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MISCELLANEOUS SOUTH EAST ASIAN CUCURBIT NEWS II

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ABSTRACT
DE WILDE, W.J.J.O & DUYFJES, B.E.E. 2009. Miscellaneous South East Asian Cucurbit news II. *Reinwardtia* 12(5): 405–414. — This paper contains corrections, additions, new taxa, or new records in several genera, which became apparent since previous publications by the authors in these genera.
(1) Diplocyclos (Endl.) Post & Kuntze: a new variety in *Diplocyclos palmatus* (L.) C. Jeffrey
(2). Pilogyne Schrad.: re-instatement of this genus name for SE Asian species formerly in *Zehneria* Endl., with the description of a new species from the Philippines
(3) Thladiantha Bunge: *Thladiantha nudiflora* Forbes & Hemsley, new for Malesia
(4) Trichosanthes L.: three subspecies in *Trichosanthes tricuspidata* Lour.

Keywords: *Cucurbitaceae*, South East Asia

ABSTRAK
DE WILDE, W.J.J.O & DUYFJES, B.E.E. 2009. Bermacam-macam berita *Cucurbitaceae* Asia Tenggara II. *Reinwardtia* 12(5): 405–414. — Tulisan ini memuat perbaikan, tambahan, perubahan nama beberapa marga *Cucurbitaceae* yang menjadi jelas sejak publikasi terdahulu oleh pengarang pada marga yang sama.
(1) Diplocyclos (Endl.) Post & Kuntze: varietas baru pada *Diplocyclos palmatus* (L.) C. Jeffrey
(2). Pilogyne Schrad.: dinyatakan kembali marga ini untuk Asia Tenggara yang semula disebut *Zehneria* Endl., dengan pertelaan jenis baru dari Filipina.
(3) Thladiantha Bunge: *Thladiantha nudiflora* Forbes & Hemsley, baru untuk Malesia
(4) Trichosanthes L.: tiga anak jenis pada *Trichosanthes tricuspidata* Lour.

Kata kunci: *Cucurbitaceae*, Asia Tenggara

INTRODUCTION

Since a similar previous article in Reinwardtia (de Wilde & Duyfjes, 2008A) the publication of a number of improvements in the taxonomy of South East Asian *Cucurbitaceae* has become opportune in view of the forthcoming flora treatment of the family for Flora of Peninsular Malaysia and Flora Malesiana, both scheduled for 2009. It concerns communications in the genera as enumerated in the abstract above.

(1). DIPLOCYCLOS (Endl.) Post & Kuntze: A NEW VARIETY IN DIPLOCYCLOS PALMATUS (L.) C. Jeffrey.

A strange-looking cucurbit, with deeply divided leaves with very narrow lobes, 2–7 mm wide (fig. 1), from Luzon, was described by Merrill (1918) as a new monotypic genus *Ilocania pedata* Merr., but later (Jeffrey, 1967) it appeared to be synonymous with *D. palmatus* (L.) C. Jeffrey. However, the specimens look so much deviating from the usual *D. palmatus* that we give it the status of variety.

Diplocyclos palmatus (L.) C. Jeffrey var. **pedata** (Merr.) W.J. de Wilde & Duyfjes, *stat. nov.*

Basionym: *Ilocania pedata* Merr. (1918) 65. — Lectotype (de Wilde & Duyfjes, 2008A): *Ramos BS* 27552 (US); a nice duplicate of the syntype *Ramos BS* 27490, apparently lost in PNH, is in BM.

(2). PILOGYNE Schrad.: RE-INSTATEMENT OF THIS GENUS NAME FOR SE ASIAN SPECIES FORMERLY IN ZEHNERIA Endl., WITH THE DESCRIPTION OF A NEW SPECIES FROM THE PHILIPPINES

Phylogenetic analysis based on molecular data in the *Zehneria-Neoachmandra* group of species indicates that both genera are paraphyletic and should be merged (Schaefer *et al.*, 2007, Schaefer, *in litt.*). According to Cross and Gravendeel (Leiden, *pers. comm.*) especially the type species of the older genus, *Zehneria*, *Zehneria baueriana* Endl. (1833) is troublesome. This species

appeared to harbor in its DNA two clones, one linking it up with most of our SE Asian species in 2006 accommodated in *Zehneria*, the other with those accommodated in *Neoachmandra* (de Wilde & Duyfjes, 2006). They suggest that possibly *Zehneria baueriana* is of hybrid origin. However, in view of the fact that the morphology of the inflorescences as well as particularly the construction of the male flowers and seeds are so much different, we feel that, in spite of the molecular findings, for the SE Asian area two different genera should be recognized. In order to make this more comprehensible we herewith propose to restrict the genus *Zehneria* to its type, and accommodate the remaining SE Asian species of *Zehneria* (in the sense of de Wilde & Duyfjes, 2006) in the reinstated genus *Pilogyne*, the type of which fully agrees. As a matter of fact, the (male) flower morphology of the type of *Zehneria, Z. baueriana* is considerably at variance with those of *Neoachmandra* and *Pilogyne* as shown in Fig. 2. The necessary new combinations in *Pilogyne* for SE Asia are made below.

