

TRICHOSANTHES L. (CUCURBITACEAE) IN JAVA

RUGAYAH¹ & W.J.J.O. DE WILDE²

SUMMARY

As compared with the treatment in the Flora of Java (Backer in Backer & Bakhuizen van den Brink, 1963) with 8 species, a recent review of the genus *Trichosanthes* in Java resulted in the acceptance of 10 species for this island. Important changes are: the name *T. trifolia* has to be replaced by a later species name, *T. wawrae* Cogn.; *T. anguina* is a variety of *T. cucumerina* [*T. cucumerina* L. var. *anguina* (L.) Haines]; the name *T. bracteata* as used in the Flora of Java appeared to represent three other different species: *T. tricuspidata* Lour., *T. quinquangulata* A. Gray, and *T. pubera* Blume; and *T. sumatrana* Cogn., never recorded before, appeared to occur in Java.

INTRODUCTION

Recent preliminary studies in Malesian Cucurbitaceae in the field and in the herbarium collections of BO and L (with in addition material consulted at BM, BR, FI, K, P, SING, U, and W) have assessed that 10 species of *Trichosanthes* occur in Java; these are listed in Table 1, third column. Backer (1963) keyed out and described 8 species, as listed in Table 1, middle column.

Table 1. Names for accepted species of *Trichosanthes* from Java, according to Blume (1826), Backer (1963), and the present authors.

Blume (1826)	Backer (1963)	Present authors (1997)
<i>T. coriacea</i>	<i>T. coriacea</i>	<i>T. coriacea</i>
<i>T. cucumerina</i>	<i>T. cucumerina</i>	<i>T. cucumerina</i> var. <i>cucumerina</i>
<i>T. anguina</i>	<i>T. anguina</i>	<i>T. cucumerina</i> var. <i>anguina</i>
<i>T. globosa</i>	<i>T. globosa</i>	<i>T. globosa</i>
<i>T. grandiflora</i>	(= <i>T. globosa</i>)	(= <i>T. globosa</i>)
<i>T. ovigera</i>	<i>T. ovigera</i>	<i>T. ovigera</i>
		<i>T. sumatrana</i>
<i>T. villosa</i>	<i>T. villosa</i>	<i>T. villosa</i>
<i>T. trifoliata</i>	<i>T. trifolia</i>	<i>T. wawrae</i>
<hr/>		
<i>T. tricuspidata</i> -complex:		
<i>T. tricuspidata</i>	<i>T. bracteata</i>	<i>T. tricuspidata</i>
<i>T. pubera</i>		<i>T. pubera</i>
		<i>T. quinquangulata</i>

1) Herbarium Bogoriense, Jalan Ir. H. Juanda 22–24, Bogor, Indonesia.

2) Rijksherbarium / Hortus Botanicus, P. O. Box 9514, 2300 RA Leiden, The Netherlands.

Of the 8 species names accepted by Backer, 5 names are confirmed in the present treatment. The remaining 3 names as presented in the Flora of Java are changed or transposed as follows:

1) For the Java material under the name *T. trifolia* (L.) Merr. it appeared that a new species name was necessary. It is renamed here as *T. wawrae* Cogn.

2) The name *T. anguina* L. has been sunk as a variety under *T. cucumerina* L., which is corroborated by recent studies on the seed characters and leaf anatomy by Rugayah (1995).

3) *Trichosanthes bracteata* (Lam.) Voigt is a continental Asian, not a Malesian species, and the material from Java under this name in the Flora of Java (Backer, 1963: 304) represents a mixture of three different, widespread, related, yet quite distinct species: *T. pubera* Blume, *T. quinquangulata* A. Gray, and *T. tricuspidata* Lour.

Trichosanthes sumatrana Cogn. has never been recorded before for Java, but investigation of material under *T. globosa* and recent new collections proved that it should be added.

Blume (1826), concerning species of Java only, enumerated 13 names under *Trichosanthes*. Three of these have meanwhile been demonstrated by previous authors to belong to different genera: *T. costata* Blume is *Gymnopetalum chinense* (Lour.) Merr., and *T. hexasperma* Blume and *T. macrocarpa* Blume are *Hodgsonia macrocarpa* (Blume) Cogn. The name *T. grandiflora* Blume is, according to the description and type specimen, and following Backer (l.c.), a synonym of *T. globosa* Blume. The remaining 9 species of *Trichosanthes* in Java, as presented by Blume (1826), are listed in Table 1, first column.

Comparison of the three lists of taxa in Table 1 shows that they differ considerably in the treatment of the three closely similar species of the *T. tricuspidata*-group now recognized in Java. These three species are widespread in West Malesia and not uncommon in West Java, and it is likely they were also so in Blume's time. However, from the extant herbarium material and the literature, it remains uncertain whether Blume did not have material of *T. quinquangulata* at his disposal, or included it within his *T. tricuspidata*.

In taxonomic history, apparently, throughout their extensive distributional area the distinction of these related and similar species has caused problems, which, for instance, led Backer (1963) to accept a single name for one complex species, *T. bracteata* (Lam.) Voigt, and Keraudren-Aymonin (1975) and Jeffrey (1980) to apply the name *T. tricuspidata* Lour., in a wide sense.

