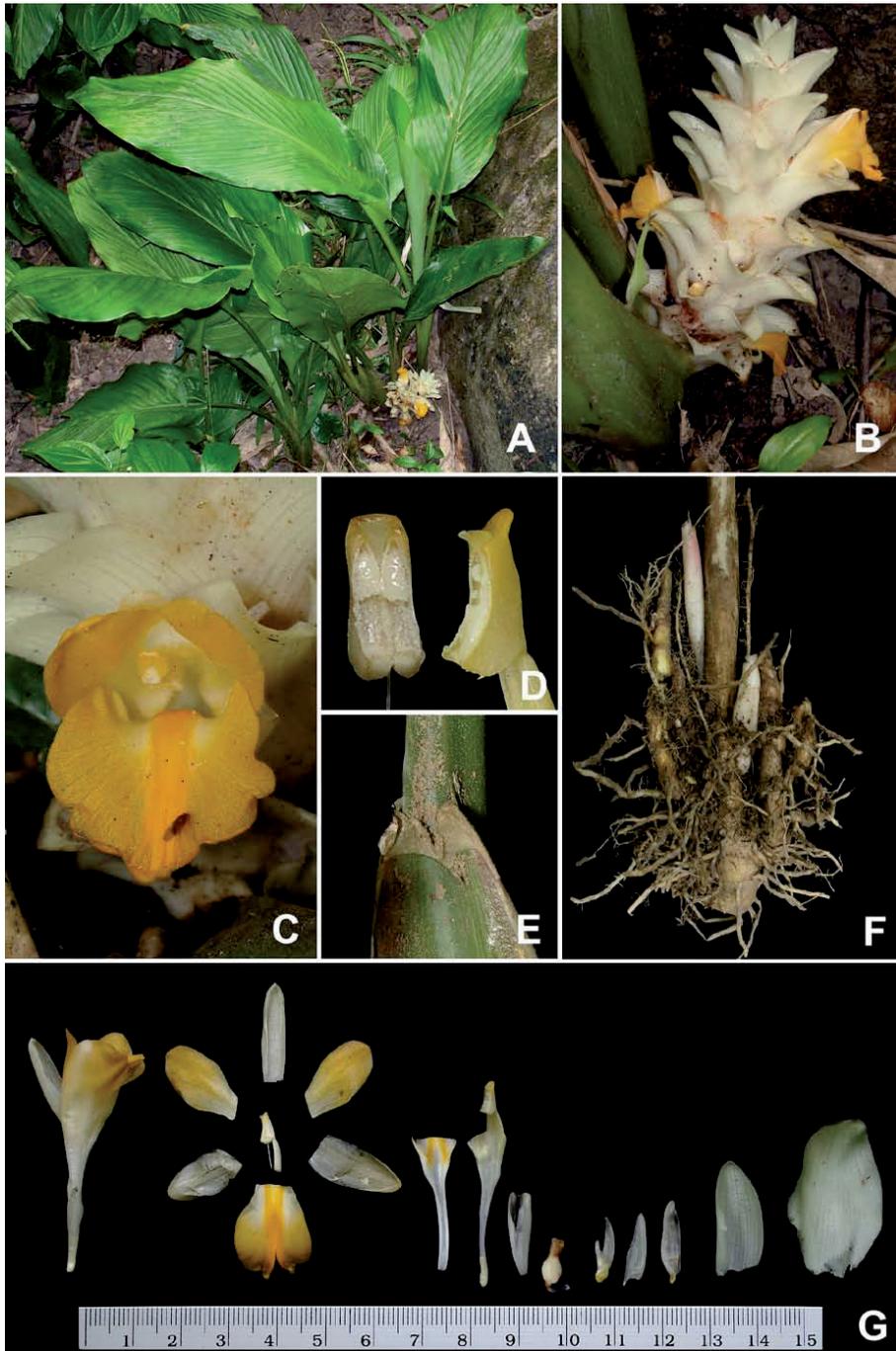


Figure 1. *Curcuma vitellina*, sp. nov. A. Habit; B. Inflorescence; C. Flower (front view); D. Detail of anther (front and side view); E. Ligule; F. Rhizome and base of leafy shoot; G. Dissected flower. Photographs by J. Leong-Škorničková taken from *Trần et al.* 70.