The main differences, however, small, between *Pilogyne* and *Zehneria* (defined by its sole species, *Z. baueriana*) are summarized in Table 1.

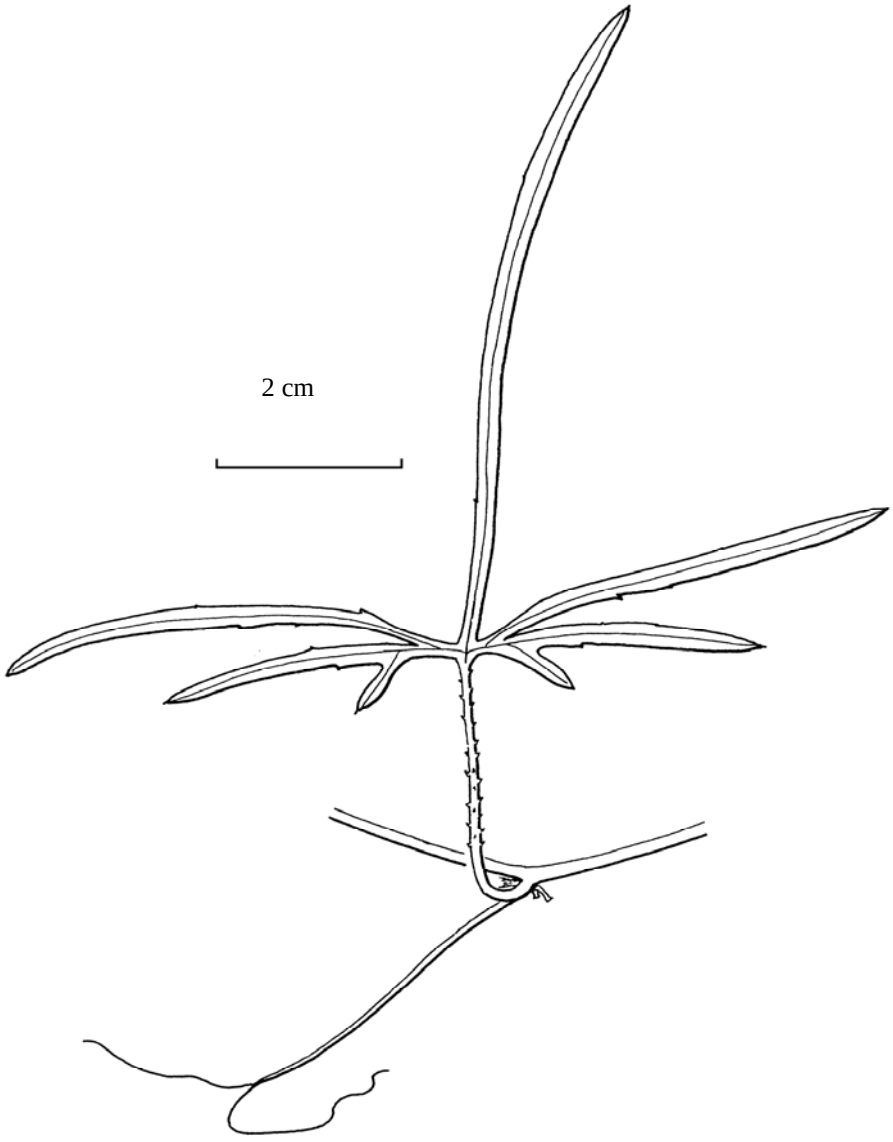

Fig. 1. *Diplocyclos palmatus* (L.) C. Jeffrey var. *pedata* (Merr.) W.J. de Wilde & Duyfjes: Leaf (*Ramos BS 27490*, BM, syntype).

