

A MONOGRAPH OF THE GENUS *PLEIOCARPIDIA* K. SCH. (RUBIACEAE)

by

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The name *Pleiocarpidia* was coined by K. SCHUMANN (ENGLER und PRANTL, *Natürliche Pflanzenfamilien*, Nachträge I, p. 314, 1897) for a genus described in 1873 by HOOKER f. (BENTHAM et HOOKER, *Genera Plantarum* II (1), p. 71) as *Aulacodiscus*: HOOKER's genus had to be rebaptized, because the name *Aulacodiscus* had been used already in 1844 by EHRENBURG for a genus belonging to the *Diatomeae*. A proposal made by O. KUNTZE (POST et KUNTZE, *Lexicon*, 1904) to change the spelling of the name introduced by SCHUMANN in *Pleiocarpidia* can not be accepted, as there is no rule prescribing the transcription of the Greek diphthong in the manner advocated by the proposer.

The plant on which HOOKER's genus was founded, a small tree not uncommon in the Malay Peninsula, had been described already several years before by WIGHT (*Calc. Journ. Nat. Hist.* VII, p. 144, 1847) under the name *Axanthes enneandra*. The specific epithet points to the presence of nine stamens in the flower, but this is exceptional: in the flowers investigated by me the ordinary number proved to be seven. The genus *Axanthes* Bl., to which the species had been referred by WIGHT, was reduced shortly afterwards by BENTHAM and HOOKER f. (*Niger Flora*, p. 396, 1849) and independently by KORTHALS (*Ned. Kruidk. Arch.* II, 2, p. 194, 1851) to *Urophyllum* Wall. Later HOOKER made an exception for *Axanthes enneandra* Wight. The flowers of this plant were described by him as 8- to 16-merous, and on account of this character and of the presence of a "peltate stigma" he referred it to a new genus. Afterwards a second species from the same region was described by KING and GAMBLE under the name *Aulacodiscus Maingayi*, but this proved identical with the first (cf. RIDLEY, *Flora of the Malay Peninsula* II, p. 64, 1923). A really new species, however, was found in Mindanao: it was described by MERRILL as *Pleiocarpidia lanaensis*.

There can be little doubt that the genus *Pleiocarpidia* owes its origin to a mistake. As mentioned above, the flowers of the type

species were described by HOOKER as 8- to 16-merous, but in duplicates of the specimens on which his description was based (MAINGAY, Kew Distr. 938 and HELFER, Herb. E.I.C., Kew Distr. 2938) I found the majority 7-merous, a small minority 6- or 8-merous, and not a single one with a larger number of parts; and the same result was obtained in all other specimens which I could investigate. How HOOKER's mistake is to be explained, I do not know: it is possible, of course, that the flowers dissected by him were abnormal. In the Philippine species described by MERRILL the flowers are said to be 7-merous; in the specimens investigated by me they were 5- or 6-merous: flowers with 8 or more parts, at any rate, are entirely absent. The second character mentioned by HOOKER, the "peltate stigma", is of more importance, but I can not believe that HOOKER saw it in this light. According to MIQUEL (Fl. Ind. Bat., Suppl. I, p. 542, 1860) a "stigma" of this kind occurs also in the Sumatran *Urophyllum peltistigma* Miq., a plant with 6-merous flowers. It is true that HOOKER does not mention this species, but as it was published in a well-known work and bears a suggestive name, it is hardly probable that it was overlooked by him: I suppose therefore that he regarded it as an ordinary *Urophyllum*. If this is true, the value attached by him to the presence of the "peltate stigma" can not have been of primary importance.

In his "Flora of the Malay Peninsula" (Vol. II, p. 4, 1923) RIDLEY accepted *Aulacodiscus* as distinct from *Urophyllum*, and set down three points of difference: the form of the inflorescence, the unisexual flowers, and the 8 — 16 stamens. The last-named character, doubtless inserted on the authority of HOOKER's original description, is, as we have seen already, a mistake: in the type species the number of stamens varies between 6 and 8, and in *Pleiocarpidia lanaensis* Merr. between 5 and 7. The second character has no diagnostic value either: in *Urophyllum* too the flowers are, notwithstanding the many statements to the contrary scattered through the literature, always unisexual. The form of the inflorescence is of more importance, but it should not be overlooked that similar inflorescences are found in *Urophyllum corymbosum* (Bl.) Korth. and, though in a more contracted form, in *U. villosum* Wall. too, species that are doubtless generically distinct from *Pleiocarpidia* (I refer them to the genus *Maschalocorymbus*, which has been dealt with in the preceding paper).

In a paper dealing with the *Urophyllum* species of the Malay Archipelago (Journ. of Bot. LXX, p. 192, 1932) RIDLEY reconsiders his standpoint and comes to the conclusion that *Pleiocarpidia* can not be kept up as generically distinct from *Urophyllum*. He retains

the name, however, for a group of minor importance, characterized by the presence of 8—9 stamens arranged in two rows. The addition “arranged in two rows” is most unlucky, for there is not a single Rubiaceous plant in which the stamens are arranged in this way: in *Pleiocarpidia* too there is always a perfectly regular alternation between the corolla lobes and the stamens or staminodes. The group is moreover unnatural, for of the four species referred to it two, namely *U. Creaghii* Ridl. and *U. Havilandii* Ridl., belong to the genus *Praravinia* Korth.