However, we are of the opinion that *T. bracteata* (Lam.) Voigt (based on *Modecca bracteata* Lam., 1798, of which *T. palmata* Roxb., 1832, may be a synonym) is a different species, widespread in continental Southeast Asia, but possibly not entering Malesia, and certainly not occurring in Java. It is distinct from *T. tricuspidata* and *T. pubera*, amongst others, by its globose fruit and from *T. quinquangulata* by its incised or deeply dentate male bracts.

Among the several new species proposed for the Malesian area by Miquel (1856), only a few names are relevant for the taxonomy of *Trichosanthes* in Java, as these are synonyms of the older names, including *T. tricuspis*, a synonym of *T. tricuspidata* Lour.

Some salient differences between the present three similar species (*T. tricuspida*, *T. pubera*, *T. quinquangulata*), hitherto not recognized for Java, are presented in Table 2 and Figures 1–3.

Table 2. Synopsis of character states discriminating the three species of the *Trichosanthes tricuspida*-complex in Java.

	<i>T. tricuspida</i>	<i>T. pubera</i>	<i>T. quinquangulata</i>
State	dioecious	dioecious	monoecious
Young stem	green	tinged red	green
Leaf:			
– indumentum	glabrescent	pubescent	glabrescent or glabrous
– shape	up to halfway 3(–5, in juvenile stages) -lobed (rarely entire)	deeply (3–)5-lobed (to c. 1/2–4/5)	shallowly (sometimes deeply) 5–7-lobed or sub-5-angular
– margin	entire or remotely dentate	finely dentate	entire
– glands	0 or few, scattered, including 1 or 2 towards the nerve-axils, at c. 1 cm from petiole insertion	0 or few, in very basal nerve-axils	mostly many, scattered, incl. 2 or several in very basal nerve-axils
– tertiary venation	± distinct	(±) distinct	very distinct
Probract	0.5(–1) cm, broadly ovate, (sub)persistent	1–2 cm long, lanceolate, top incised or not, ± caducous	0.5–1 cm, elliptic-oblong, (sub)persistent
Bracts in male inflorescence	distinctly incised or dentate	very deeply dentate	(sub)entire
Sepals (of male flowers)	0.5–1(–1.2) cm, oblong-lanceolate or long-triangular, (sub)entire	c. 2 cm, long-triangular, mostly distinctly slenderly few-lobed (as in <i>T. quinquangulata</i>)	1–1.5(–2) cm, lanceolate, mostly laterally with some remote slender lobes
Fruit	ovoid	ovoid or ellipsoid	globose
Seed	obovate, apex obtuse, base obtuse	oblong-obovate, apex obtuse, base slightly cuneate or acute; or sometimes seeds broader, more or less rounded	sagittate; apex obtusely acuminate, base cuneate