Table 1 Comparison of characters of three genera

Characters	***Neoachmandra***	***Zehneria*** (*Z. baueriana*, Norfolk Is.)	***Pilogyne***
habit / stem	slender	stout	slender / stout
drying colour of leaves	green	brown	brown
flowers	monoecious	dioecious	dioecious
inflorescences	flowers few, 1–8, sessile, males and females mixed at the node	male and female flowers fascicled at the node	in male a peduncled raceme, flowers dispersed or clustered (female flowers various)
probract	absent	present	present
petals	valvate	imbricate	(valvate-) imbricate
male flowers			
pedicel	long	medium / short	(medium) short
insertion of stamens	at throat of receptacle tube, included	halfway receptacle tube (above the disc), ± exserted	at base of receptacle tube, sub-included
thecae	straight	curved	curved
apex of connective	broad	narrow (broad in the middle)	narrow (broad or narrow in the middle)
length of filament compared to length of anther	shorter than anther	± equal	longer than anther
disc	globose	3-parted	subglobose or faintly 3-lobed
female flowers			
insertion of staminodes	halfway receptacle tube	halfway receptacle tube	at base of receptacle tube
stigma lobes	sessile and entire	stalked and each 2-parted	entire or 2-lobed (notched), sessile or stalked
disc	entire, subglobose	3-parted	entire, subglobose or depressed
Fruit			
number	single (or 2)	several / many	few or several
surface	smooth or scurfy	scurfy	finely pitted
female and fruiting pedicel	long	medium	(mostly) short
seed			
margin	faintly margined or unmargined, base sometimes winged	faintly *broad*-margined, unwinged	narrowly (square) margined (?rarely unmargined), unwinged
surface	smooth or hairy	smooth	smooth

Considerations

For the Malesian area the above presented scenario for distinguishing 3 genera, albeit much related, holds good, but in the Pacific area a number of recently described *Zehneria* species (de Wilde & Duyfjes, 2006) are anomalous within that genus for one or more traits. These species, like *Zehneria baueriana*, appear in the molecular phylogenetic cladogram as nested within *Neoachmandra*, forcing authors to merge *Neoachmandra* into one, larger genus *Zehneria* (Endlicher, 1833).

However, morphologically, they cannot go with *Neoachmandra*, as specified in Table 1, Fig. 3.

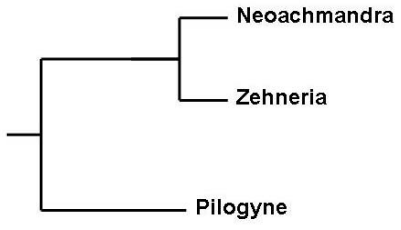

Fig. 3. Scheme illustrating relationships between the genera *Pilogyne*, *Zehneria* and *Neoachmandra*.

The anomalus species described in *Zehneria*, but in the cladogram 'nested' within *Neoachmandra* are the following:

- *Zehneria baueriana* Endl. — Norfolk Is., New Caledonia (flowers fascicled, not clustered).
- *Zehneria erythrobacca* W.J. de Wilde & Duyfjes — whole of New Guinea (male flowers fascicled rather than clustered).
- *Zehneria grayana* (Cogn.) Fosberg & Sachet — large part of the Pacific (stamens inserted halfway in the receptacle tube).
- *Zehneria neocaledonica* W.J. de Wilde & Duyfjes — New Caledonian (green on drying; fruit not pitted; seed 'hairy').
- *Zehneria tahitensis* W.J. de Wilde & Duyfjes — Tonga, Tahiti (stamens inserted halfway in the receptacle tube).
- *Zehneria viridifolia* W.J. de Wilde & Duyfjes — Milne Bay distr., E Papua New Guinea (green on drying, stamens inserted halfway in the receptacle tube).

It seems, as a possible explanation, that the genus *Zehneria* (i.e. *Z. baueriana*) as well as the other *Zehneria* species mentioned above, are originally of old hybrid origin, between *Neoachmandra* and *Pilogyne*.