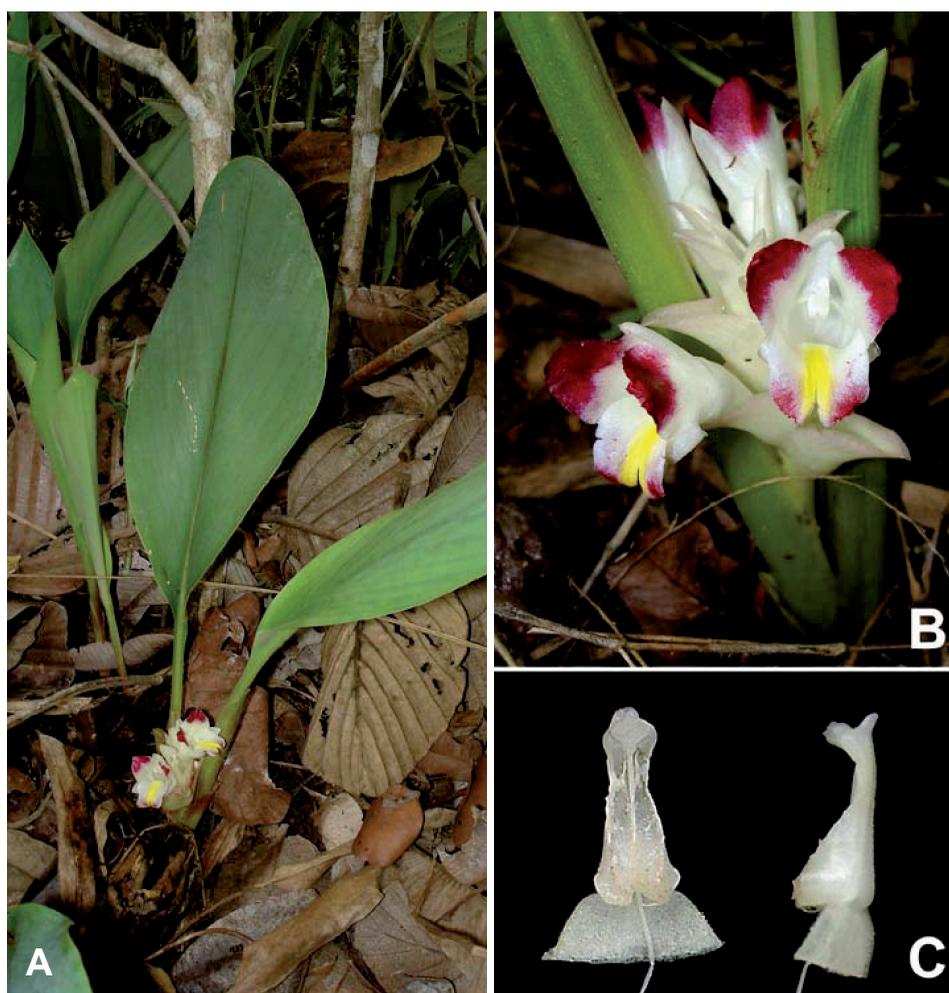


Figure 2. *Curcuma pierreana* Gagnep. A. Habit; B. Inflorescence; C. Anther (front and side view) Photographs by J. Leong-Škorničková from *Trân et al. 26*.

Notes: It is expected that *Curcuma vitellina* will be a seed-setting species as the presence of young seedlings in natural populations has been observed. *Curcuma vitellina* is similar to *C. pierreana* by its inflorescence composed of cream or greenish flower bracts (which may be tinged pink), reflexed at the tips and lacking a distinct coma (the inflorescence of *C. vitellina* is more robust and with more bracts than that of *C. pierreana*). The anthers of both species have a well-developed crest and two filamentous spurs at the base, but the overall shape of the anther is different (see Figs. 1-3). The two species differ in their rhizomes, the branches of which are narrowly

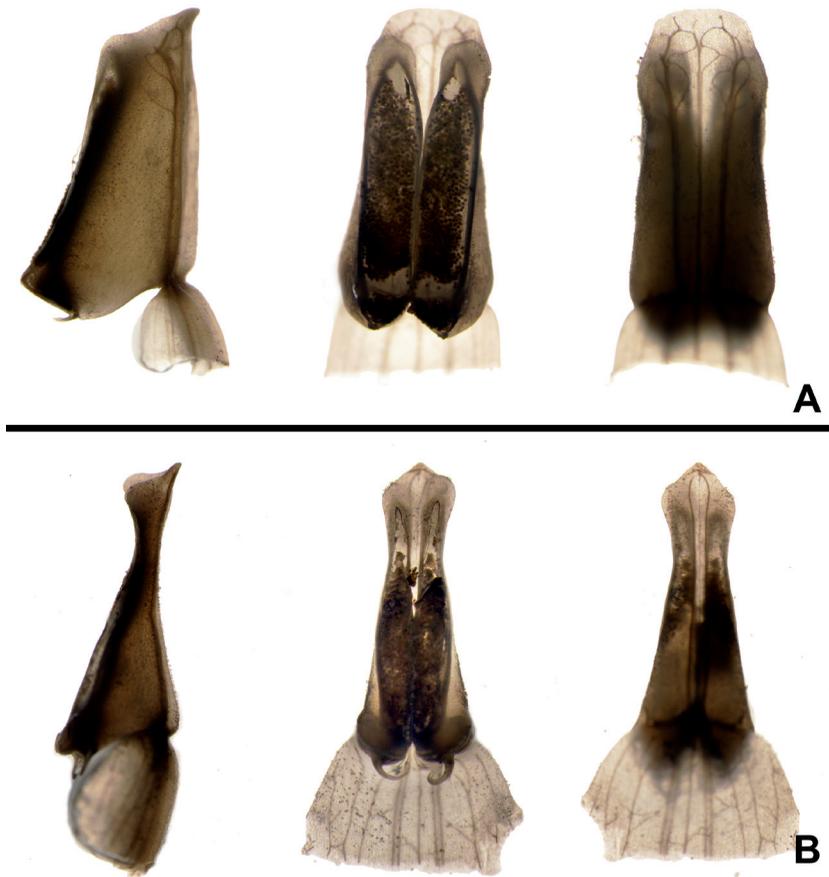


Figure 3. Anthers in side, front, and back view. A. *Curcuma vitellina* (Trần *et al.* 70); B. *Curcuma pierreana* (Trần *et al.* 26). Photographs by H.Đ. Trần.

lanceolate and vertically clustered in *C. vitellina*, but creep horizontally in *C. pierreana*. The lamina in *C. vitellina* is thin, prominently plicate, glabrous on both sides and has a rounded base, whilst it is rather leathery with dense, short hairs abaxially, with less prominent venation, and with a cuneate to attenuate base in *C. pierreana*. The flowers are yellow to yellow-orange in *C. vitellina*, while *C. pierreana* has white flowers with a yellow band on the labellum and dark maroon tips to the labellum and lateral staminodes.

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