

A REVISION OF AMYDRIMUM (ARACEAE)

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This genus, like *Anadendrum* and *Heteropsis*, is intermediate between the subfamilies *Pothoideae* and *Monsteroideae* as constituted by Engler (1920, p. 63). When Schott originally described the genus he placed it next to *Anadendrum* (*Pothoideae*). Engler (1879, p. 100) left it in the *Pothoideae* next to *Heteropsis* which followed *Anadendrum*. Later, Engler (1908, p. 118) transferred *Amydrium* to the *Monsteroideae* as a monotypic genus. In the same publication (p. 1) Engler established a new genus, *Epipremnopsis*, which he placed next to *Anadendrum* in the *Pothoideae*. In this treatment I propose to unite *Epipremnopsis* and its three species with the hitherto monotypic genus *Amydrium*.

The species concerned are rather different from each other. Study of them in the wild and the herbarium suggested that they were congeneric. In a recent survey of aroid floral anatomy (Eyde et al., p. 481, 486, fig. 9—15, 27) it was found that *Amydrium humile* and *Epipremnopsis media* have virtually identical unilocular ovaries with a single, deeply intrusive placenta (since found in *E. magnifica* and *zippeliana*). This striking condition has arisen from a bilocular ovary by abortion of the opposing placenta. Among the other aroids this character is known only in the genus *Epipremnum* and is the fundamental difference separating it from its near relatives, *Rhaphidophora* and *Scindapsus*. *Amydrium* is distinguished from *Epipremnum* by its lack of needlelike trichosclereids which are abundant in the flowers and fruits of *Epipremnum*.

The presence or absence of trichosclereids was regarded by Engler (1920, p. 63) as of fundamental importance in separating the *Monsteroideae* (with sclereids) from the *Pothoideae* (without sclereids). Engler did recognize exceptions: sclereids were known in *Pothos*, and he put *Amydrium* (without sclereids) in the *Monsteroideae*. Although a discussion of the differences between the *Pothoideae* and the *Monsteroideae* is beyond the scope of this paper, I suspect that they do not really form distinct subfamilies. Suffice it to say here that *Amydrium* appears to be associated with *Epipremnum* (*Monsteroideae*) and not with any member of the *Pothoideae*.

It should be noted that the following treatment reduces the number of species of *Epipremnum* recognized by Engler (1908, p. 54) from 14 to 10.

AMYDRIMUM

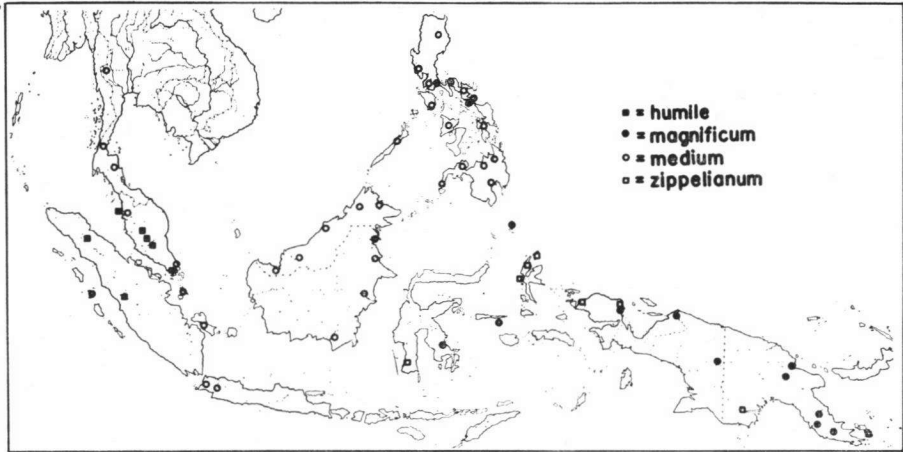
Schott, Ann. Mus. Lugd.-Bat. 1 (1863) 127; Engler in DC., Monogr. Phan. 2 (1879) 100; Engler et Krause in Engler, Pflanzenr. Heft 37 (1908) 118. — *Epipremnopsis* Engler, Pflanzenr. Heft 37 (1908) 1.

Climbers. Petiole geniculate at both ends, with a deciduous sheath which is often quite short on leaves of flowering shoots. Leaf-blade ovate to rotund in outline, entire or pinnately lobed or even foraminata; leaf-base cordate; leaf-apex acute to acuminate; venation clearly reticulate. Peduncle often solitary, usually shorter than the petiole. Spathe yellow, ovate, reflexing and soon deciduous. Spadix stipitate or sessile. Flowers

bisexual. Tepals absent. Stamens 4, filaments flattened. Pistil truncate or obconical; ovary bilocular above but unilocular below with a single intrusive placenta bearing 2 anatropous ovules near the middle; stigma suborbicular. Fruits fleshy with styler portion ultimately deciduous to reveal one or two subglobose seeds.