The results of our survey of the literature are not favourable to the genus *Pleiocarpidia*: one gets the impression that it is an ill-defined genus, and that the two species which have been referred to it might as well be included in *Urophyllum*. A reinvestigation of these two plants and of a large number of species hitherto referred to *Urophyllum*, however, has led to the conclusion that *Pleiocarpidia* is on the contrary a well-defined genus, to which several species described under *Urophyllum* will have to be transferred. Its main characters appear to be: the trichotomously corymbose or paniculate inflorescence, the outside puberulous or pubescent corolla lobes, the moniliform shape of the hairs in the corolla throat, the white-papillose disc, and the spreading, short, thick and more or less truncate, laterally cohering stigmata (the “peltate stigma” of MIQUEL and HOOKER). The inner side of the stipules is moreover, as a rule, densely pubescent, and their tips are very often bidentate or bilobate.

Trichotomously corymbose inflorescences occur also in *Maschalcorymbus* Brem., the genus to which I refer *Urophyllum corymbosum* (Bl.) Korth. and its allies: these plants differ from *Pleiocarpidia* in the inside glabrous stipules, the outside entirely glabrous corolla, the stiff and smooth white hairs in the corolla throat, the glabrous cerebriform disc, and the longer, suberect and laterally not cohering stigmata. Similar inflorescences are found also in some of the African species referred to *Urophyllum*. The flowers of the African plants, however, are bisexual, and the stigmata are of a type never found in the *Urophyllum* group: they belong in the neighbourhood of *Sabicea*, and need not be considered here. In the other genera belonging to the *Urophyllum* group the flowers are either solitary or, more often, fascicled, umbellate, or arranged in inflorescences consisting of an umbel preceded by a whorl.

An outside puberulous or pubescent corolla occurs in several species of *Praravinia*, in *Rhaphidura* and *Lepidostoma*, two of the new genera described in the preceding paper, and in some species of *Urophyllum* provided with 4-merous corollas. The hairs in the corolla throat are, as elsewhere in this group, unicellular and flattened,

but by a number of evenly spaced constrictions they are from the base to the tip divided in compartments resembling swollen cells; the constrictions, however, do not form complete septa. The hairs in the corolla throat of *Urophyllum* too are provided with constrictions, but the latter are as a rule not so regularly spaced, and they are moreover confined to the upper part. In *Stichianthus* Val. the constrictions are, however, very similar to those found in the *Pleiocarpidia* hairs.

The disc is fairly large and either pulviniform or, in the male flower, subconical. The peripheral part is usually ornamented with a number of grooves, and the top with twice as many pits, the grooves being the impressions of the filaments and the pits those of the anther cells. In the male flower the grooves and pits are, as a rule, easily recognizable, but in the female flower they vary according to the degree of development reached by the staminodes, and here they are therefore sometimes difficult to see or absent. The surface between the grooves and pits is always covered with white papillae. In *Stichianthus* Val. and in those species of *Urophyllum* in which the flowers are arranged in sessile umbels the disc is covered with similar papillae, but in these plants the pits are always absent.

The short and thick, more or less truncate, spreading stigmata cohere in a thick, flat or centrally depressed disk, the "peltate stigma" of MIQUEL and HOOKER. They are on all sides covered with a thick carpet of usually yellowish or bright yellow papillae. The style is cylindrical and always provided with a fairly wide stylar canal. Comparatively short and spreading stigmata, thickly covered with papillae are found also in some species of *Urophyllum*, e.g. in *U. congestiflorum* Ridl., but here the stigmata are almost entirely free, and the papillae are confined to the margin and to the upper side. In the male flower the style remains short and thin and the stigmata rudimentary. In the descriptions of the various genera and species belonging to the *Urophyllum* group I have used for this structure the term „stylodium": as it forms a natural complement to the term "staminodium", it can not be misunderstood, and its application to a rudimentary style is doubtless more suitable than its use for a somewhat unusually shaped style, for a part of the style or for organs showing a faint resemblance to a style.

Inside pubescent stipules are found also in some other genera belonging to the *Urophyllum* group, namely in *Praravinia*, *Rhapidura* and *Lepidostoma*, but here the tips are always entire. In *Praravinia* the scars left by the stipules are moreover as large or larger than those left by the petioles, and more or less of the same

shape, whereas in *Rhaphidura*, *Lepidostoma* and *Pleiocarpidia* the stipular scars are transversely stretched and usually very narrow. In the character of its stipules *Pl. coffeoides* Brem., however, forms an exception, for here the inner side is nearly glabrous, the tips are entire and the scars rather large.

