KHMERIOSICYOS, A NEW MONOTYPIC GENUS OF CUCURBITACEAE FROM CAMBODIA

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SUMMARY

A new monotypic genus from Cambodia is described. The genus is defined by a unique combination of characters and has distinct pollen features. The only species is Khmeriosicyos harmandii W.J. de Wilde & Duyfjes.

Key words: Cucurbitaceae, Khmeriosicyos, new genus, pollen, SE Asia.

INTRODUCTION

Two sheets of an unidentified collection referred to Cucurbitaceae in the Paris Herbarium appeared to represent an undescribed genus in the family. The material, Harmand in herbarium Pierre 4350, is rather inadequate, but contains at close inspection sufficient details on the habit of the plant, the male and female inflorescences, the male flowers, fruit and seeds, and pollen to reveal its identity.

Khmeriosicyos W.J. de Wilde & Duyfjes, gen. nov.

A generis monotypicus similibus e.g. Borneosicyo, Papuasicyco, Nothoalsomitra foliis et cirrhis simplicibus, probractea distincta, floribus monoecis, floribus masculinis in racemo pedunculato, receptaculi tubo vadoso staminibus ad medium insertis, duabus antheribus bithecis una monotheca, thecis sigmoides connectivo lato membranaceo differt. — Typus: Khmeriosicyos harmandii W.J. de Wilde & Duyfjes.

Small climber, monoecious. Leaves simple, deeply lobed, scabrous. Tendrils simple. Probract obvious, glandular. Male inflorescences peduncled, racemose. Male flowers: receptacle-tube bowl-shaped, shallow; expanded corolla c. 15 mm in diameter; petals entire, imbricate, free; stamens 3, free, inserted about halfway in the receptacle-tube; filaments short, anthers two 2-theccous, one 1-theccous, thecae sigmoid, connective broad, membranous; disc absent. Fruit solitary or occasionally with male inflorescence, ellipsoid, c. 3 cm long, pulpy, scabrous. Seeds numerous, compressed, elliptic, c. 9 by 5 mm, base truncate, margin broad, crenulate, faces nearly smooth.

Distribution — One species in Cambodia.

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Fig. 1. *Khmeriosicyos harmandii* W.J. de Wilde & Duyfjes. a. Habit of twig with male inflorescences; b. probract; c. apex of male inflorescence; d. opened mature male bud; e, e', f, f'. stamens, seen from inside and outside, respectively; g. node with fruit; h. ditto, enlarged, showing persistent probract; i. seed (all: *Harmand* in herb. *Pierre* 4350).
Khmeriosicyos harmandii W.J. de Wilde & Duyfjes, *spec. nov.* — Fig. 1

Low herbaceous climber, possibly with tuberous root; monoecious; sparsely scabrous hairy; leafy stem c. 2 mm diameter. *Probract* conspicuous, coriaceous, narrowly ovate, 2–5 mm long, acute, with several conspicuous glands. *Leaves*: blade simple, sub-orbicular in outline, 6–7 by 6–8 cm, deeply 3(–5)-lobed nearly to the base (to 4/5–9/10), (sub)membranous, green on drying, base shallowly broadly cordate, apex acute, slightly mucronate, margin entire or shallowly lobulate 0.5–1 cm deep, scabrous on both surfaces; without glands; basal nerves (3–)5; mid-lobe ovate-rhomboid, 5–5 by 3–3.5 cm; petiole 1–1.5 cm long, scabrous hairy. *Male inflorescences*: simple, a slenderly peduncled short raceme, solitary or co-axillary to a previously flowering female flower; peduncle 4–8 cm long, 0.5 mm thick, glabrescent; raceme 0.5–1 cm long, 5–10-flowered; bracts linear, 1(–2) mm long, appressed-hairy. *Male flowers*: pedicel short, 3–6 mm long, sparsely hairy, inconspicuously articulated at apex; receptacle tube bowl-shaped, 3–4(–5) by 3–5 mm, 5-ribbed, the ribs sparsely scabrous-hairy, glabrous inside; sepals long-triangular or linear, 1.5–2 mm long, (scabrous) hairy; petals imbricate, ovate-elliptic, 6(–8) mm long, minutely hairy, presumably (pale) yellow; stamens 3, inserted about halfway the tube, filaments 0.5(–1) mm long, glabrous but finely pale hairy at base, anthers two 2-thecous, one 1-thecous, free, appressed into a subglobose head, c. 2.5 mm diam., thecae slender, strongly sigmoid, connective broad, thin; pollen: see below; disc absent. *Female flowers* not known. *Fruit* solitary or co-axillary to later developing male inflorescence, pulpy with thin exocarp, ellipsoid, c. 3 by 2 cm, scabrous all over, base ± tapered, apex subacute; fruiting pedicel c. 10 by 2(–3) mm, scabrous. *Seeds* numerous, bright brown, much compressed, elliptic, 8.5–9 by 4.5–5 mm, base truncate, apex subacute, margin broad, 1–1.5 mm broad, with grooved double-edged crenulate-tuberculcate margin, faces finely grooved, nearly smooth.