Type: *Amydrium humile* Schott.

Distribution: Southeast Asia from Thailand through New Guinea.



KEY TO SPECIES

1. Leaf-blade entire (even on flowering shoots); petiole clearly longer than the leaf-blade 1. *A. humile*
 1. Leaf-blade pinnatifid or pinnately divided (except on juvenile shoots); petiole rarely as long as leaf-blade.
 2. Leaf-pinnæ truncated, commonly foraminiate 2. *A. medium*
 2. Leaf-pinnæ tapering and acute, never foraminiate.
 3. Spadix sessile 3. *A. magnificentum*
 3. Spadix stipitate 4. *A. zippelianum*

1. *Amydrium humile* Schott, in Miquel, Ann. Mus. Lugd.-Bat. 1 (1863) 127. — *Epipremnum humile* (Schott) Hook. f., Fl. Brit. India 6 (1893) 559. — *Rhaphidophora humile* (Schott) Ridley, Mat. Fl. Malay Pen. 3 (1908) 41.

Typification: holotype, *Korthals s.n.* (L, no. 898.87-243), drawing published as Engler Araceae no. 152 and widely distributed in major herbaria.

Creeper or low climber. Stem to 1 cm thick with papery epidermis. Internode to 20 cm on 'running' shoots but condensed on flowering shoots. Petiole 15-30 cm long, geniculate below for 2 cm and above for 5 cm. Sheath less than 1 cm long. Leaf-blade entire, ovate-cordate, 9-18 cm long and 6.5-14 cm wide. Peduncle solitary, 3-7 cm long. Spathe 2-3 cm long. Stipe 0.3 cm long after spathe reflexes. Spadix 2-3 cm long and to 1.2 cm thick. Fruit & seeds unknown.

Distribution: Malaya and Sumatra (type possibly from Borneo but not confirmed).

Habitat: Primary forest, often on limestone, 1200-1800 m.

2. *Amydrium medium* (Zoll. and Mor.) Nicolson, *comb. nov.* — *Scindapsus medius* Zoll. and Mor. in Mor., Syst. Verz. (1846) 82. — *Anadendrum medium* (Zoll. and Mor.)

Schott, *Bonplandia* 5 (1857) 45. — *Rhaphidophora huegelii* Schott, *Bonplandia* 5 (1857) 45. — *Epipremnum medium* (Zoll. and Mor.) Engler in DC., *Monogr. Phan.* 2 (1879) 250. — *Epipremnopsis media* (Zoll. and Mor.) Engler, *Pflanzenr.* Heft 37 (1908) 1. — *Epipremnopsis huegelii* (Schott) Engler, *Pflanzenr.* Heft 37 (1908) 138, 'huegeliana'. — *Epipremnum truncatum* Engler and Krause in Engler, *Pflanzenr.* Heft 37 (1908) 63. — *Epipremnopsis subcordata* Hotta, *Acta Phytotax. Geobot.* 22 (1966) 2.

Typification. *Scindapsus medius*, *Anadendrum medium*, *Epipremnum medium*, *Epipremnopsis media*: holotype, *Zollinger 982* (G, non vidi); isotype (FI).

Rhaphidophora huegelii, *Epipremnopsis huegelii*: holotype, *Huegel (W, non vidi)*.

Epipremnum truncatum: holotype, *Elmer 7291* (B, non vidi), isotype (L).

Epipremnopsis subcordata: holotype, *Hirano & Hotta 347* (KYO, not seen).

Low climber. Stem to 1.5 cm thick. Internodes 1–5 cm long. Petiole 10–35 cm long, geniculate at both ends. Sheath marcescent, to 10 cm long on leaves of juvenile shoots, to 1 cm long on adult shoots. Blade ovate-cordate in outline, lacinate and usually foraminate (except in juvenile leaves), 8–30 cm long by 5–30 cm wide, pinnae few, truncated, sometimes overlapping; venation reticulate with 1–3 primary veins per pinna. Inflorescence solitary. Peduncle 9–15 cm long. Spathe reflexing and deciduous, about 5 cm long. Stipe 1 cm long. Spadix 3–6 cm long and 1.5 cm thick, up to 15 cm long in fruit. Style truncated but elongating in fruit. Stigma punctate to slightly vertically elongated. Fruit tan when ripe.

Distribution: Southwest Thailand, Malaya, Sumatra, Java, Borneo, Philippines, and Moluccas. To be expected in southern Burma and Celebes.

Habitat: Primary lowland rainforest from 100–1500 m.

The only distinction I can make between Engler's *Epipremnopsis huegelii* and *media* is that the former was described from fruiting material with spadix 8–13 cm long and the latter was described from flowering material with spadix 3–3.5 cm long.