In this paper 27 species are dealt with, of which 9 had been described already under *Urophyllum*, and 16 are entirely new. They are distributed as follows: 1 species in the Malay Peninsula, 3 species in Sumatra, 22 species in Borneo, and 1 in the Philippine Island Mindanao. The species occurring in the Malay Peninsula and in Sumatra and the Bornean *Pl. sandahanica* Brem. are nearly related. The other Bornean species differ considerably among each other, but on account of the characters of the calyx, the stipules and the corolla lobes some well-defined groups can be distinguished. The position of the Philippine species is somewhat uncertain: in the shape of the leaf and of the inflorescence and in the weakly developed beard in the corolla throat it resembles the species of the wide-spread group, but the flat, ovate stipules, and perhaps also the presence of an involucl at the base of the peduncle, forbid the assumption of a near affinity. Another species whose position is difficult to determine is *Pl. coffeoides* Brem., where the stipules, as we have seen already, show a quite unusual character. As the subdivision of the genus has partly been based on the form of the stipules, it is rather unfortunate that in six species (*Pl. deliensis* Brem., *Pl. longipetala* (Ridl.) Brem., *Pl. magnifolia* Brem., *Pl. borneënsis* (Miq.) Brem., *Pl. rufescens* Brem. and *Pl. bracteolata* (Ridl.) Brem.) the stipules are as yet unknown. It is true that of the four scales of the involucl two are to be regarded as stipules, but as their form is always more or less modified, they are no reliable guides. Five of these six species, however, could easily be located on account of other characters, but the position of the sixth, *Pl. borneënsis*, is not so well-defined, because here the flowers too are unknown. Apart from MIQUEL's type in the Utrecht Herbarium I have seen no specimens which could be referred to it: the plant to which the name was applied by VALETON (Engler's Jahrb. XLIV, p. 556, 1910) belongs probably to *Pl. paniculata* (Ridl.) Brem., and RIDLEY's specimens (Journ. of Bot. LXX, p. 223, 1932) should be classified under *Urophyllum vulpinum* Brem., a species which I will describe in another paper.

The key to the species may serve to give some idea of the differences existing between the main groups; a more detailed account of their characters will follow.

Key to the Species of *Pleiocarpidia* K. SCH.

1. Stipules usually bidentate or bilobate, rounded or flat on the back, inside more or less densely adpressed pubescent . . . 2
: Stipules entire, subcarinate, inside nearly entirely glabrous. — Borneo 26. **Pl. coffeoides** BREM.
2. Calyx shortly or indistinctly lobate or dentate 3
: Calyx divided beyond the middle; bracts always well-developed. — Bornean species 18
3. Bracts minute or absent. Flower buds various 4
: Bracts well-developed. Flower buds in the centre depressed; the depression surrounded by a row of small knobs. Stipules widened and somewhat saccate at the base, above the base suddenly contracted in a scaphoid lobe. — Bornean species . . . 16
4. Inflorescence paniculate or subpaniculate and provided with two involucl. Corolla throat but weakly bearded 5
: Inflorescence trichotomously corymbose and provided with one involucl only. Corolla throat densely bearded. — Bornean species 10
5. Stipules with incurved margin, widened and somewhat saccate at the base, and above the base suddenly contracted in a scaphoid or subulate lobe. 6
: Stipules flat, ovate. — Mindanao . . 6. **Pl. lanaensis** MERR.
6. The majority of the flowers 7-merous. — Malay Peninsula 1. **Pl. enneandra** (WIGHT) K. SCH.
: The majority of the flowers 6- or 5-merous 7
7. The majority of the flowers 6-merous. — Sumatran species 8
: The majority of the flowers 5-merous. — Borneo 5. **Pl. sandahanica** BREM.
8. Young shoots, petioles and underside of the leaves subglabrous; leaves with 14—16 nerve pairs 9
: Young shoots, petioles and nerves on the underside of the leaves tomentellous; leaves with 17—19 nerve pairs. 4. **Pl. deliensis** BREM.
9. Petiole 9—14 mm long. Inflorescences subtended by leaves. Hairs in the corolla throat with 4—7 constrictions, obtuse and subclavate 2. **Pl. assahanica** BREM.
: Petiole 3—9 mm long. Inflorescences subtended by leaf scars. Hairs in the corolla throat with more numerous constrictions, acute, not widened towards the top. 3. **Pl. peltistigma** (MIQ.) BREM.

10. Flower buds subacute or obtuse, but not depressed in the centre; corolla lobes flat 11
 : Flower buds in the centre depressed; the depression surrounded by a row of small knobs; corolla lobes gibbous 12
11. Inflorescence contracted: peduncle 3—4 mm long and the branchlets even shorter; pedicels 2.5—4 mm. Flowers 7-merous. Corolla lobes 3.5 mm long. 7. **Pl. longipetala** (RIDL.) BREM.
 : Inflorescence with much longer peduncle and branchlets, but the flowers at the end of the branchlets congested: peduncle 10—15 mm and the branchlets still longer; pedicels 1—1.5 mm. Flowers 5-merous. Corolla lobes 1.8 mm long
 8. **Pl. capituligera** (RIDL.) BREM.
12. Leaves 22—30 cm long and 7—9 cm wide, with 13—14 nerve pairs. Inflorescence with about 81 flowers
 9. **Pl. magnifolia** BREM.
 : Leaves much smaller and with not more than 11 nerve pairs. Inflorescence with about 9 to 27 flowers 13
13. Inflorescence with about 27 whitish flowers. Nerves on the underside of the leaf prominulous.
 10. **Pl. kinabaluensis** BREM.
 : Inflorescence with about 9—15 flowers. Nerves on the underside of the leaf strongly prominent 14
14. Inflorescence very shortly pedunculate, i.e. peduncle not more than 5 mm long. Flowers 6-merous; colour of the flower unknown 11. **Pl. sintangensis** BREM.
 : Peduncle at least 8 mm long. Flowers 5-merous; corolla purple or dark red. 15
15. Leaves subcoriaceous, oblong, ending in a long mucronate tail and provided with 8—11 nerve pairs. Involucral scales subequal 12. **Pl. macrura** BREM.
 : Leaves coriaceous, elliptic-oblong, acuminate, provided with 6—8 nerve pairs. Involucral scales very unequal
 13. **Pl. parvistipula** BREM.
16. Shoots glabrescent. Leaves 14.5—17 cm long and 5.2—7.0 cm wide. Inflorescence not contracted. 14. **Pl. holectomia** BREM.
 : Shoots covered with a short but very dense persistent pubescence. Leaves smaller. Inflorescence subcapitate; the pedicels of the ripening fruits however elongating 17
17. Petioles and peduncles less than 1 cm long. Scales of the involucrel 2—4 mm long. 15. **Pl. capitata** BREM.

