A NEW SPECIES OF CURCUMA FROM THAILAND

KAI LARSEN* & R. M. SMITH

ABSTRACT. A new species of *Curcuma* (Zingiberaceae) is described from Thailand: *C. burttii* Larsen & Smith. A member of the small subgenus *Hitcheniopsis*, probably restricted to the monsoon area of Asia, its closest relative is *C. sparganiifolia* Gagnep.

The genus *Curcuma* is badly in need of revision. Since Schumann's monograph of Zingiberaceae (1904) only Valeton (1918), whose excellent work deals in the main with those species which occur in Java, and Holttum (1950), in his account of the family in the Malay Peninsula, have dealt critically with the genus. Recently Burtt (1972 & 1977) has published valuable nomenclatural information, with particular reference to older literature.

Study of Zingiberaceae in Thailand suggests that an evolutionary centre for some members of the tribes *Globbeae*, *Hedychieae* and *Zingibereae* exists in monsoon Asia. This is evidenced by considerable diversity in *Globba*, *Kaempferia*, *Boesenbergia* and *Zingiber* and by the presence of such distinct endemic genera as *Gagnepainia*, *Stahlianthus* and *Caulokaempferia*. Variation in *Amomum* and *Alpinia* is perhaps less striking in monsoon climates, in comparison to the whole generic range; these genera belong to the tribe *Alpineae*, which shows greater diversification in the tropical forests of New Guinea and Indonesia where the other tribes of *Zingiberoideae* are often poorly represented.

As a genus, *Curcuma* is characterized by the laterally adnate primary bracts which form pouches (each pouch enclosing a cincinnus of bracteolate flowers), and by the versatile anther. Similar anthers occur in a number of other *Hedychieae*, namely *Roscoea*, *Cautleya*, *Paracautleya* (see Smith in *Notes R.B.G. Edinb.* 35:365–8, 1977) and *Camptandra*, but in none of these genera are the primary bracts adnate to each other and, *Camptandra* excepted, all have the flowers borne singly.

Curcuma divides into two subgenera: *Curcuma* proper, (*Eucurcuma* K.Sch.), widespread throughout the Pacific and including the turmeric, *C. longa*, and the much smaller subgenus *Hitcheniopsis* (Bak.) K.Sch. which is found in the monsoon areas of Asia. In *Hitcheniopsis*, the divergent anther spurs of subgenus *Curcuma* are absent, although short truncate appendages may occur, and the tips of the primary bracts are spreading and more or less recurved. The species referred to this subgenus form a very heterogeneous group. Valeton was of the opinion that some of them should be removed from *Curcuma*; *C. kunstleri* has, indeed, been transferred to *Scaphochlamys* by Holttum.

C. burttii is distinguished by the primary bracts being adnate in the lower third only and having long spreading tips, the lack of sterile (coma) bracts at the top of the inflorescence, ecalcarate anther cells, linear staminodes, and the absence of epigynous glands surmounting the ovary. Gagnepain (1903)

* Botanical Institute, Aarhus University, DK-8240 Risskov, Denmark.