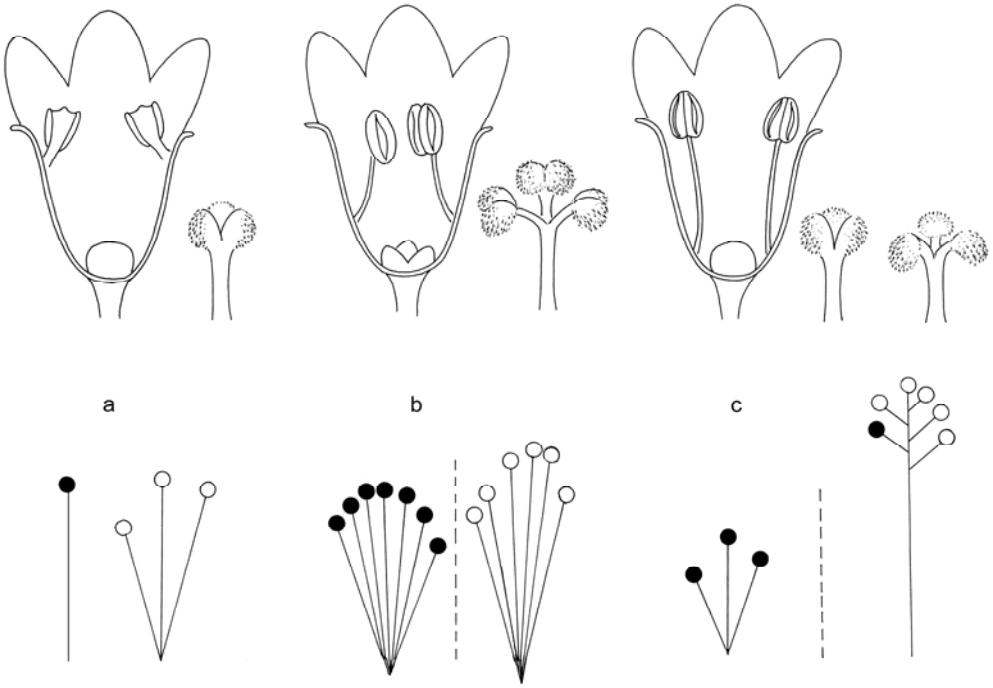

Fig. 2. Schematic longitudinal sections of male flowers, stigmas, and schemes of inflorescences of a. *Neoachmandra*, (monoecious) b. *Zehneria* (dioecious), c. *Pilogyne* (dioecious); black dot = female flower, open dot = male flower).

KEY DIFFERENTIATING THE GENERA *PILOGYNE* AND *ZEHNERIA*

1a. Flowers in male inflorescences (mostly) pedunculate, clustered (not fascicled) or in a raceme. Stamens inserted at (or near) base of the receptacle tube. Fruit minutely pitted. Disc entire or faintly 3-lobed. Stigma 3-parted, parts sessile or short-stalked…….....*Pilogyne* (Africa, Asia)

b. Flowers of male inflorescences fascicled, (sub) sessile. Stamens inserted at about the middle of the receptacle tube. Fruit not minutely pitted, often ± scurfy or tesselated. Disc deeply 3-lobed or –parted. Stigmas 3, stalked, each stigma 2-parted....*Zehneria* (*s.s.*, Norfolk Is., not in Malesia)

PILOGYNE Eckl. & Zeyh. (1836) 277. — Type species: *Pilogyne suavis* Eckl. & Zeyh.

Small climbers, annual or subperennial; dioecious (rarely monoecious); brown on drying. Probract linear, minute, caducous. *Tendrils* simple. *Leaves* simple. *Flowers* small, white or creamy; sepals minute, (narrowly) triangular or narrowly elliptic, usually subpatent; petals free, (narrowly) elliptic, (valvate or) imbricate in bud; receptacle-tube campanulate. *Male inflorescence*: a short- or long-peduncled few-or many-flowered condensed raceme or cluster, co-axillary with female flower(s). *Bracts* absent. *Male flowers*:

pedicel short, 2–10(–15) mm long, persistent; stamens 3, inserted near the base of the receptacle-tube, filaments longer than the anther, anthers all 2-thecous, ± included or just exserted, thecae lateral, curved, not divergent, connective (narrow or) broad and ± thickened adaxially, not or little produced at apex; disc (depressed-) globose or faintly 3-lobed. *Female flowers*: solitary or few at the node, or few in a pedunculate cluster, when monoecious co-axillary with a male raceme, or mixed with male flowers in a pedunculate raceme; pedicel short (or long); ovary globose with slender neck, or ellipsoid; stigma deeply 3-lobed, or 3 on short style-arms, papillose or hairy; staminodes present; disc free, annular. *Fruit* 1 or several, usually with short fruiting pedicel, globose or ellipsoid, 0.5–2(–3?) cm long, not or hardly beaked, glabrous, green, ultimately red, or purplish blackish, pulpy; pericarp cartilaginous, minutely pitted. Seeds several or numerous, compressed, ovate or elliptic, whitish, not sculptured, margin narrow but distinct (indistinct in *Z. immarginata*), usually with square edge, base without wing.

A genus of about 20 species distributed in the tropics of the Old World: Africa and Madagascar and in SE Asia, from India, China, through Malesia, to N Australia and into the Pacific; *ca*. 15 species in Asia, Malesia and the Pacific, 1 species in Australia.

Note. Several species are weakly defined. They are in the present enumeration sometimes only distinguishable on the colour of the ripe fruits. Further study is needed.

