THE STATUS OF *Trichosanthes anguina* L. (CUCURBITACEAE)[1])

[Status *Trichosanthes anguina* L. (Cucurbitaceae)]

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ABSTRAK

Perbedaan pendapat tentang status kedudukan taksonomi *Trichosanthes anguina* sebagai jenis yang berbeda dengan *T. cucumerina,* maupun sebagai anak jenis *T. cucumerina* subsp. *anguina* atau varietas *T. cucumerina* var. *anguina* memerlukan data pendukung. Anatomi daun dengan sayatan paradermal menunjukkan bahwa keduanya mempunyai bentuk stomata dan sel epidermis yang sama, tetapi berbeda hanya pada ukurannya. Stomata *Trichosanthes anguina* berukuran 15-17.5 x 10-12.5 urn dan sel epidermis 22.5-31.25 x 12.5-20 urn, sedangkan *Trichosanthes cucumerina* mempunyai stomata 10-12.5 x 8.75-12.5 um dan epidermis sel 15-25 x 10-15 um. Data tersebut mendukung dalam menetapkan *T.anguina* sebagai *T. cucumerina* var. *anguina.*

Kata kunci/key words: *Trichosanthes anguina,* anatomi daun/leaf anatomy, data pendukung/supporting data.

INTRODUCTION

Trichosanthes anguina and *T. cucumerina* are the most widely distributed members of the *Trichosanthes.* The latter has been cultivated for a long time in India for vegetable. However the taxonomic status of *Trichosanthes anguina (Cucurbitaceae)* is still debated. Some authors, including Backer & Bakhuizen v/d Brink (1963), have considered the taxon as separated species and distinct from *T. cucumerina* based on the size and shape of the fruit and also the presence of a bract. *Trichosanthes cucumerina* has ovoid fruit, 5-6 x 3.5-4 cm and no bract in the staminate flowers, whereas *T. anguina* has linear fruit which can be artificially lengthened up to 1 m long and a bract is present. However, Haines (1922) and Grebenscikov (1986) have treated it as *T. cucumerina* var. *anguina* and *T. cucumerina* subsp. *anguina* respectively. Rugayah and De Wilde (1997) have supported Haines (1922) replace *T. anguina* as the variety of *T. cucumerina.* They have similar in seed ornamentation, but differ in size of fruit and its seed which might be because of cultivated form.

To support the morphological observation, leaves anatomy on paradermal section was carriout in Herbarium Bogoriense-LIPI.

MATERIALANDMETHODE

The study based on the herbarium materials were deposited at Herbarium Bogoriense and Leiden and also fresh material from Bogor area were planted in Herbarium only for *T. anguina.* For *T. cucumerina* it was difficult to be recollected in Bogor. Morphological study was carried out following the structure of Leenhouts (1968), de Vogel, (1987) and Rifai (1976). Anatomical study using the leaves of some herbarium and fresh materials. Paradermal section was taken from the lower surface of leaves then stained with 1 % safifranin in water and then mounted in glycerin.

RESULT AND DISCUSSION

The result from the morphology observation indicated that, the two species have similar characters and which distinguish them from the other species of *Trichosanthes,* especially in their reproduction system, the ornamentation of the seed and the nature of the probract of the inflorescens. *Trichosanthes anguina* and *T. cucumerina* are monoecious, whereas the other species mostly are dioecious plants. Unlike the rest species of *Trichosanthes* there is no probract in the inflorescences of the two species. The seeds of the two species are ornamented with undulate margin which resemble those of *Momordica,* whereas those of the species are very variable.

"This paper has been presented as a poster in the Third International Flora Malesiana Symposium, Kew, England.

Trichosanthes anguina can be distinguished from *T. cucumerina* by the size and shape of fruit and also by the presence (not caducous) of bracteole in the staminate flowers. The first species has linear fruit up to 1 m long and ovoid-oblong bracteoles with three lobes, 2-2.6 x 1-1.5 mm, whereas the second one has ovoid fruit, 5-6 by 3.5- 4 cm, minute and entire bracteoles which is easily caducous.

Anatomical observation revealed that the two species have similar in stomata and sinuous types of edidermal cell. They have anomosytic type of stomata like the other species of *Trichosanthes* and undulate epidermis cell. But they differ only in size because *T. anguina* has stomata measuring 15-17.5 x 10-12.5 urn and epidermis cell 22.5-31.25 x 12.5-20 um. (Fig.l) *Trichosanthes cucumerina* has 10-12.5 x 8.75-12.5 um stomata and 15-25 x 10-15 um epidermis cells (Fig. 2).