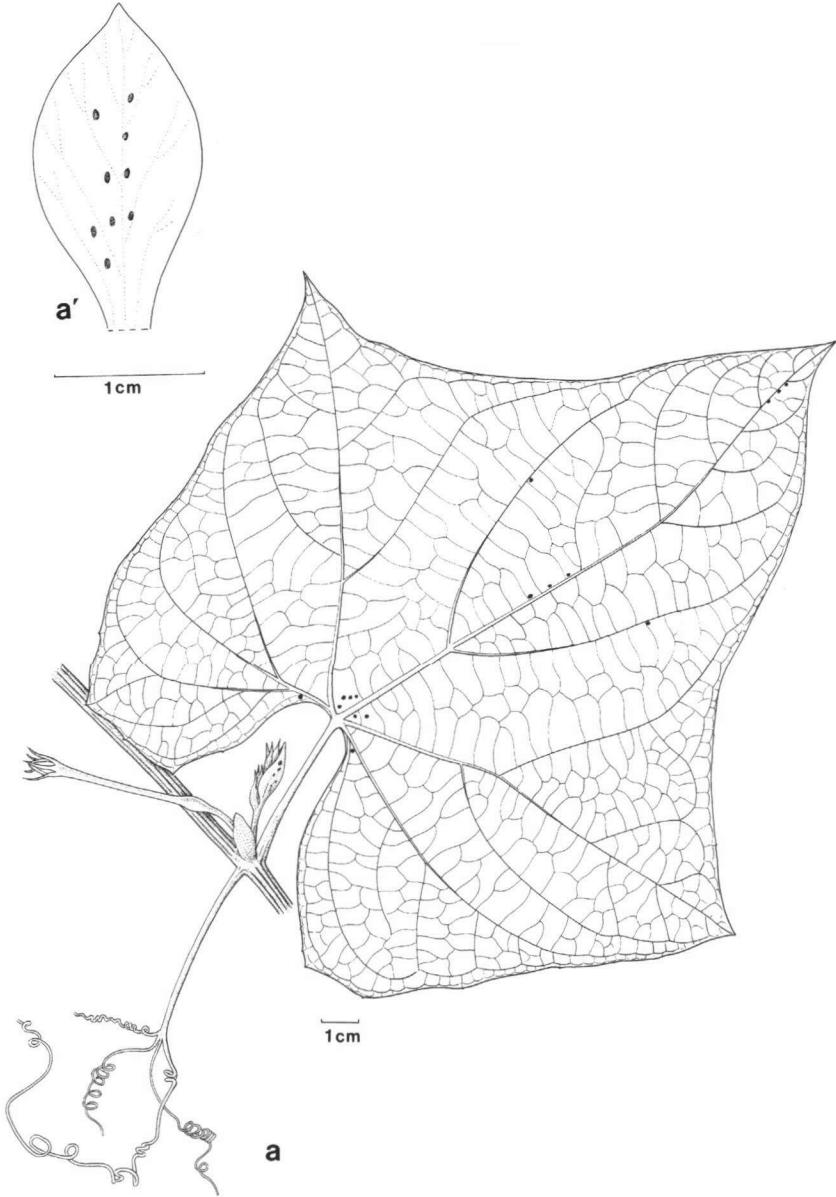
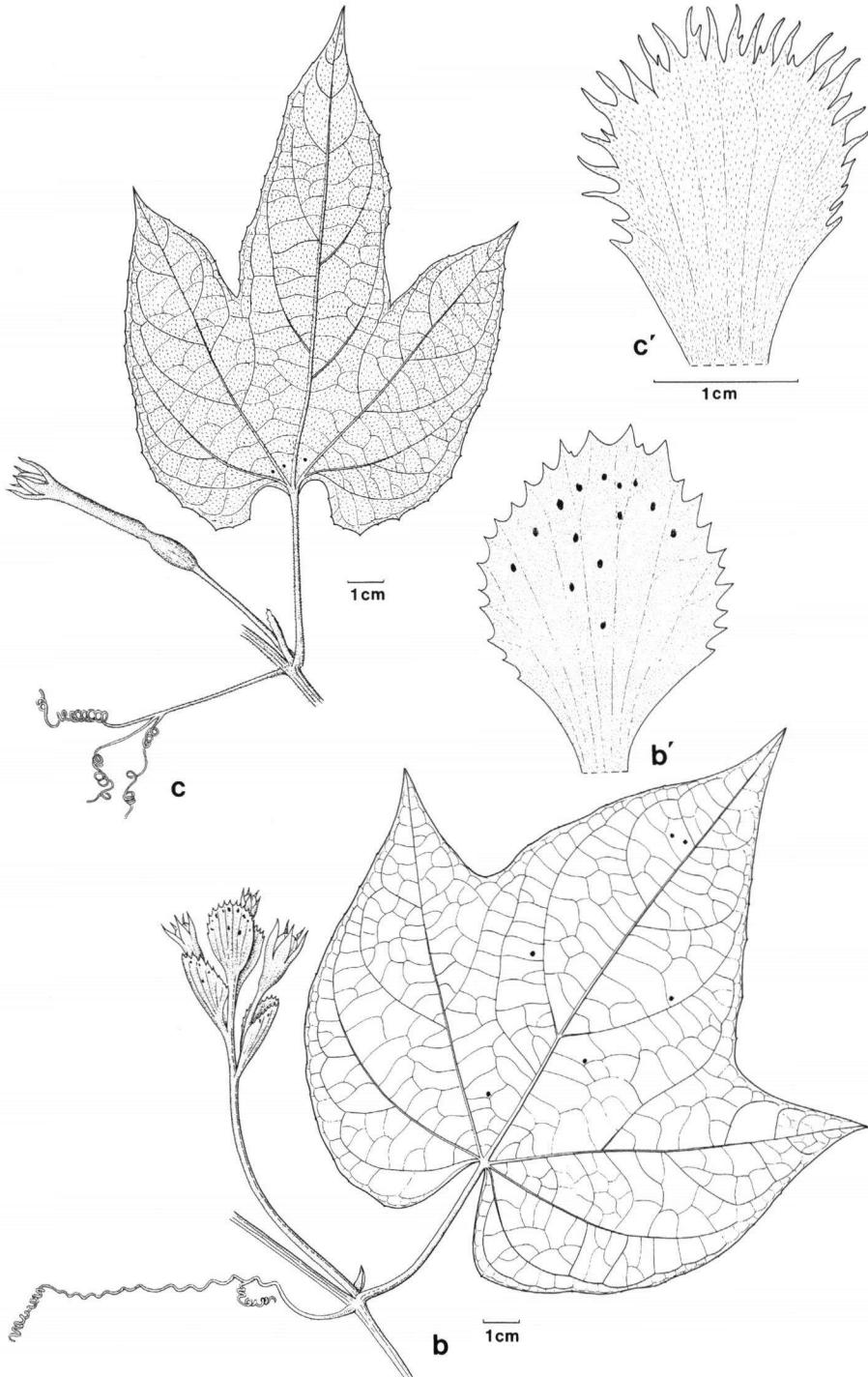


Fig. 1. Leafy stem nodes of three species of *Trichosanthes* in Java, and corresponding bracts of male inflorescences. — a & a'. *Trichosanthes quinquangulata* A. Gray (note entire calyx lobes of female flower); b & b'. *Trichosanthes tricuspidata* Lour.; c & c'. *Trichosanthes pubera* Blume (a, a': de Wilde 21772; b, b': de Wilde 21777; c: de Wilde 21667; c': Blume s. n., type-material, L).