**Distribution** — Endemic to Cambodia; the single collection made at Prea Can, presumably in Preah Vihear Prov., N Cambodia, but exact locality unknown. Little has been published on the botanical itineraries of Harmand (Gagnepain, 1943).

**Habitat & Ecology** — Unknown; flowering and fruiting in September.

**Notes** — 1. In the Australasian region *Khmeriosicyos* resembles three other, geographically widely separated monotypic genera, viz. *Borneosicyos* (Borneo), *Papuasicyos* (Papua New Guinea) and *Nothoalsomitra* (SE Queensland), especially by: 1) similar male flowers with 3 free stamens, with the anthers free but connivent into a globose synandrium; 2) slender and strongly sigmoid thecae; and 3) broad and thin connectives (Telford, 1982; Duyfjes et al., 2003; De Wilde et al., in press). All 4 genera belong in the subfamily Cucurbitoideae. The differences between the genera are summarized in Table 1.

2. In the three keys to the genera presented by Keraudren-Aymonin (1975) in the Flora for Cambodia, Laos & Vietnam, the present new genus easily shows up beside the manifestly unrelated genus Diplocyclos.

3. Unfortunately, female flowers are unknown in *Khmeriosicyos*, eliminating the usually good discriminating characters of the shape of the stigma-lobes.
4. It is noted here, that in the description of *Nothoalsomitra* (Telford, 1982) the male flower is wrongly described and figured. The receptacle-tube is long and deep, not shallow, and the stamens are inserted at the mouth (not at the bottom) of the receptacle-tube. Furthermore, the staminodes in the female flowers (not seen by us) are described as 3 in number in the Latin diagnosis, and as 5 in the description; presumably the number actually is 3.

### POLLEN MORPHOLOGY — Fig. 2a–d

The pollen of *Khmeriosicyos harmandii* is large (52 by 51 µm, P/E = 1.02), 3-colporate. The apertures are long deep colpi with ± circular costate endopores (6–7 µm in diameter). The exine is 2–3 µm thick, and consists of a thin nexine (no endosculpture), a distinct col辱ellate infratectum that thins towards the apertures, and a reticulate tectum with distinct ± scabrate zones (margos) along the apertures.

The subdivision of the Cucurbitaceae into the subfamilies Cucurbitoideae and Zanonioideae is well supported by pollen morphology (Marticorena, 1963; Jeffrey, 1964; Khunwasi, 1998). Pollen of the Zanonioideae is uniform: 3-colporate, usually small (up to 40 µm) and striate, sometimes (*Alsomitra, Bolbostemma, Gerradanthus*) larger (up to 52 µm) and/or perforate or reticulate (Alyoshina, 1971; Van der Ham, 2004).
Pollen of the Cucurbitoideae is much more diverse: usually larger than 40 µm, with various aperture and ornamentation types.

Macromorphologically, *Khmeriosicyos harmandii* more or less resembles the monotypic genera *Borneosicyos* (Sarawak, Sabah), *Nothoalsomitra* (SE Queensland) and *Papuasicyos* (Papua New Guinea). The pollen of *Khmeriosicyos harmandii* is most like that of *Nothoalsomitra*, being similarly sized and shaped, 3-colporate with long deep colpi, distinctly columellate, and reticulate with distinct margos. The pollen of *Borneosicyos* deviates considerably (united in tetrads), while that of *Papuasicyos* is much smaller, shallowly colporate, striate-reticulate and without margos (Duyfjes et al., 2003; Van der Ham & Van Heuven, 2003; De Wilde et al., in press).

*Nothoalsomitra* is a member of the tribe Benincaseae. Pollen morphologically, this tribe is heterogeneous. Khunwasi (1998) distinguished six groups. *Nothoalsomitra* was placed in group I, together with *Acanthosicyos*, *Bambekea*, *Coccinia*, *Eureiandra*, *Raphidiocystis* and *Ruthalia*, on the basis of their 3-colporate pollen with long (deep) colpi, reticulate ornamentation and distinct margos.
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REFERENCES