From these evidences seem that the two taxa should be merged into one species, and *T. anguina* should be sunk into *T. cucumerina* var. *anguina.* It is supported Haines (1986) who replaced *Trichosanthes anguina* as the variety of *T. cucumerina.* The two varieties can be identified using the key below.

Key to the variety

1 a. Plant delicate, growing in wild conditions, Leaves 5 -14 cm diam; fruit ovoid (2.5-) 4 - 6 cm, containing up to 10 seed; seed 6 - 8 (-10) mm long; stomata 10 - 12.5x8.75-12.5 um; epidermis 15-25x10-15 um cells.....*-vac. cucumerina*

b. Plant more robust in all parts, cultivated. Leaves to 25 cm diam.; fruit much elongated, snake-like, 35 - 100 (150) cm long, containing many seed; seed 14-18 cmlong; stomata 15 -17.5 x 10 -12.5 um epidermis cell 22.5 - 31.25 x 12.5 - 20 um.....var. *anguina*

Trichosanthes cucumerina L.

Trichosanthes cucumerina L. Sp. PI. ed. 1(1753) 1008; Blume, Bijdr. Fl. Ned. Ind. (1826) 933; Miq. Fl. Ind. Bat. 1,1 (1856) 676; Cogn. inA& C. DC, Mon. Phan. Prod. 3 (1881) 357; Ridl., Fl. Malay Penins. 1 (1922) 844; Backer in Backer & Bakh. f. Fl. Java. 1 (1963) 304; Jeffrey, Cucurbitaceae EastemAsia, Roy. Bot.GardKew(1980)51;Rugayah&de Wilde, Blumea 42,2(1997) 478. — *Trichosanthes reniformis* Miq., Fl. Ind. Bat. 1,1 (1856) 675. -Type: Horsfield s.n. Java (BM holo; U iso) — *Trichosanthes pedatifolia* Miq., Fl. Ind. Bat. 1,1 (1856) 677.-Type: Horsfield s.n. Java (BM holo; U iso).

Climber to 5 m (to 8 m in var anguina); monoecious; (sub) annual, with sparse (dense) minute hairs, partly glabrescent. Probract absent. Tendril (2 or) 3-branched. Leaves simple, unlobed or 3-7. Leaves simple, unlobed or 3-7 angular or subpalmately 3-7 lobed; petiole 2-7 (-120 cm; blade membranous, subcircular or broadly reniformin outline, 5-12(-20) by 5-12 (-25) cm, base (deeply) cordate with broad sinus; apex acut-acuminate; margin entire or remotely shallowly dentate-undulate; glands absent or few, scatered. Male raceme sometimes with coaxillary a solitary male flower or with co-axillary a solitary female flower. Male flower: rceptacle tube 15-20 mm long, at apex 3-4 (-5) mm diam; sepal linear 2-3 mm long, margin entire; petal ovate-oblong 6-10 mm long. Female flower: ovary elliptic-oblong 3-10 mm long, hairy. Fruit ovoid-oblong, narrowed toward apex (2.5-) 3-5 (-6) by 1.5-4 sm(much longer to 150 cm in var anguina), green, turning bright orange, pale speckled or flamed. Seed pale or darkbrown, flat, elliptic-oblong 6-18 by 4-9 mm, 2.5-3.5 mm thick, margin broad, distinct or faint, edge undulate.

var. cucumerina

Plant annual, growing in wild conditions; stem delicate, 1 -2 mm diam.; stem and petiole with or without scattered pale coarse hairs (lmm). Petiol 2-6 cm long. Fruit (2.5-) 4-6 cm, containing few (up to 10) seed; pulp bitter (always?). Seed oblong, 6-8(-10)mmlong.

Distribution— The wild type-variety is widely distributed from India through Malesia into West North and North East Australia.

Habitat and ekology — Forest edge, scrub, disturbed open areas; apparently solely in areas with a seasonal climate; 0-500(-1000) maltitude; fl.& fr. In and after the wet season.