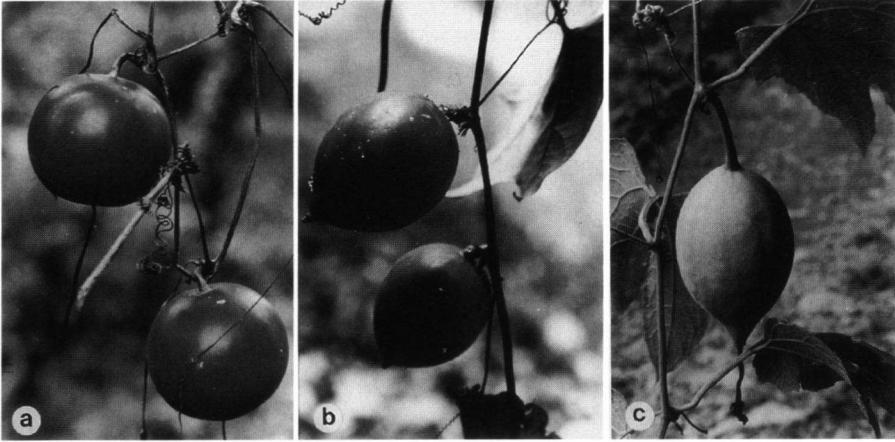


Fig. 2. Fruiting *Trichosanthes* from Java: *T. quinquangulata* A. Gray (a), *T. tricuspidata* Lour. (b), and *T. pubera* Blume (c), all $\times 0.5$ (Herbarium vouchers *de Wilde* 21666, 21783, and 21667, respectively).

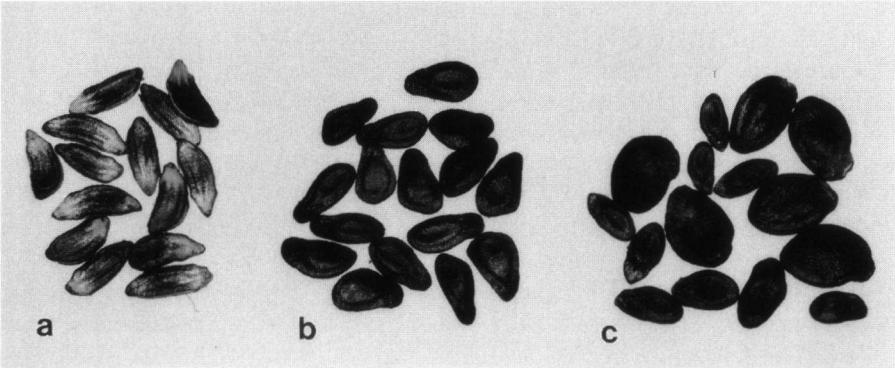


Fig. 3. Seeds of *Trichosanthes* from Java: *T. quinquangulata* A. Gray (a); *T. tricuspidata* Lour. (b); *T. pubera* Blume (c), all natural size (Herbarium vouchers *de Wilde* 21666, 21767, and 21667, respectively).

KEY TO THE SPECIES OF TRICHOSANTHES IN JAVA

- 1a. Leaves 3-foliolate 10. *T. wawrae*
- b. Leaves simple, lobed or unlobed 2
- 2a. Leaves manifestly coriaceous, unlobed, with entire deflexed margin. [Bracts of male inflorescences smallish, situated on the pedicels.] — Sumatra (only one old collection from Mt Salak), W Java 1. *T. coriacea*
- b. Leaves (except in old stages) generally not coriaceous, unlobed or lobed ... 3