- : Petioles and peduncles more than 1 cm long. Scales of the involucl 6—8 mm long. . . 16. **Pl. cephalotes** (RIDL.) BREM.
- 18. Coxolla lobes with a patent horn springing from the middle of the back 25. **Pl. corniculata** BREM.
- : Corolla lobes flat 19
- 19. Stipules with incurved margin, widened and saccate at the base, above the base suddenly contracted 20
- Stipules flat, as a rule gradually narrowed towards the bilobate top 21
- 20. Inflorescence provided with a single involucl, corymbose; bracts 4—6 mm long; the floral ones at the top of the pedicels 17. **Pl. chlamydantha** BREM.
- : Inflorescence provided with two involucels, paniculate; bracts 2.5—3.5 mm long; the floral ones near the middle of the pedicels 18. **Pl. opaca** BREM.
- 21. Leaves linear-oblong, rotundate or subcordate at the base. Petiole 3 mm long 19. **Pl. pilosa** (RIDL.) BREM.
- : Leaves wider; at the base acute to rotundate, but never subcordate. Petiole at least 6 mm long. 22
- 22. Inflorescence corymbose . . . 20. **Pl. borneënsis** (MIQ.) BREM.
- : Inflorescence paniculate 23
- 23. Leaves with 8—11 nerve pairs 21. **Pl. Elmeri** BREM.
- : Leaves with a larger number of nerves 24
- 24. Leaves with 12—14 nerve pairs, drying with a reddish tint. The dissepiments of the ovary not alternating with ribs springing from the wall 22. **Pl. rufescens** BREM.
- : Leaves with a larger number of nerves, not drying with a reddish tint. Dissepiments alternating with ribs springing from the wall 25
- 25. Shoots, petioles, underside of the midrib and inflorescence densely rufous-tomentose; leaves with 16—20 nerve pairs and up to 20 cm long. Stipules up to 4 mm wide
- 23. **Pl. paniculata** (RIDL.) BREM.
- : Shoots, petioles, underside of the midrib and inflorescence sparsely villous; leaves with 20—25 nerve pairs and more than 20 cm long. Stipules more than 8 mm wide
- 24. **Pl. polyneura** (MIQ.) BREM.

The species 1 to 5 form the group *Polyantha* e. It are all five large-leaved plants with many-flowered, paniculate inflorescences provided with two involucels: the stipules are small and scaphoid, the calyx is subtruncate, the corolla but weakly bearded, and the lobes are neither gibbous nor corniculate.

Species 6 shows a striking resemblance to the species of the first group, but its stipules are of an entirely different nature. For this reason it is referred to a group of its own, *Xena* e.

The *Pogonantha* e, species 7 to 13, agree with the *Polyantha* e in the form of the stipules and of the calyx, but the inflorescence is corymbose and provided with one involucel only, and the corolla throat is densely bearded.

The next group, *Graptophylla* e, comprising the species 14 to 16, has the calyx of the preceding groups, and the stipules of groups 1 and 3, but differs conspicuously from them in the well-developed bracts: in this respect it resembles the next two groups. In herbarium material the leaves are marbled with irregular black spots.

In the *Trichoclada* e, species 17—24, the calyx is divided beyond the middle, and the shoots, the petioles and the underside of the nerves are covered with a more or less dense indumentum; the corolla lobes are flat. In the species 17 and 18 the stipules are contracted in a narrow lobe with incurved margin, but in the others they are gradually narrowing, flat and, usually, large.

Species 25 is a rather isolated form, well, characterized by the spreading hornlets on the back of the corolla lobes and by the clathrate arrangement of the venules. In its other characters it comes perhaps nearest to the *Graptophyllae*: I regard it as the representative of a distinct group: *Ceratopetala* e.

Even more apart from the other groups is species 26, representing the group *Callophylla* e. Its most aberrant characters are found in the stipules, which are entire, carinate, and on the inner side almost completely glabrous. The very dense reticulation of the leaves is also an unusual feature in the genus, and the stigmata are somewhat longer than in most of the other species.

Enumeratio descriptiva.