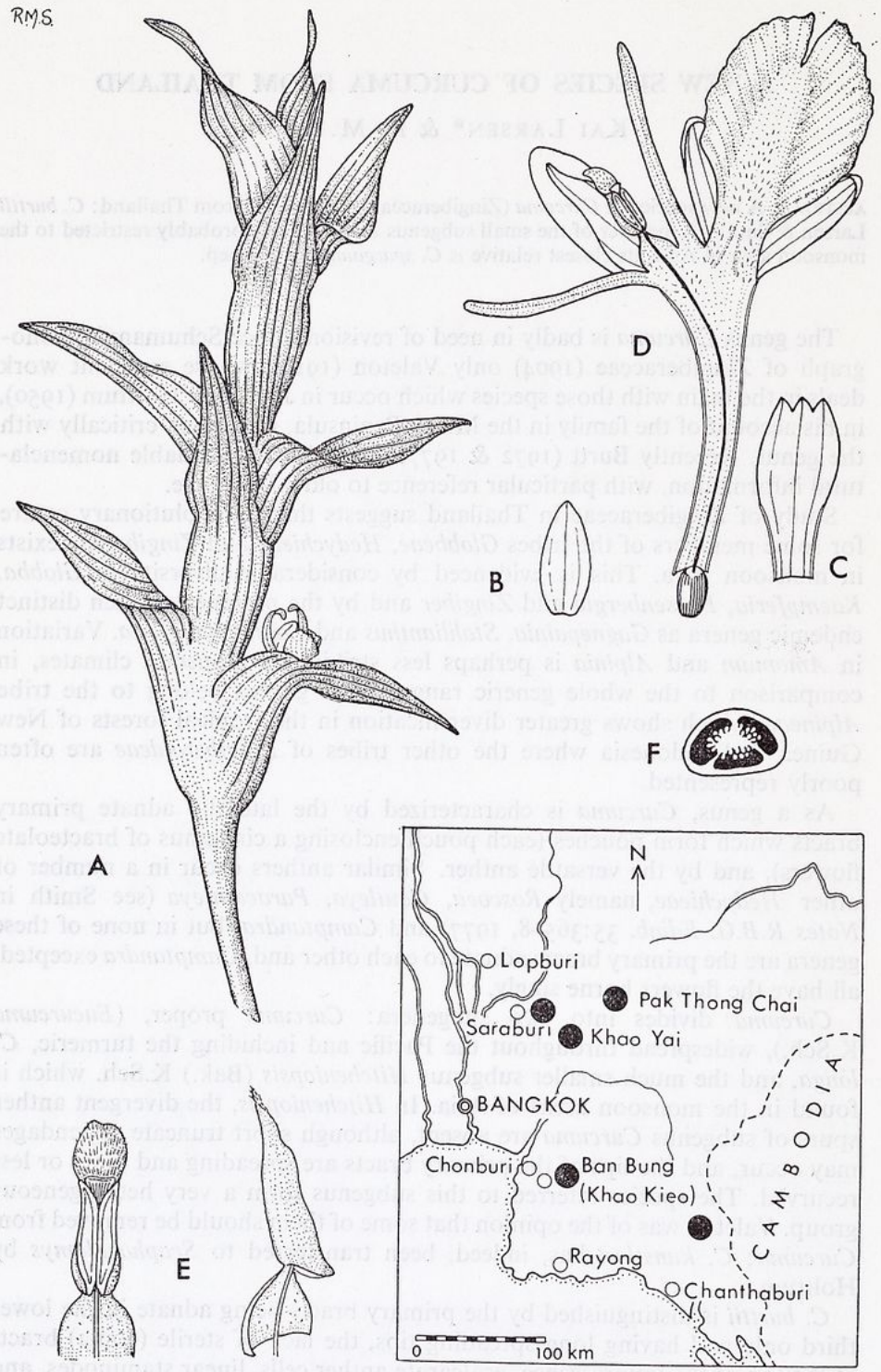

FIG. 1. *Curcuma burttii*: A, inflorescence × $\frac{2}{3}$; B, bracteole × 2; C, calyx, dissected × 2; D, corolla, dissected × 2; E, stamen, from front and side × 4; F, ovary in T.S. × 6. (from spirit material).

described three *Curcuma* from Indo-China, namely *C. gracillima*, *C. alismatifolia* and *C. sparganiifolia* and in all three, epigynous glands are apparently absent. Furthermore, *C. sparganiifolia*, which comes from neighbouring Cambodia, has linear staminodes (7 × 1 mm) similar to those of *C. burttii*. Valeton remarks that in *C. sparganiifolia* the primary bracts are free from each other but Gagnepain makes no reference to this and Valeton may have been misled by the spreading tips of the bracts. This feature gives *C. burttii* a certain superficial resemblance to *Scaphochlamys* but in that genus the bracts are free to the base and the anther is not versatile. It is of interest to note that, among the other members of *Hedychieae* with versatile anthers, the Malaysian *Camptandra* also lacks epigynous glands but that genus is well distinguished by the presence of a large, concave primary bract (rarely 2) which encloses the cincinnus.

It is clear that subgenus *Hitcheniopsis*, to which *C. burttii* must be assigned, comprises species which may differ considerably from their more southerly relatives. Nonetheless, we do not consider them generically distinct. Critical work on *Curcuma* will present enormous difficulties; many members of subgenus *Curcuma* have been cultivated for so long as village plants that their natural distribution is impossible to assess. Holttum has pointed out that, in Malaya, only two species, *C. aurantiaca* and *C. parviflora* (which was described from Thailand) may be truly wild. Both are found in the extreme north of the country and belong to subgenus *Hitcheniopsis*.

We have named this remarkable new species after B. L. Burtt, Edinburgh, who for many years has studied the Zingiberaceae of tropical Asia and contributed much to our knowledge of generic delimitations.

Curcuma burttii Larsen & Smith, **sp. nov.** (Fig. 1).

Glandulis epigynis ut coma nullis, staminodiis linearibus *C. sparganiifoliae* similis, inflorescentia multo majore foliis latis ellipticis ab ea diversa.