- 3a. Leaves and young stem conspicuously villous. [Tendrils 5(–10, juvenile stages) -fid. Fruit \pm globose.] **9. T. villosa**
 b. Leaves and stem pubescent, or scabrous, or glabrous, not villous 4
- 4a. Plant mostly annual, leaves membranous. Flowers monoecious, nocturnal and diurnal. Corolla small, c. 3 cm diam. Bracts of male inflorescences minute, 2 mm long or less, mostly fugacious. Probract absent. Seeds flattened with undulate margin. [Fruit much elongated in cultivated var. *anguina*.] . . **2. T. cucumerina**
 b. Plant (sub)perennial, leaves generally thicker. Flowers mostly dioecious (monoecious in most of *T. quinquangulata*), nocturnal. Expanded corolla 4 cm diam. or more. Bracts of male inflorescences 3 mm or more, persistent or caducous. Probract present. Seeds flattish, without undulate margin, or barrel-shaped 5
- 5a. Bracts of male inflorescences less than 1 cm long. Seeds barrel-shaped; fruit \pm ellipsoid-fusiform **4. T. ovigera**
 b. Bracts in male inflorescences generally much larger. Seeds flattish, obovate or oblong with truncate or cuneate base, not barrel-shaped; fruit ovoid, ellipsoid, or globose 6
- 6a. Tendrils simple. Leaves mostly deeply lobed, leaf-base mostly cuneate. Rachis of male inflorescences conspicuously thickened, bracts large, finely pubescent. Fruit globose, yellow (always?), fruiting pedicel stout **3. T. globosa**
 b. Tendrils 3–5-fid. Leaf-base cordate. Rachis of male inflorescences thickened or not. Fruit (ob)ovoid or globose, orange or red when mature, the fruiting pedicel more slender 7
- 7a. Rachis of male (or hermaphroditic) inflorescence conspicuously thickened and set with persistent dark-drying bracts. Montane **7. T. sumatrana**
 b. Rachis not thickened. Lowland or montane 8
- 8a. Growing twig tinged reddish. Leaf \pm scabrid-pubescent below, blade lobed to \pm halfway or more. Probract oblong-lanceolate, entire or \pm incised at apex, 1 cm long or more, \pm caducous. Male bracts distinctly finely incised. Sepals mostly distinctly few-lobed. Fruit ovoid **5. T. pubera**
 b. Growing twig green. Leaves glabrous (glabrescent) or scabrous, lobed up to c. 1/3 of blade. Probracts ovate or oblong 9
- 9a. Probract c. 0.5 cm, \pm ovate. Leaves 3-lobed; glands at blade-base 1 or 2, at least c. 1 cm distant from the insertion of the petiole. Upper male bracts distinctly incised. Sepals (sub)entire. Fruit ovoid **8. T. tricuspidata**
 b. Probract c. 1 cm long, oblong, \pm rounded at apex. Leaves 5-angular or shallowly 5-lobed, quite glabrous; glands at blade-base mostly several, situated close to the insertion of the petiole. Upper male bracts (almost) entire. Sepals in male flowers usually coarsely few-dentate. Fruit globose . . . **6. T. quinquangulata**

ENUMERATION OF SPECIES

1. *Trichosanthes coriacea* Blume

Trichosanthes coriacea Blume, Bijdr. Fl. Ned. Ind. (1826) 935; Miq., Fl. Ind. Bat. 1, 1 (1856) 674; Cogn. in A.D.C. & C.D.C., Mon. Phan. Prodr. 3 (1881) 355; Backer in Backer & Bakh. f., Fl. Java 1 (1963) 303. — Type: *Blume s.n.*(L), Mt Salak, W Java.

Distribution — A species of Sumatra, said to have been found once on Mt Salak long ago.

Note — Blume stated with the original description that this species is close to *T. grandiflora* and *T. scabra*, but it is not clear what is meant by this latter name. *Trichosanthes scabra* Lour. is at present considered to belong to *Gymnopetalum integrifolium* (Roxb.) Kurz.

2. *Trichosanthes cucumerina* L.

var. *cucumerina*

Trichosanthes cucumerina L., Sp. Pl. (1753) 1008; Blume, Bijdr. Fl. Ned. Ind. (1826) 933; Miq., Fl. Ind. Bat. 1, 1 (1856) 676; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 357; Ridl., Fl. Mal. Penins. 1 (1922) 844; Backer in Backer & Bakh. f., Fl. Java I (1963) 304; Jeffrey, The Cucurbitaceae of Eastern Asia, Roy. Bot. Gard., Kew (1980) 51. — Type: Pada valam, p. 39, tab. 15 in Rheedee, Hort. Ind. Malab. 8 (1688), fide Jeffrey (1980).

Trichosanthes reniformis Miq., Fl. Ind. Bat. 1, 1 (1856) 675. — Type: *Horsfield s.n.* (BM), Java.
Trichosanthes pedatifolia Miq., Fl. Ind. Bat. 1, 1 (1856) 677. — Type: *Horsfield s.n.* (BM), Java.

Distribution — Widespread; India, Sri Lanka, S China, through Malesia eastwards to N Australia.

var. *anguina* (L.) Haines

Trichosanthes cucumerina L. var. *anguina* (L.) Haines, Bot. Bihar Orissa (1922) 388; Jeffrey, The Cucurbitaceae of Eastern Asia, Roy. Bot. Gard., Kew (1980) 52; Rugayah, Proc. 3rd Fl. Malesiana Symp., Kew (in press). — *Trichosanthes anguina* L., Sp. Pl. (1753) 1008; Blume, Bijdr. Fl. Ned. Ind. (1826) 933; Miq., Fl. Ind. Bat. 1, 1 (1856) 677; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 359; Backer in Backer & Bakh. f., Fl. Java I (1963) 304. — Type (lectotype, Jeffrey, 1993): 'Anguina', Micheli, Nov. Pl. Gen.: t. 9. 1729.

Distribution — Widespread; cultivated.