PLEIOCARPIDIA K. SCH. in ENGLER und PRANTL, *Natürliche Pflanzenfamilien*, Nachträge I, p. 314 (1897) nom. nov.; MERRILL in *Philipp. Journ. Sc.* XX, p. 462 (1922); LEMÉE, *Dict.* V, p. 407 (1934); *Aulacodiscus* HOOK. f. in BENTHAM et HOOKER f., *Genera Plantarum* II (1), p. 71 (1873); BAILLON, *Hist. d. Pl.* VII, p. 454

(1880); BOERL., *Handl. Fl. Ned. Ind.* II (1), p. 61 (1891); K. SCHUMANN in ENGLER und PRANTL, *Natürl. Pflanzenfam.* IV (4), p. 66 (1891); KING and GAMBLE in *Journ. Asiat. Soc. Beng.* LXXII, p. 188 (1903); RIDLEY, *Fl. Mal. Pen.* II, p. 64 (1923); non *Aulacodiscus* Ehr. (1844); *Phiocarpidia* O. Ktze in POST et KUNTZE, *Lexicon Gen. Phan.*, p. 448 (1904). — Typus: *Pl. enneandra* (Wight) K. Sch., cf. *infra speciem primam*.

Genus *Rubiacearum* inflorescentiis axillaribus dioecis, ovario pluriloculari, corolla hypocrateriformi tubo brevi, fauce barbata, lobis valvatis, stylo glabro, stigmatibus patentibus, fructu carnoso, seminibus permultis alveolatis affinitatem cum genere *Urophylllo* Wall. et generibus ei proximis detegens, pilis corollae fauce insertis tenuioribus et identidem constrictis ad *Urophyllum* ipsam et ad *Stichianthum* Val. accedens, inflorescentiis trichotome corymbosis vel paniculatis, pilis corollae fauce insertis a basi moniliformibus, stigmatibus obtusis vel truncatis, patentissimis et in discum crassum centro depressum cohaerentibus, stipulis intus plerumque dense adpresse pubescentibus ab eis tamen satis diversum.

Arbores parvae, parce brachiatae, dioecae. *Rami* novelli plerumque profunde quadrisulcati, deinde obtuse quadrangulares vel subteretes. *Folia* opposita et aequalia, petiolata; petiolus canaliculatus et haud rare a latere compressus; lamina satis magna, acuminata vel caudata, costa subtus plerumque valde prominente, nervis patentibus et plerumque subaequidistantibus. *Stipulae* interpetiolares, plerumque bilobatae vel bidentatae, intus plerumque adpresse pubescentes, axilla dense sericeo-villosae, plerumque mox deciduae et cicatricem plerumque transverse linearem relinquentes. *Inflorescentiae* axillares, pedunculatae, trichotome corymbosae vel paniculatae, axe uno vel duobus, rare tribus involuclis tetrameris cinctae, bracteis aliis in ramos pedicellosque egredientibus, interdum minutis vel ad nihilum redactis. *Flores* 5- usque ad 8-meri, interdum aliqui 4- vel 9-meri, parvi. *Ovarium* 5- usque ad 8-loculare, i.e. loculi plerumque tanti quanta corollae segmenta; placentae quoque loculo duae, parte centripetali dissepimentorum insertae, subpeltatae, lamina plicata ovulis numerosissimis obiectae; ovarium floris masculi rudimentarium. *Calyx* aut pelviformis et subtuncatus vel denticulatus, aut campanulatus et lobatus, tubo floris masculi quam floris feminei longiore. *Corolla* albida, viridula, luteola vel rubra, breviter hypocrateriformis, tubo suburceolato, fauce pilis unicellularibus applanatis tenuibus, a basi moniliformibus, albidis, viridulis vel luteolis barbata, lobis valvatis apice in dentem descendentem productis, extus puberulis vel pubescentibus. *Stamina* fauce inserta, filamentis glabris malleiformibus, tubo usque ad basin decurrentibus, antheris dorsifixis,

introrsis, basi bilobatis, connectivo angusto interdum in apiculam brevem producto; plerumque pilis fauce insertis celata; staminodia floris feminei staminibus plerumque similia, antheris tamen haud rare redactione lobulorum longius apiculatis, rare nulla. *Discus* pulviniformis vel flore masculo interdum subconicus, dense albo-papillosus, ad peripheriam filamentis decurrentibus sulcatus, apice ab antheris cum lacunis sulcis bis numerosioribus impressus. *Stylus* glaber crassiusculus; stigmata brevia, obtusa vel truncata, dense papillosa, plerumque lutea, patentissima vel apice incurvata et in discum crassum, breviter lobatum et centro depressum cohaerentia; stylodium floris masculi parvum vel nullum. *Bacca* globosa, calyce et disco albo-papilloso coronata, maturitate lutea, luteo-rubra vel rubra, 5- usque ad 8-locularis. *Semina* numerosissima rubro-brunnea nitida, testa crustacea alveolata, embryone parvo.

Habitat speciebus adhuc notis 27 silvas Peninsulae Malayensis, Sumatrae, terrae Borneënsis, insulae Philippinensis Mindanao dictae.

Series I. *Polyantha*. *Folia* oblonga multinervia, costa haud profunde canaliculata, subtus valde prominente et sectione quadrangulari, nervis subtus prominentibus, venulis laxe reticulatis subtus prominulis; *stipulae* parvae, e basi saccata subito in lobum subulatum, intus canaliculatum, plerumque (semper?) breviter bilobatum vel bidentatum contractae. *Inflorescentiae* paniculatae axe involuclis duobus cinctae, multiflorae; bractee aliae paucae et minutae. *Calyx* pelviformis, indistincte lobatus vel denticulatus. *Corolla* fauce tenuiter barbata, lobis neque gibbosis neque corniculatis.