Rhizoma perbreve, folia pauca et inflorescentiam terminalem gerens. *Radices* multae, aliae fibrosae, aliae tuberibus sphaericis vel ellipsoidibus terminatae. *Caulis* erectus, brevis. *Folia*: 3–4 folia basalia e vaginis solum constitutae, sequentia plerumque 3 completa; quorum lamina ad 30 × 10 cm magna, inaequaliter elliptica dimidio altero latiore altero angustiore; apex acuminatus, basi cuneata, glabra; petiolus ad 50 cm longus vagina inclusa; ligula perbrevis. *Inflorescentiae scapus* ad 35 cm longus; spica ad 15 cm longa; coma nulla; bracteae 4-10, virides, ad 8 cm longae, per quartam vel tertiam partem longitudinis adnatae, apicibus patentibus; cincinni e floribus 10 vel ultra circiter 4 cm longis compositi, bracteolis 1·2–1·5 cm longis suffulti. *Calyx* tubularis, c. 1 cm longus, tridentatus. *Corollae tubus* c. 2 cm longus; lobi albidi, dorsalis cucullatis; staminodia alba, c. 1·3 cm × 1·5 mm crassa; labellum ellipticum, profunde emarginatum, album violaceo affectum, macula centrali rubra notatum ad faucem versus flavum. *Anthera* versatilis, calcari carens, crista elevata pubescenti 2–3 mm alta armata. *Glandulae epigynae* nullae. *Ovarium* glabrum 3-loculare, ovula numerosa fovens. *Fructus* ignotus.

Resembling *C. sparganiifolia* in the linear staminodes, absence of epigynous glands and in the lack of a coma. Differing in the much larger inflorescence and the broad, elliptic leaves.

Rhizome very short bearing few leaves with a terminal inflorescence. Roots several, some fibrous others terminated by spherical or ellipsoid tubers. Stem erect, short. Leaves: first 3–4 leaves consisting of sheaths only followed by normally 3 perfect leaves with lamina up to 30 by 10 cm unevenly elliptic, one half broader than the other; apex acuminate, base cuneate, glabrous; petiole up to 50 cm including the sheath; ligule very short. Inflorescence: scape up to 35 cm, spike up to 15 cm long, coma absent. Bracts 4–10, green, adnate $\frac{1}{4}$–$\frac{1}{3}$ of their length, in all up to 8 cm long; tips spreading. Cincinni of at least 10 flowers, c. 4 cm long, subtended by short, 1·2–1·5 cm bracteoles, calyx tubular, c. 1 cm long, 3-toothed; corolla-tube c. 2 cm long. Corolla-lobes whitish; the dorsal hooded, staminodes white, c. 1·3 cm × 1·5 mm, narrow; labellum elliptic, deeply emarginate, white tinged with violet, with a red spot in the middle, yellow towards the throat. Anther versatile, ecalcarate, with a 2–3 mm pubescent prominent crest. Epigynous glands lacking. Ovary glabrous, 3-locular with numerous ovules. Fruit unknown.

THAILAND: Chonburi, foot-hills of Khao Kieo, open mixed deciduous forest, 17 vii 1963, *Larsen* 10646 (holo. AAU); *ibidem*, 300 m, 21 vi 1975, *Maxwell* 75–592 (AAU); Nakhon Nayok, near falls, secondary forest rich in bamboo, 180 m, 30 vii 1959, *Floto* 7792 (AAU); Saraburi, Sahm Lahn, 200 m, rocky bamboo forest, 21 ix 1975, *Maxwell* 75–1010 (AAU); *ibidem*, 150 m, 19 v 1974, *Maxwell* 74–531 (AAU); Prachinburi, Khao Lotung, S of Pak Thong Chai, 500 m, dry evergreen forest, 9 viii 1968, *Larsen, Santisuk & Warncke* 3196 (AAU, E); Chantaburi, Khao Phra Bat, N of Chantaburi, 100 m, open evergreen forest, 27 viii 1972, *Larsen, Nielsen & Santisuk* 32108 (AAU).

Acknowledgment

The authors wish to thank Professor Tyge Christiensen for the latin description.

References

Burtt, B. L. (1972). Notes on Curcuma. *Notes R.B.G. Edinb.* 31:224–227.
——(1977). The nomenclature of Turmeric. *l.c.* 35:209–213.
Gagnepain, M. F. (1903). Zingibéracées nouvelles. *Bull. Soc. Bot. France sér.* 2, 4:161, 259–261.
Holttum, R. E. (1950). The Zingiberaceae of the Malay Peninsula. *Gard. Bull. Sing.* 13:1–249.
Schumann, K. (1904). Zingiberaceae. *Das Pflanzenreich* 4. 46.
Valeton, T. (1918). New notes on the Zingiberaceae of Java and Malaya. Curcuma. *Bull. Jard. Bot. Buitenz. ser.* 2, 27:1–81.