3. *Trichosanthes globosa* Blume

Trichosanthes globosa Blume, Bijdr. Fl. Ned. Ind. (1826) 936; Miq., Fl. Ind. Bat. 1, 1 (1856) 679; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 363; Backer in Backer & Bakh. f., Fl. Java I (1963) 304. — *Involucraria globosa* (Blume) M.J. Roem., Syn. Fasc. 2 (1846) 99. — Type: *Blume s.n.* (L; iso BR, P), Java, Mt Salak.

Trichosantes grandiflora Blume, Bijdr. Fl. Ned. Ind. (1826) 934; Miq., Fl. Ind. Bat. 1, 1 (1856) 674; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 364. — Type: *Blume s.n.* (L; iso BR, P), Java.

Distribution — West Malesia.

4. *Trichosanthes ovigera* Blume

Trichosanthes ovigera Blume, Bijdr. Fl. Ned. Ind. (1826) 934; Miq., Fl. Ind. Bat. 1, 1 (1856) 674; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 380; Backer in Backer & Bakh. f., Fl. Java I (1963) 303; Jeffrey, The Cucurbitaceae of Eastern Asia, Roy. Bot. Gard., Kew (1980) 49. — Type: *Blume s.n.* (L; iso P), Java, Mt Salak.

Trichosanthes horsfieldii Miq., Fl. Ind. Bat. 1, 1 (1856) 677. — Type: *Horsfield s.n.* (K; iso BM), Java.

Distribution — Widespread in Southeast Asia and Malesia.

5. *Trichosanthes pubera* Blume — Fig. 1c

Trichosanthes pubera Blume, Bijdr. Fl. Ned. Ind. (1826) 936; Miq., Fl. Ind. Bat. 1, 1 (1856) 675. — *Trichosanthes bracteata* (Lam.) Voigt var. *pubera* (Blume) Cogn. in Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 377. — Type: *Blume s.n.* (L; iso P), Java.

Distribution — Widespread in W Malesia.

Note — This species comes very close to *T. rubriflos* Thorel ex Cayla (1908), the pink or reddish flower colour of the latter possibly being the only difference.

6. *Trichosanthes quinquangulata* A. Gray — Fig. 1a

Trichosanthes quinquangulata A. Gray, Bot. Un. St. Expl. Exped. 1 (1854) 645; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 378. — Type: *Wilkes s.n.* (GH-A), Mangsi I., Sulu Sea.

Distribution — Widespread in W Malesia.

Notes — This name covers a well-defined, widespread species; we have seen specimens from North Vietnam (*Balansa 4027*), Malay Peninsula (*Nur 32716*), Sumatra, Java, Borneo and the Philippines (*Ramos BS 13020*, *Merrill 3391*).

This species and *T. sumatrana* are the only two species in Java which are completely or largely monoecious. In *T. quinquangulata* the flowers are unisexual or possibly partly polygamous. The male inflorescences develop in time after the solitary female flowers, either at the same node or not.

7. *Trichosanthes sumatrana* Cogn. — Fig. 4

Trichosanthes sumatrana Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 373 (incl. *α acutiloba*, lectotype; excl. *β obtusiloba* which is *T. globosa* Blume). — Type (i.e. lectotype of *T. sumatrana*): *Beccari s.n.* (FI; acquisition number FI 4427 '*Trichosanthes sumatrana* Cogn. *α acutiloba* Cogn.'), Prov. Padang, 360 m (FI).

Distribution — In montane area of W Java, Sumatra, Sabah, Sulawesi, Moluccas (Halmahera).

Notes — Specimens were detected among pre-war material from Java, formerly determined as *T. globosa*. The species was also recently collected in montane forest of the Gedeh-Pangrango complex, W Java, at c. 1100 and 1400 m altitude.

Trichosanthes sumatrana from Java has a thickened rachis of the male inflorescence in common with *T. globosa*, but differs by deeply indented bracts, by a slightly elongated fruit, branched tendrils, and a non-cuneate blade base. The leaves are deeply 5-lobed (see Fig. 4). The species seems completely or predominantly monoecious with either female flowers solitary at the nodes or with occasional female or hermaphroditic flowers in between the male flowers in the flowering raceme; in both places fruits can be found developed which surprisingly appear perfectly globose if growing on the node, and ± elongated and pear-shaped when developed from the raceme (see Fig. 4).

The lectotype specimen of *T. sumatrana* Cogn. *α acutiloba* Cogn., *Beccari s.n.* (FI, acc. no. 4427), from Sumatra, Ajer Mantjoer., Prov. Padang, at 360 m, is a specimen with a male-flowering raceme, with thickened rachis and (sub)persistent bracts with hardened persistent bases as in the Java material. However, the Sumatran