Distributae in Peninsula Malayensi, Sumatra, terra Borneënsi. — Species I—5.

I. *Pleiocarpidia enneandra* (WIGHT) K. SCH. in ENGL. u. PRANTL, Natürl. Pflanzenfam., Nachtr. I, p. 314 (1879), non apud MERR. in Univ. Cal. Publ. Bot. XV, p. 282 (1929) quae est *Pl. sandahanica* BREM.; *Axanthes enneandra* WIGHT in Calc. Journ. Nat. Hist. VII, p. 144 (1847); *Aulacodiscus enneandrus* (WIGHT) K. SCH. in ENGL. u. PRANTL, Natürl. Pflanzenfam. IV (4), p. 66 (1891); *Urophyllum enneandrum* (WIGHT) RIDL. in Journ. of Bot. LXX, p. 193 (1932); — *Aulacodiscus premnoides* HOOK. f. in BENTH. et HOOK. f., Gen. Pl. II (1), p. 71 (1873); id., Fl. Brit. Ind. III, p. 97 (1880); BOERL., Handl. Fl. Ned. Ind. II (1), p. 128 (1891); KING and GAMBLE in Journ. Asiat. Soc. Beng. LXXII, p. 189 (1903); RIDL., Fl. Mal. Pen. II, p. 64 (1923); — *Au. Maingayi* KING et GAMBLE l.c., syn. *Au. peltistigma* (MIQ.) Herb. Calc. in sched. excl.

Rami novelli subacute quadrangulares et profunde quadrisulcati,

subglabri. *Folia* petiolo 8—15 mm longo, sulci marginibus sparse pubescentibus exceptis glabro; lamina 15—22 cm longa et 2.8—5.8 cm lata, acuminata, basi acuta, subcoriacea, opaca, sicc. supra olivaceo-brunnea et subtus costa nervisque rubro-brunneis exceptis dilute olivaceo-viridis, primum utrimque sed praesertim subtus lepidoto-puberula et costa nervisque subtus pubescens, mox tota glabrescens, nervis utroque latere costae 16—17. *Stipulae* 5—10 mm longae, basi 2.5 mm latae, extus primum sparse pubescentes, deinde glabrescentes. *Inflorescentiae* parte nondum defoliata ramorum insertae, 4—4.5 cm longae et 3.5—4.5 cm diam., dense puberulae, floribus circ. 100. Pedunculus 10—20 mm longus. Involucella dense puberula, squamis foliaribus longioribus quam stipulaceis. Internodia basalia paniculae 7—15 mm longa. Pedicelli 2—3 mm. *Flores* plurimi 7-meri, aliqui interdum 6- vel 8-meri. *Flos masculus*: *Calyx* 0.6 mm altus, plerumque subregulariter heptagonalis, extus puberulus, intus glaber. *Corolla* tubo 1.4 mm alto; pilis fauce insertis 0.7 mm longis, apicem versus dilatatis, obtusis, constrictionibus plerumque 5—6; lobis triangularibus 1.8 mm longis et 1.1 mm latis. *Stamina* antheris utroque extremo obtusis 0.5 mm longis. *Discus* plerumque heptagonalis, lacunis plerumque 14 valde conspicuis impressus. *Styloidium* 0.2 mm supra discum productum, bipartitum. *Flos femineus*: *Ovarium* semiglobosum 2 mm diam. et 1.2 mm altum, puberulum vel subglabrum, plerumque 7-loculare. *Calyx* ut floris masculi, sed 0.4 mm altus. *Corolla* etiam ut floris masculi, sed tubo lobisque paulo latioribus. *Staminodia* antheris deltoideis, longius apiculatis, staminum antheris fere aequilongis. *Discus* ut floris masculi, sed lacunis minoribus punctiformibus. *Stylus* 2.5 mm longus, stigmatibus 6—8 in discum breviter et obtuse lobatum 0.8 mm diam. cohaerentibus. *Bacca* in speciminibus investigatis non conservata.

Hab. Peninsulam Malayensem: Johore, Pahang, Perak, Penang.

Praesentia species huius in Tenasserim (HOOKER f., Fl. Brit. Ind. l.c.) incerta videtur; neque a KURZ (Contr. Burm. Fl.) neque a CRAIB (Enum. Fl. Siam.) memorata est et origo speciminis a HELFER lecta in quo opinio a HOOKER emissa nititur dubiosa est: a KING et GAMBLE l.c. in Malacca lecta dicitur.

Specimina investigata:

Sine loco, HELFER Herb. E.I.C. 2938 ♂ GH, L (exempla typi *Au. premnoides* Hook. f.); Malay Peninsula, s.l., MAINGAY 938 ♀ GH (exemplum cotypi HOOK. f. et insuper typi *Au. Maingayi* King et Gamble); Johore, s.l., CORNER 29443 ♀ A; Perak, Taiping Waterfall, WRAY 2665 ♀ GH.

Pl. enneandra speciebus duabus sequentibus similior, sed floribus

plurimis 7-meris ab eis certe distinguenda; inflorescentiae et flores insuper minores sunt.