KEY TO THE MALESIAN SPECIES OF *PILOGYNE*, INCLUDING 4 SPECIES PROVISIONALLY LEFT IN THE RESEMBLING GENUS *ZEHNERIA* (FOR A KEY TO ALL ASIAN AND PACIFIC SPECIES, SEE DE WILDE & DUYFJES, 2006)

1a. Leaf blade (narrowly) trullate, base ± rounded or broadly cuneate. [Female flowers and fruits not known.] — Central Celebes…...…15. *P. trullifolia*
b. Leaf blade ovate, cordate or (sub)circular……..2

2a. Ovary and fruit globose, fruit *ca*. 1 cm diam. or less, seeds margined……...……3
b. Ovary and fruit subglobose or ellipsoid, fruit 1 cm long or longer (if smaller, then seeds without margin)……...7

3a. Female flower and fruit solitary, with long pedicel; fruiting pedicel 1.5–3 cm long. Male flowers (co-axillary with a female flower) in a pedunculate condensed cluster. — New Guinea; montane…….. ……8. *P. pedicellata*
b. Female flower(s) and fruit(s) either solitary, fascicled, or clustered in a pedunculate raceme; fruiting pedicel *ca*. 1.5 cm long or less……..4

4a. Monoecious with female flowers (and fruits) and male flowers often in one single raceme-like inflorescence. — New Guinea; montane…….. ……...10. *P. pisifera*
b. Mostly dioecious, flowers (male) condensed in a (pedunculate) cluster……..5

5a. Fruit mostly several on a long common peduncle [if solitary, then usually co-axillary with male peduncle]. Fruit ultimately purple-black — Malesia, Taiwan; montane……....11. *P. repanda*
b. Fruit single or few, in a sessile or short-pedunculate cluster. — Lower montane or low-land.....……..……..6

6a. Fruit 1 (rarely 2 or 3) per node, *ca*. 1 cm diam., pedicelled, but without peduncle, red when ripe. — Widespread in S India, Sri Lanka and SE Continental Asia; rare in Malesia (N Sumatra, Peninsular Malaysia and Sabah); lowland and montane area……..…1. *P. bodinieri*
b. Fruit 1–5 per node, 0.6–0.8 cm diam., fruits on a common peduncle to 1 cm long, greenish when ripe. — Java, Salayar Island, Lesser Sunda Islands; lower montane area…….….9. *P. perpusilla*

7a. Fruiting pedicel in solitary fruit about as long as or (much) longer than the fruit, *ca*. 1.5 cm long or more (or fruit few fascicled on a peduncle). Stamens inserted at about halfway in the receptacle-tube (towards the base in *P. immarginata*) [Fruit 1–3 cm long.]……..10
b. Fruiting pedicel shorter than the fruit, *ca.* 1 cm long or less. Fruit 1–1.5 cm long. Stamens inserted at the base of the receptacle-tube…….…8

8a. Fruit hairy—Philippines, Mindanao……. ……..…...14. *P. trichocarpa*
b. Fruit glabrous…….9

9a. Seed 3 mm long—Philippines, Luzon…….. ……12. *P. rizalensis*
b. Seed 4–5 mm long—widespread…7. *P. mucronata*

10a. Fruit 2–3 cm long…….11
b. Fruit less than 2 cm long……..12

11a. Fruit solitary (or with 2). Seeds *ca.* 4 mm long. [Male inflorescences not known.] — Lesser Sunda Islands: Lombok……...2. *P. elbertii*
b. Fruit solitary or few-fascicled on a common peduncle. Seeds 5–6 mm long. Thecae ± straight, vertical. Disc simple, somewhat 3-lobed. Style at apex not armed, with deeply 3-lobed stigma. —

Widespread: Bismarck Archipelago, Solomon Islands, New Hebrides, Fiji, Samoa..... ……....*Zehneria grayana*

12a. Fruit (1.3–)1.5–2 cm long. Seeds 4–5 mm long, narrowly margined. — New Guinea; lowland to 1000 (–1750) m altitude…..*Zehneria erythrobacca*
b. Fruit *ca.* 1 cm long……..….13

13a. Plant drying brown. Seeds *ca.* 3 mm long, edge rounded, unmargined. — Lesser Sunda Islands: Lombok, Flores; at 1500–3000 m altitude……... ……....5. *P. immarginata*
b. Plant drying green. Seeds 5 mm long, with conspicuous broad square edge, but not obviously margined. — E Papua New Guinea; at 200 m altitude……..*Zehneria viridifolia*

For SE Asia the following new combinations in *Pilogyne* are necessary, the Malesian ones are printed in bold type:

1. Pilogyne bodinieri (H. Lév.) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Melothria bodinieri* H. Lév., (1914) 122. — Lectotype (De Wilde & Duyfjes, 2004): *Bodinier 1957* (E; Iso P), China, Kouy-Yang.

2. Pilogyne elbertii (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria elbertii* W.J. de Wilde & Duyfjes (2006) 54. — Type: *Elbert 1637* (Holo L), Lesser Sunda Islands (Lombok).