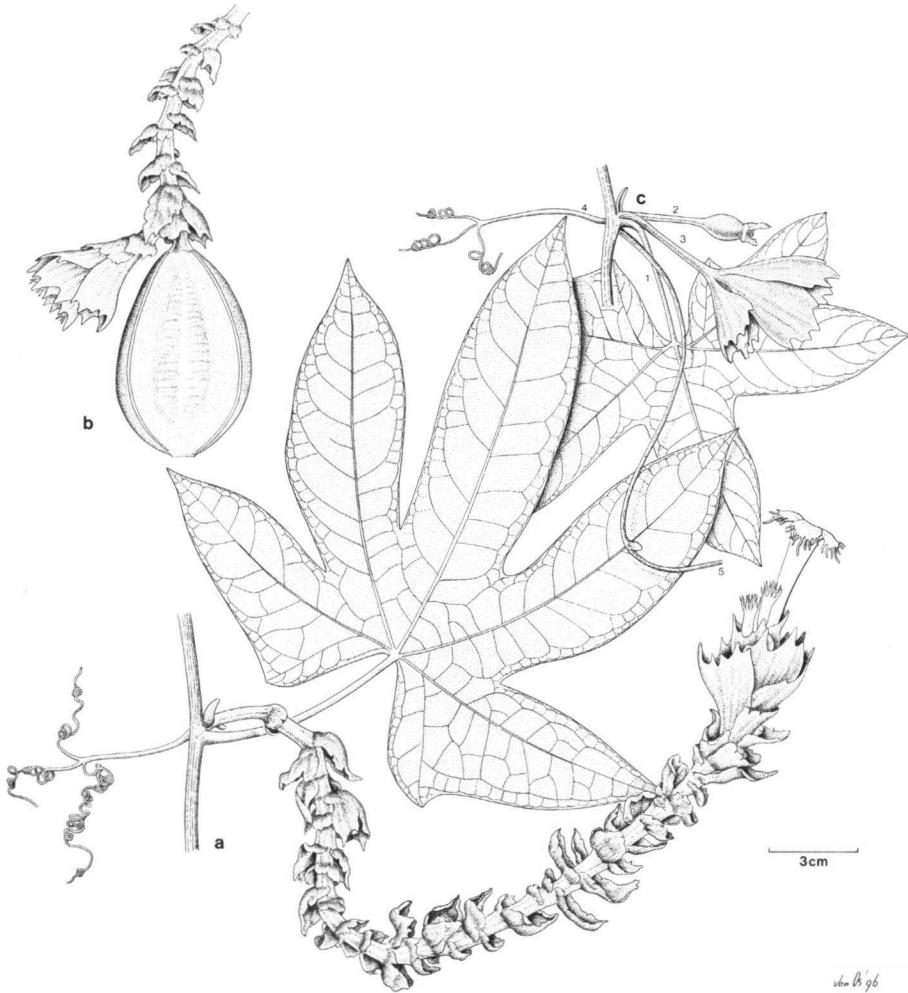


Fig. 4. *Trichosanthes sumatrana* Cogn. a. Habit of stem node with predominantly male inflorescence in its natural up-curved position; b. portion of inflorescence producing predominantly male flowers and with one half-grown fruit becoming pendent with age; c. node with developing stalked (predominantly) male inflorescence (3), at base with overblown solitary female flower (2), other items shown at the node are the probract, the leaf (1), the 3-armed tendril (4), and a lateral sterile shoot (5) (a, b: *de Wilde* 21841; c: *de Wilde* 21865).

type specimen, which is from a lowland area, has 7-lobed leaves and the margin of the bracts is much more finely and deeply lacinate, and hence comes close to specimens from lowland areas in the Malay Peninsula, at present named *T. wallichiana* Wight. The taxonomic nature of this variation needs further investigation, and thus the status of the Java collections remains uncertain. The Java plants might represent a still undescribed taxon.

8. *Trichosanthes tricuspida* Lour. — Fig. 1b

Trichosanthes tricuspida Lour., Fl. Cochinch. 2 (1790) 588; Blume, Bijdr. Fl. Ned. Ind. (1826) 935; Miq., Fl. Ind. Bat. 1, 1 (1856) 676; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 374; Ridl., Fl. Mal. Penins. 1 (1922) 844; Keraudren in Aubrév. & Leroy, Fl. Camb., Laos, Viêtnam 15 (1975) 81, p.p. (excl. *T. pubera*, *T. bracteata*, *T. palmata*), pl. 14, f. 1, 4–7; Jeffrey, The Cucurbitaceae of Eastern Asia, Roy. Bot. Gard., Kew (1880) 39, p.p. (excl. *T. bracteata*, *T. palmata*). — Type: *Loureiro s.n.* (†), Vietnam; neotype: *J. & M.S. Clemens 3267* (P; iso BM), Vietnam, Quang Nam, Da Nang (Keraudren-Aymonin, 1975).

Trichosanthes tricuspis Miq., Fl. Ind. Bat. 1, 1 (1856) 679. — Type: *Horsfield s.n.* (K), Java.

Trichosanthes bracteata auct. non (Lam.) Voigt: Backer in Backer & Bakh. f., Fl. Java 1 (1963) 304, P-P.

Distribution — Widespread in Indochina, West Malesia, and the Philippines.

Note — The incisions of the male bracts in material from e.g. Java, Sumatra, and Indochina are less deep than in certain collections from the Malay Peninsula and Borneo, where the depth of the lacinations may be comparable with those in *T. pubera*. Blume.