HOOKER l.c. corollam 8- usque ad 16-partitam, ovarium 6- usque ad 16-loculare descripsit et ex eo tempore haecce dicta inaccurata ab auctoribus omnibus fideliter reproducta sunt. *Au. Maingayi* KING et GAMBLE a typo sexu solo distinctum esse RIDLEY (Fl. Mal. Pen. l.c.) cognovit.

2. *Pleiocarpidia assahanica* Brem. n. spec.; typus: RAHMAT SI BUEA 7650 in herbario Arboreti Arnoldiani.

Arbor 8.5 m alta. *Rami* novelli subacute quadrangulares, profunde quadrisulcati, puberuli; veteriores cortice brunneo opaco vestiti. *Folia* petiolo 9—14 mm longo, marginibus sulci densius pubescentibus exceptis glabrescente; lamina 16—27 cm longa et 4.5—7 cm lata, caudato-acuminata, basi subacuta vel rotundata, subcoriacea, opaca vel supra nitidula, sicc. supra olivaceo-brunnea et subtus costa nervisque brunneis exceptis dilute olivaceo-viridis, primum utrimque sed praesertim subtus lepidoto-puberula, costa nervisque subtus pubescens, supra mox glabrescens sed subtus costa nervisque pertinaciter etsi sparsius pubescens, nervis utroque latere costae 14—15. *Stipulae* 10—16 mm longae, basi 3.5—6 mm latae, extus primum sparse pubescentes, deinde glabrescentes. *Inflorescentiae* parte nondum defoliata ramorum insertae, 4—6 cm longae et 4—5 cm diam., tomentellae, floribus circ. 100. Pedunculus 10—20 mm longus. Involucella tomentella, squamis foliaribus linearibus usque ad 15 mm longis, stipulaceis ovato-triangularibus 5 mm longis. Internodia basalia paniculae 15 mm longa. Pedicelli 2—3 mm. *Flores* 6-meri. *Flos masculus* maturus adhuc ignotus. *Flos femineus*: *Ovarium* globosum 2.5 mm diam., 2 mm altum, pubescens, 6-loculare. *Calyx* 0.4 mm altus, extus subglaber, intus glaber. *Corolla* tubo 2 mm alto; pilis fauce insertis 0.5 mm longis, apicem versus dilatatis, obtusis, constrictionibus 4—7; lobis ovato-triangularibus 2 mm longis et 1.8 mm latis. *Staminodia* antheris deltoideis, longius apiculatis, 0.4 mm longis. *Discus* hexagonalis, lacunis punctiformibus 12 impressus. *Stylus* 2.5 mm longus; stigmatibus 6 in discum breviter et obtuse lobatum 0.7 mm diam. cohaerentibus. *Bacca* 6 mm diam., 6-sulcata, 6-locularis.

Hab. Sumatrae partem orientalem cis-aequatorialem.

Sumatra. Eastcoast Govt., Asahan: Asahan proper, Guru Batu, alt. 35—75 m, YATES 1368 ♀ L; S. Silau, H. Padang, alt. 70—160 m, KRUKOFF 4362 fr. A; Tomuan Dolok, alt. 1000 m (?), RAHMAT SI BUEA 9859 fr. A; H. Bagasan, id. 6537, 6798, 7134, all fr. A; Kualu,

Lundut, Lumban Ria, alt. 40—100 m, id. 7344 ♀, 7518 ♂ (flores immaturi), 7650 ♀ (typus), 7953 fr., all A.

Nomina vernacula: kaju buhu-buhu, kaju katam, kaju biruang.

Pl. assahanica a *Pl. enneandra* cui proxima floribus majoribus 6-meris, foliis paulo majoribus sed nervos pauciores exhibentibus, stipulis majoribus, inflorescentiis paulo amplioribus differt. A *Pl. peltistigma* petiolis longioribus, stipulis latioribus, inflorescentiis parte nondum defoliata ramorum insertis, pedunculo longiore, pilis fauce corollae insertis brevioribus, apicem versus dilatatis et obtusis, constrictionibus paucioribus septatis, disco floris feminei lacunis minoribus impresso facilius distinguenda.

3. *Pleiocarpidia peltistigma* (MIQ.) BREM. n. comb.; *Urophyllum peltistigma* MIQ., Fl. Ind. Bat., Suppl., p. 542 (1860); id. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 133 (1868); BOERL., Handl. Fl. Ned. Ind. II (1), p. 128 (1891).