3. *Amydrium magnificum* (Engler) Nicolson, *comb. nov.* — *Epipremnum magnificum* Engler, *Bull. Soc. Tosc. Ort.* 4 (1879) 270; in Beccari, *Malesia* 1 (1883) 274, t. 20, fig. 6–9. — *Rhaphidophora warburgii* Engler, *Bot. Jahrb.* 37 (1906) 116. — *Epipremnum elmerianum* Engler, *Pflanzenr.* Heft 37 (1908) 66. — *Epipremnum philippinense* Engler and Krause in Engler, *Pflanzenr.* Heft 37 (1908) 135. — *Epipremnum luzonense* Krause, *Bot. Jahrb.* 45 (1911) 659. — *Epipremnum mampuanum* v. A. v. R., *Bull. Jard. Bot. Buitenzorg*, sér. 3, 1 (1920) 378. — *Epipremnopsis magnifica* v. A. v. R., *Bull. Jard. Bot. Buitenzorg*, sér. 3, 4 (1922) 331. — *Epipremnum mineatum* Elmer ex Merr., *Enum. Philip. Fl. Pl.* 1 (1923) 177, *pro syn.*; Elmer, *Leaf. Philip. Bot.* 10 (1938) 3622, *sine descr. lat.* — *Epipremnum sorsogonense* Elmer ex Merr., *Enum. Philip. Fl. Pl.* 1 (1923) 177, *pro syn.*

Typification. *Epipremnum magnificum* and *Epipremnopsis magnifica*: lectotype: *Beccari, P. S. s.n.* (FI no. 11646), syntype: *Beccari, P. P.* 563 (FI).

Rhaphidophora warburgii: holotype: *Warburg 1888* (B).

Epipremnum elmerianum: holotype: *Elmer 7295* (B, lost), isotype (BO, G).

Epipremnum philippinense: syntypes: *Elmer 7623*, *Elmer 9253* (seen but herbaria not recorded).

Epipremnum luzonense: holotype: *Ramos, Bur. Sci.* 10052 (seen but herbaria not recorded).

Epipremnum mampuanum: holotype: v. *Alderwerelt van Rosenburgh 251* (BO), clone-type: *cult. Hort. Bogor.* as *Y37–37a*, *Y71–71a*.

Epipremnum mineatum: based on: *Elmer 14522* (US, PNH), *15113* (US), *16422* (US).

Epipremnum sorsogonense: based on: *Elmer 16422* (US).

Low climber on trees and rocks. Stem to 2 cm thick. Internodes 3—4 cm long. Petiole 25—75 cm long on adult shoots. Sheath usually clasping stem but rarely to 25 cm long, soon deciduous. Blade entire and ovate-cordate in juvenile stage, deeply laciniate in adult, 70—85 cm long and 60—70 cm wide, pinnae tending to droop, 2—8 cm wide and tapering to each end; venation reticulate with a midrib in each pinna and two marginal veins which receive the secondary veins, the marginal veins are about 1 cm from the leaf margin. Inflorescences from 1—8 at a node, subtended by green bracts which blacken and wither. Peduncles 3—23 cm long. Spathe yellow, deciduous, 9—17 cm long and 12 cm wide, more or less adnate to spadix for 1—2 cm. Spadix sessile, yellow but turning green and finally orangish-red, 5—8 cm long and 2 cm thick, when ripe up to 22 cm long and 5.5 cm thick. Stylar portion truncated with a ridge around edge, dehiscent at maturity, exposing seeds. Sclereids none. Seeds 2, 1 per locule, black, about 1 cm long and 0.5 cm thick.

Distribution: Philippines; Indonesia (southwest and southeast Celebes, Talaud Islands, West Irian); Papua and Territory of New Guinea to southeastern tip.

Habitat: Primary lowland rainforest in shade, 30—1500 m.

Field notes: Rather common.

Although this species is sometimes reported in secondary forest I suspect it is only a survivor, not an invader into secondary conditions. Recent collections are commonly from over 1000 m, but perhaps it was much more widely distributed at lower elevations, the forest of which has been destroyed.

The distribution of this species is very similar to *A. zippelianum*. The only difference between the two is that *A. magnificum* has a sessile spadix and *A. zippelianum* is stipitate. However, some specimens have a diagonal attachment of the spathe so that it appears that there is a stipe when viewed from the front. I have regarded these as 'sessile'. This decurrency of the spathe tends to weaken the only character separating these species and I must suggest the possibility that *A. magnificum* may only be a variety of *A. zippelianum*.

4. *Amydrium zippelianum* (Schott) Nicolson, *comb. nov.* — *Rhaphidophora zippeliana* Schott, in Miquel, Ann. Mus. Lugd.-Bat. 1 (1863) 129. — *Epipremnum asperatum* Engler, Bull. Soc. Tosc. Ort. 4 (1879) 270. — *Epipremnum zippelianum* (Schott) Engler, Bot. Jahrb. 1 (1880) 182; Engler in Beccari, Malesia 1 (1882) 274, t. 20, fig. 10—12. — *Epipremnopsis zippeliana* (Schott) v. A. v. R., Bull. Jard. Bot. Buitenzorg, sér. 3, 4 (1922) 331.