3. *Pilogyne guamensis* (Merr.) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Melothria guamensis* Merr. (1914) 151. — Lectotype (De Wilde & Duyfjes, 2006): *Guam Experiment Station 11* (Holo PNH†; Iso E), Guam, Tumon.

4. *Pilogyne hookeriana* (Wight & Arn.) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Bryonia hookeriana* Wight & Arn. (1834) 345. — Type: *Wight 1117* (Holo K), S India.

5. Pilogyne immarginata (W. J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria immarginata* W.J. de Wilde & Duyfjes (2006) 63. — Type: *Loeters 1580* (Holo L), Indonesia, Flores. Deviating in *Pilogyne* in the conspicuously stalked stigma-lobes, and long-pedicelled fruit, characters of *Zehneria s.s.* and *Neocaledonica* respectively. It is possibly of hybrid origin.

6. *Pilogyne maysorensis* (Wight & Arn.) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Bryonia maysorensis* Wight & Arn. (1834) 345. — Lectotype (de Wilde & Duyfjes, 2006): *Wight 1116* (Holo K; Iso P), S India.

7. Pilogyne mucronata (Blume) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Bryonia mucronata* Blume. — Lectotype (Simmons & De Wilde, 2000): *Blume s.n.* ("Pariagengie"), barcode L0048324 (Holo L; Iso L, 2 sheets) Java.

8. Pilogyne pedicellata (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria pedicellata* W.J. de Wilde & Duyfjes (2006) 69. — Type: *Brass 30732* (Holo L; Iso K), Papua New Guinea.

9. Pilogyne perpusilla (Blume) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Cucurbita perpusilla* Blume (1823) 105. — Lectotype: (Simmons & De Wilde, 2000): *Blume s.n.*, barcode L0048312 (Holo L; Iso L, 4 sheets), Java.

10. Pilogyne pisifera (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria pisifera* W.J. de Wilde & Duyfjes (2006) 71. — Type: *Brass 29609* (Holo L; Iso K), Papua New Guinea.

11. Pilogyne repanda (Blume) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Bryonia repanda* Blume (1826) 923. — Lectotype (Simmons & De Wilde, 2000): *Blume s.n.*, barcode L0048320 (L), Java.

12. Pilogyne rizalensis W.J. de Wilde & Duyfjes, *spec. nov.*

Pilogyne trichocarpae similis fructu glabro distincta et a *P. mucronata* seminibus parvis c. 3 mm longis differt. — Typus: *Ramos BS 2023* (Holo BM; Iso BRI, PNH, not seen).

Herbaceous climber, 3 m long, dioecious; stem 1–2 mm diam.; plant largely glabrous, dark on drying. *Leaves*: petiole 3–4.5 cm long, sparsely hairy; blade unlobed, upper surface glabrous, nerves sparsely hairy below, ovate, 5–10 by 4–8 cm, base cordate, margin (coarsely) shallowly dentate, apex acute-acuminate. *Male inflorescences, male and female flowers* not known. *Infructescences* with (2–)5–12 fruits in a cluster on a (1–)2–7 cm long peduncle. *Fruit* ellipsoid, 7–9 by 6–7 mm, apex round with a narrow *ca.* 0.5 mm long beak; pericarp minutely pitted, glabrous; fruiting pedicel 2–3 mm long. *Seeds* numerous, pale brown, flat, ovate-elliptic, 3 by 2 mm, smooth or faintly appressed hairy by partly detached cells of tanslucent membrane (possibly of the mesocarp), margin narrow but distinct, forming a square edge.

Distribution. Only known from Rizal Province, Luzon, Philippines.

Ecology. Unknown; fruiting in November.

Note. *Pilogyne rizalensis* obviously is very close to the widespread *Pilogyne mucronata.* The sole collection on which the present species is based possibly represents a local ecotype. It is visibly much at variance with all specimens now reckoned to *P. mucronata,* especially in its long-peduncled dense infructescence, small ellipsoid fruit and extremely small seeds, which are among the smallest in the whole family *Cucurbitaceae*.

The type, *Ramos BS 2023* has already been depicted in de Wilde & Duyfjes (2008A), and was discussed in a note under *Zehneria trichocarpa*.

13. *Pilogyne tenuispica* (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria tenuispica* W.J. de Wilde & Duyfjes (2004) 25. — Type: *Maxwell 93-1209* (Holo L), Thailand, Kanchanaburi.

14. Pilogyne trichocarpa (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov*.

Basionym: *Zehneria trichocarpa* W.J. de Wilde & Duyfjes (2008A) 271. — Type: *Ramos & Edaño BS 84954* (Holo GH), Philippines, Mindanao.