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

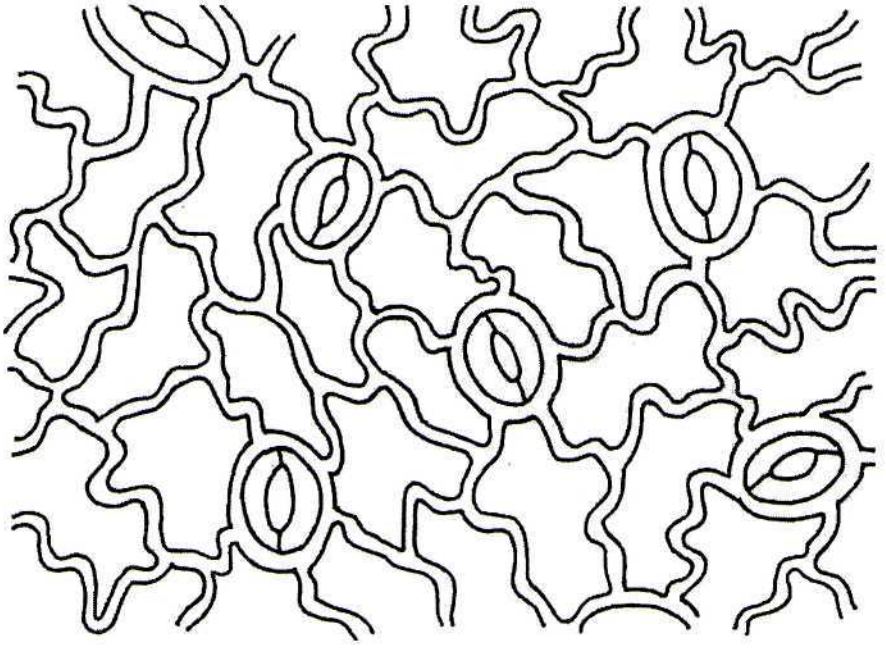

Fig. 1. Leaf paradennal section of *T. cucumerina* var. *anguina*

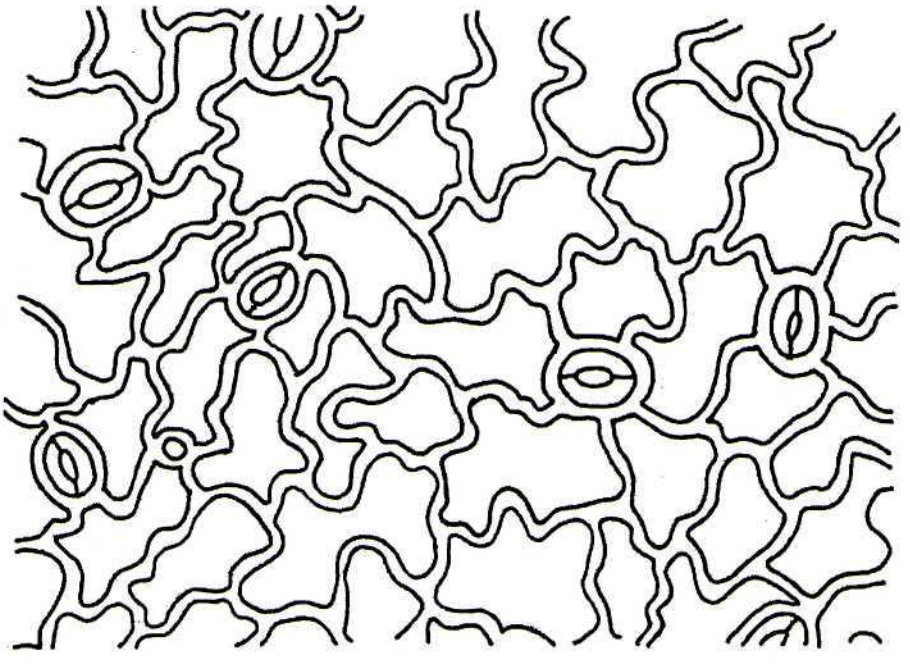

Fig. 2. Leaf paradermal section *T. cucumerina* var. *cucumerina*

(1980) 52; Rugayah & de Wilde, Blumea 42,2 (1997) 478. _ *Trichosanthes anguina* L., Sp. PI. (1753) 1008; Blume, Bijdr. Fl. Ned. Ind. (1826) 933; Cogn. *in* Backer & Bakh. f. Fl. Java 1 (1963) 304.

Plant subperenial, cultivated; stem 2-5 mm diam., grooved or angular. Petiole 2-12 cm long. Fruit long, snake-like, 3O-1OO(-15O) cm long or more containing up to 50 seeds, pulp rather sweet. Seed 14-18 mm long.

Distribution — Widespread in cultivation

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