9. *Trichosanthes villosa* Blume

Trichosanthes villosa Blume, Bijdr. Fl. Ned. Ind. (1826) 934; Miq., Fl. Ind. Bat. 1, 1 (1856) 675; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 366; Backer in Backer & Bakh. f., Fl. Java 1 (1963) 304. — Type: *Blume s.n.* (L; iso P), W Java.

Distribution — Widespread in Indochina, West Malesia, and the Philippines.

10. *Trichosanthes wawrae* Cogn.

Trichosanthes wawrae Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 384 ('*wawraei*'); Ridl., Fl. Mal. Penins. 1 (1922) 845. — Type: *Wawra 241* (W), Singapore.

Trichosanthes trifolia auct. non (L.) Blume: Blume, Bijdr. Fl. Ned. Ind. (1826) 936 ('*trifoliata*'); Ser. in DC., Prodr. 3 (1828) 316; Miq., Fl. Ind. Bat. 1, 1 (1856) 679; Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 383; Merr., Interpret. Rumph. Herb. Amb. (1917) 494; Backer in Backer & Bakh. f., Fl. Java 1 (1963) 303. — *Involucraria trifolia* auct. non (L.) M. Roem.: M. Roem., Syn. 2 (1846) 99 ('*trifoliata*'), based on *Blume s.n.*, "crescit in provincia Krawang juxta Tjiradjas, W Java, in herbarium L."

Distribution — W Java, Sumatra, Malay Peninsula, Singapore.

Note — The name change into the later name *T. wawrae* for this species seems necessary because the cited basionym of the combination in *Trichosanthes* by Blume, (1826: 936, *Momordica trifoliata* Linn.), clearly represents a true *Momordica*. Merrill (1917: 494) argued that the epithet '*trifoliata*' (1763) is antedated by '*trifolia*' (1754), both of Linnaeus, but we rather regard these differences in spelling as orthographic variants. Both *Momordica trifolia* and *Momordica trifoliata* are based wholly on the Rumphian figure and description, *Poppya sylvestris* Rumph., Herb. Amb. 5 (1747) 414, t. 152, f. 2. Obviously Blume identified the 3-foliolate leaves as depicted in Rumphius (l.c.) as the same as those of the Javanese *Trichosanthes* species, but he ignored the description of the glands on the petiole, the muricate fruit of the size of a lemon, and the shape of the seed, all diagnostic of *Momordica*, especially of what is at present known as the widespread and very variable *M. cochinchinensis* (Lour.)

Spreng., a species with normally entire or lobed leaves but occasionally with 3-foliate leaves, as e.g. described as *M. suringarii* Cogn. in A.DC. & C.DC., Mon. Phan. Prodr. 3 (1881) 434, from Borneo and Sumatra.

ACKNOWLEDGEMENT

The second author thanks the Netherlands Foundation for the Advancement of Tropical Research, WOTRO, for the support of his research in Indonesia, as well as the authorities in Indonesia for all facilities received. Jan van Os (L) made the line drawings. We thank the curators of the following herbaria for allowing the examination of their collections: BM, BO, BR, FI, L, K, P, SING, U. The type-specimen of *T. wawrae* was generously received on loan from W.

REFERENCES

- Backer, C.A. 1963. In Backer & Bakhuizen van den Brink f., Fl. Java 1: 302–304.
Blume, C.L. 1826. Bijdragen tot de flora van Nederlandsch Indië, 15de stuk: 932–936.
Cogniaux, A. 1881. Cucurbitacées. In: A.DC. & C.DC., Mon. Phan. Prodr. 3: 351–387.
Gray, A. 1854. In Wilkes, United States Expl. Exped. 1: 645.
Jeffrey, C. 1980. The Cucurbitaceae of Eastern Asia, Royal Botanic Gardens, Kew: 38–52.
Jeffrey, C. 1993. In: C.E. Jarvis, F.R. Barrie, D.M. Allan & J.L. Reveal, A list of Linnaean generic names and their types. Regnum Vegetabile 127: 95.
Keraudren-Aymonin, M. 1975. Cucurbitacées. In: A. Aubréville & J.-F. Leroy, Flore du Cambodge, du Laos et du Viêtname 15: 76–92. Paris.
Lamarck, J.B.A.P. Monnet de. 1797. Encyclop. Méth. Bot. 4: 210. Paris.
Loureiro, J. de. 1790. Flora Cochinchinensis, ed. 1: 589.
Merrill, E.D. 1917. Interpret. Rumphius's Herb. Amb.: 494. Manilla.
Miquel, F.A.W. 1856. Fl. Ned. Ind. (Flora Indiae Batavae) 1, 1: 674–679.
Ridley, H.N. 1922. Fl. Mal. Penins. 1: 843–846.
Roxburgh, W. 1832. Fl. Indica 3: 701–707.
Rugayah, T. (In press). Summary of poster in Proceedings 3rd International Flora Malesiana Symposium, Kew.
Rumphius, G.E. 1747. Herb. Amb. 5: 414, t. 152, f. 2.
Seringe, N.C. 1828. In DC., Prodr. 3: 313–331.