15. Pilogyne trullifolia (W.J. de Wilde & Duyfjes) W.J. de Wilde & Duyfjes, *comb. nov.*

Basionym: *Zehneria trullifolia* W.J. de Wilde & Duyfjes (2006) 77. — Type: *De Vogel 5618* (Holo L; Iso BO, K), C Celebes.

For more references and descriptions of species, see de Wilde & Duyfjes, 2006.

ZEHNERIA Endl. (1833) 69. — Type: *Zehneria baueriana* Endl.

Stoutish climber, subperennial; dioecious; brown on drying. *Probract* linear, minute, caducous. *Tendrils* simple. *Leaves* simple. *Flowers* small, creamy, pale yellow or yellow; sepals minute, (narrowly) triangular or narrowly elliptic, subpatent; petals free, (narrowly) elliptic, imbricate in bud; receptacle-tube campanulate. *Male inflorescence*: a many-flowered (sub)sessile fascicle. *Bracts* absent. *Male flowers*: pedicel short, 2–10(–15) mm long, persistent; stamens 3, inserted about halfway in the receptacle-tube, filaments about as long as or slightly longer than the anther, anthers all 2-thecous, just exserted, thecae lateral, curved, not divergent, connective broad in the middle and ± thickened adaxially, not produced at apex; disc deeply 3-lobed or -parted. *Female flowers*: disposed as male flowers; pedicel short; ovary fusiform-ellipsoid; stigmas 3 on short style-arms, each stigma deeply 2-parted, papillose; staminodes present; disc free, 3-parted. *Fruits* several, with short fruiting pedicel, ellipsoid, 1.5–3 cm long, not or hardly beaked, glabrous, greenish, then red, somewhat pulpy; pericarp cartilaginous, minutely scurfy-tessellate, not pitted. *Seeds* several or numerous, horizontal, compressed, ovate or elliptic, whitish, not sculptured, margin present but faint, edge rounded, base without wing.

A monotypic genus distributed in the Pacific: Norfolk Is. and New Caledonia.

Note. With the genus *Zehneria* in the restricted sense as described above, we provisionally associate 5 East Malesian-Pacific species originally described in *Zehneria* (*Z. erythrobacca, Z. grayana, Z. neocaledonica, Z. tahitensis and Z. viridifolia*), the majority described by de Wilde & Duyfjes (2006). These species have mutually little relationship and seem, like the type species of the genus, *Z. baueriana*, all in some way of hybrid origin between *Neoachmandra* and *Pilogyne*, as

conceived in the present paper. In a molecular phylogeny they come, however, close to *Z. baueriana*, and are nested within *Neoachmandra*, but with this latter genus they cannot go on morphological grounds. They key out within *Zehneria* as given by de Wilde & Duyfjes (2006), as well as in the present key to *Pilogyne* species.

(3) THLADIANTHA Bunge: THLADIANTHA NUDIFLORA Forbes & Hemsley, NEW FOR MALESIA

The genus *Thladiantha* comprises about 25 species, mostly in China. One of the species with a wider distribution in China (Sichuan and eastwards to Taiwan) is *T. nudiflora*. A collection from Mindanao, *Schwabe s.n.*, collected 15–25 Sept. 1981 (B) appears to be conspecific with some collections identified as *T. nudiflora* from Taiwan, *e.g. C.S. Kuoh 12194, T.Y.A. Yang 2325* (both L).

According to both Flora of Taiwan (H.Y Liu, 1993) and Flora of China (A.M. Lu *et al.*, draft, 2007) two species are accepted for Taiwan, viz. *T. nudiflora* (synonym *T. formosana* Hayata, 1908) (plant hairy, rarely subglabrous, tendrils 2-branched, leaves about as broad as long) and *T. punctata* Hayata (1911) (plant subglabrous, tendrils simple, leaves more elongate).

The tendrils of the two above cited collections of *T. nudiflora* from Taiwan, however, have simple tendrils, like in the specimen of *Schwabe s.n.* from Mindanao. Assuming that still two species occur in Taiwan, we suspect that *T. nudiflora* in Taiwan occasionally may have simple tendrils besides the normal 2-branched ones. The collection *Schwabe s.n.* (identified as *T. nudiflora* by Schaefer, Munich) is male flowering, and pending further research, we regard it here as representing *T. nudiflora*. The description given below is based on Chinese material, with in addition characters of the Mindanao collection.

THLADIANTHA NUDIFLORA Forbes & Hemsley (1887) 316, plate 8.

Thladiantha. formosana Hayata (1908) 100, plate 11.