Typification: *Rhaphidophora zippeliana*, *Epipremnum zippelianum*: holotype: Zippel *s.n.* (L, no. 898, 894), 2 isotypes (L). Drawing of holotype with intact inflorescence — Schott Aroideae no. 2977 (W).

Epipremnum asperatum: syntypes: d'Alberty *s.n.* (FI, no. 11649) and Beccari, *P.M. s.n.* (FI no. 11650).

Low climber. Stem to 3.5 cm thick. Internodes 2—6 cm long. Petiole 75—85 cm long, grooved at upper end, swollen at both ends. Sheath deciduous, to 40 cm long. Blade ovate-cordate in outline, deeply lacinate, 100—125 cm long, 80—90 cm wide, pinnae tapered to each end with a midrib and a marginal vein about 1 cm from each margin; venation reticulate. Peduncle solitary, 8 cm long. Spathe yellow, 11—15 cm long, deciduous, diagonally attached. Stipe 1—2 cm long. Spadix 3—6 cm long and 1 cm thick (fl.) to 15 × 4.5 cm (fr.). Stigma vertically elongated. Fruit red when ripe.

Distribution: Celebes, Halmahera, and across New Guinea.

Habitat: Lowland rainforest up to 1800 m.

This species is supposed to have asperulous petioles and peduncles, distinguishing it

from *A. magnificum* with glabrous petioles and peduncles. The few asperulous specimens appear to be due to a fungus on or under the epidermis.

The key character used here, stipitate spadix in *A. zippelianum* and a sessile spadix in *A. magnificum*, may not prove real under further studies. In the meantime I continue the old usage of keeping them as separate species.

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 — 1908. Araceae-Monsteroideae. Pflanzenz. Heft 37: 1—160.
 — 1920. Araceae Pars Generalis. Pflanzenz. Heft 74: 1—71.
 EYDE, R., D. NICOLSON, and P. SHERWIN. 1967. A survey of floral anatomy in Araceae. Amer. Journ. Bot. 54: 478—497.

IDENTIFICATION LIST

In this list are enumerated the fertile, numbered collections of *Amydrium* that the author has in hand. Sterile specimens have been omitted, as are specimens without a collector or a number.

The numbers in italics refer to the species in the present paper; types are indicated by (T) after the number.

- Anderson 9707: 2.
 Bakhuizen v. d. Brink 7107: 2. Beccari PP 536: 3 (T). Beguin 1889, 2121: 4. Bloembergen 4517: 2; Kwai Noi Exped. 624: 2. Brass 25422: 4. Bünnemeijer 7438: 2; 12376: 4.
 Carr 11899, 15612: 3. Clemens 894, 1130, 1653: 3; 10773, 26733, 29144, 51420: 2. Conklin PNH 18760: 2. Curtis 1855: 1.
 Edaño BS 78291: 2; PNH 34445, 40447: 2. Elmer 7291: 2 (T); 14522: 3 (T); 14721: 2; 15113: 3 (T); 16422: 3; 20210: 2.
 Forbes 828: 3. Fox PNH 4579: 2. Frake PNH 37983: 2.
 Gonzales PNH 15853: 2.
 Hizano & Hotta 347 (T): 2. Hutchinson 2762: 2.
 Ichlas 80: 1. Idjan and Mohtar 269: 4.
 Kalkman 4545, 4550: 3. Kerr 18232: 2. Koorders 31166, 41679: 2. Koster BW 13865: 3. Kostermans 1190, 1651: 4; 10378a, 21320: 2; Kwai Noi Exped. 413: 2. and Anta 890: 2.
 Lam 487, 582, 2734: 3. Lörzing 15544: 1.
 Maingay 1542: 1. Martelino and Edaño BS 35662: 2. Meijer 2586: 2. Mendoza PNH 18541: 3; 91278: 2. Merrill BS 7343, 8071: 2.
 Nicolson 698, 744: 2; 756, 757, 763: 3; 816: 2; 878: 1; 885: 3; 887: 2; 925: 3; 940: 2; 1177, 1193, 1208: 1; 1476: 3; 1570: 4; 1701: 2.
 Pancho and Bardenas 10695: 3. Pleyte 1019: 4.
 Ramos and Edaño BS 75228: 3. Regalado and Ugalido PNH 37495: 2. Ridley 5009: 2.
 Schiffner 1671: 2. Steiner PNH 22932, 36462: 2. Synge S 35: 2.
 Weber 1095: 2.
 Zollinger 982: 2 (T).