Perennial climber to 5(?) m long, pubescent-hispid; stem of leafy shoots 2–3 mm diameter. *Probract* absent. *Tendrils* 2-branched or unbranched, spiraling in the upper 2/3. *Leaves*: petiole 3–5(–12) cm long, hispid or soft hairy; blade membranous or chartaceous, simple, broadly ovate, 6–13(–15) by 5.5–10(–13) cm, upper surface scabrous hairy and with minute cystoliths, lower surface densely yellowish or grey hispid, especially on the veinlets, base deeply cordate, margin serrate, sometimes faintly lobed, apex acute-acuminate. *Male inflorescences*: a simple or few-branched raceme, with small leaves at base of ramifications, 4–10 cm long, pubescent; peduncle 2–3 cm long, raceme 1.5–5 cm long, (5–)10-flowered, pedicels persistent, bracts minute, caducous. *Flowers* densely yellowish-grey long-pubescent. *Male flowers*: pedicel 3–5 mm long (to 10 mm in solitary flower at base of raceme); receptacle tube shallow, 4(–5) mm wide; sepals oblong, acute, 3–5(–6) mm long, 3-nerved; petals ovate-oblong, acute, 8–12(–15) by 6–7 mm, basal petal scale distinct; stamens free, inserted at base of receptacle, filaments *ca*. 4 mm long, anthers *ca*. 2.5 mm long; basal disc globose, not seen. *Female flowers*: solitary; pedicel 1–2 mm long, villose; probract not seen; perianth as in male flowers; ovary oblong, 12–15 by 4–5 mm, villose-hispid; style 3-armed, stigmas enlarged, reniform, 2-lobed; staminodes small. *Fruit* (brown-) red, oblong, 3–5 by 3–3.5(–4) cm, apex obtuse, smooth, pubescent, glabrescent. *Seeds ca*. 5 by 3.5–4 mm, reticulate.

Distribution. S China, Taiwan and Philippines (Mindanao).

Habitat & Ecology. (In Taiwan) montane.

Notes. In the original description (Forbes & Hemsley, 1887) the inflorescences are described as racemose, but figured (plate 8) as paniculate and glabrous. Hayata (1908, plate 11), for the synonym *T. formosana*, depicts a good habit and male flower details.

The precise locality on Mindanao of *Schwabe s.n.* is not known.

(4) TRICHOSANTHES L.: THREE SUBSPECIES IN TRICHOSANTHES TRICUSPIDATA Lour.

Trichosanthes tricuspidata Lour. is one of the most widespread species in the genus. It is distributed from S China, southeast far into Malesia. In the recent treatments of the genus for Thailand (Duyfjes & Pruesapan, 2004; Duyfjes & de Wilde, 2008B) *T. tricuspidata* was conceived as comprising two subspecies, *viz.* subsp.

tricuspidata and subsp. *javanica*. It was remarked that subsp. *tricuspidata* contains plants of which the seeds have either square or rounded edges, a variation considered unusual and problematic. A new survey of the material induced us to accept a third new subspecies, based on the seed-edge character, and largely sustained by distribution.

KEY TO THE SUBSPECIES

1.a. Male bracts with finely, densely, deeply serrate-laciniate margin. Male sepals with serrate margin or with side-lobes (female sepals entire)……2
1.b. Male bracts with shallowly coarsely dentate margin. Male sepals (almost) entire (female sepals entire). Seed edge square. — SW, SE, & Peninsular Thailand, Malesia, excl. Philippines)…. ……....c. subsp. *javanica* (with 2 varieties)
2.a. Seed much compressed, almost flat, with square edge. — NE Thailand, Indochina…… ……..a. subsp. *tricuspidata*
2.b. Seed moderately compressed with rounded edge. — Thailand, excl. Peninsular……. ……..…b. subsp. *rotundata*

Trichosanthes tricuspidata Lour. subsp. **rotundata** W.J. de Wilde & Duyfjes, *subsp. nov*.

A subspecie typica semine moderate compresso non applanato margine rotundato differt. — Typus: *Pooma, de Wilde, Duyfjes, Chamchoonroon & Phattarahirankanok 2574* (Holo BKF; Iso L).

Seed moderately compressed, not flat, seed edge rounded.

Distribution. Thailand (North, North-East, Eastern and Central) and West Laos.

Habitat & Ecology. Open deciduous dipterocarp forest, thickets with bamboo, roadsides, also on limestone hills; at 170–1000 m altitude.

Examined Specimens. *Kerr 1266, 5660; Maxwell 87-1224, 98-910; Parnell et al. 95-270; Phonsena et al. 3977, 4459, Pooma et al. 2574, 2585, 2943, 4800; Takahashi T-62576.*

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