Rami novelli subacute quadrangulares et profunde quadrisulcati, subglabri; veteriores cortice olivaceo, punctis atque lineis griseis sparso, opaco vestiti. *Folia* petiolo 3—9 mm longo, marginibus sulci pubescentibus exceptis glabro; lamina 17—21 cm longa et 5—6.2 cm lata, acuminata, basi rotundata vel subacuta, subcoriacea, opaca, sicc. supra olivaceo-brunnea et subtus costa nervisque rubro-brunneis exceptis dilute olivaceo-viridis, nervis utroque latere costae 14—16. *Stipulae* 12—14 mm longae, basi vix 2 mm latae, extus primum sparse pubescentes, deinde glabrescentes. *Inflorescentiae* parte defoliata ramorum insertae, 7 cm longae et 4 cm diam., dense puberulae, floribus circ. 80. Pedunculus 5—10 mm longus. Involucella dense puberula, squamis foliaribus quam stipulaceis longioribus. Internodia basalia paniculae 18—25 mm longa. Pedicelli 2—3 mm. *Flores* plurimi 6-meri, aliqui tamen 5- vel 7-meri. *Flos masculus*: *Calyx* plerumque hexagonalis, 0.7 mm altus, extus puberulus, intus glaber. *Corolla* extus fere tota puberula, tubo 2.3 mm alto; pilis fauce insertis usque ad 1 mm longis, apicem versus haud dilatatis, acutis, constrictionibus numerosioribus septatis; lobis 1.7 mm longis et 1.0 mm latis. *Stamina* antheris subobtusis 0.7 mm longis. *Discus* plerumque hexagonalis et lacunis 12 valde conspicuis impressus. *Stylodium* 0.2 mm supra discum productum, indivisum. *Flos femineus*: *Ovarium* semiglobosum 2 mm diam., 1.4 mm altum, puberulum, plerumque 6-loculare. *Calyx* ut floris masculi, sed 0.5 mm altus. *Corolla* ut floris masculi, tubo lobisque tamen paulo latioribus. *Staminodia* antheris ovoideis, breviter apiculatis, 0.5 mm longis. *Discus* ut floris masculi, lacunis linearibus paulo minoribus. *Stylus* 2.5 mm longus, stigmatibus 5—7 in

discum breviter et obtuse lobatum 0.8 mm diam. cohaerentibus. *Bacca* matura nondum lecta.

Hab. Sumatrae partem orientalem trans-aequatorialem.

Sumatra. Res. Palembang: Ogan Ulu, TEYSMANN H.B. 3834 ♀ U (e BZ) (typus); A. Rawas, Muara Mengkulem, alt. 200 m, FORBES 3050a fr. L; A. Rawas, s.l., GRESHOFF 1149 ♂ L (e BZ) (co-typus meus).

Quomodo inter speciem hanc et species duas precedentes discriminandum supra jam expositum. Natura pilorum corollae fauce insertorum ad speciem sequentem accedit.

4. *Pleiocarpidia deliensis* Brem. n. spec.; typus: LOERZING 5645 in herbario Rhenotrajectino.

Rami novelli statu adulto (apicibus in speciminibus examinatis non conservatis) olivaceo-tomentelli, subteretes, 5—6 mm diam. *Folia* petiolo 8—10 mm longo, tomentoso; lamina 26—30 cm longa et 9—9.5 cm lata, acuminata et mucronata, basi late rotundata, subcoriacea, opaca, sicc. supra saturate et subtus dilute olivacea, supra glabrescens, costa canaliculata tamen pertinaciter tomentella, subtus margine costa nervisque tomentella, inter nervos glabrescens, nervis utroque latere costae 17—19. *Stipulae* ignotae. *Inflorescentiae* parte nondum defoliata ramorum insertae, 6 cm longae et 5.7 cm diam., olivaceo-tomentosae, floribus circ. 200. Pedunculus 17 mm longus. Involucella tomentosa, squamis foliaribus linearibus bis longioribus quam stipulaceis quae e basi saccata subito in lobum scaphoideum contractae sunt. Internodia basalia paniculae 16—22 mm longa. Pedicelli 1—1.5 mm. *Flores* 6-meri. *Flos masculus*: *Calyx* 1.2 mm altus, extus tomentellus, intus glaber. *Corolla* extus fere tota puberula, matura nondum visa; pilis fauce insertis apicem versus haud dilatatis, acutis; lobis 2 mm longis et 1 mm latis. *Stamina* antheris obtusis 0.7 mm longis. *Discus* lacunis 12 profunde impressus, centro mamillatus. *Stylodium* parvum vix supra centrum disci productum. *Flos femineus* et *bacca* ignoti.

Hab. Sumatrae partem orientalem cis-aequatorialem.

Sumatra. Eastcoast Govt., Deli: Sibau Langit, Ravine of Lau Betimus, alt. 350 m, LOERZING 5645 ♂ U (typus), L (dupl. typi) (e BZ).

Species haec ramis robustioribus, foliis majoribus, indumento tomentello, inflorescentia uberiore a speciebus aliis series huius faciliter distinguenda. Natura pilorum corollae fauce insertorum ad *Pl. peltistigma* accedere videtur.

5. *Pleiocarpidia sandahanica* BREM. n. spec.; *Pl. enneandra*

(WIGHT) K. SCH. apud MERRILL in Univ. Cal. Publ. Bot. XV, p. 282 (1929) quoad specimina citata; typus: AGAMA 565 in herbario horti botanici Noveboracensis.

Arbor 6—9 m alta. *Rami* novelli obtuse quadrangulares et quadrisulcati, sulcis sparse pubescentes, ceterum glabri, 1.5 mm diam., postea subteretes, cortice griseo opaco vestiti et ante defoliationem jam usque ad 7 mm diam. accrescentes. *Folia* petiolo 8—14 mm longo, sulco adpresse pubescente excepto glabrescente; lamina 17.5—25 cm longa et 4.5—7.3 cm lata, breviter acuminata, basi obtusa vel rotundata, subcoriacea, opaca, sicc. supra olivaceo-brunnea et subtus costa nervis venisque badiis exceptis olivaceo-viridis, supra margine incrassato vix conspicue pubescente excepto glaberrima, subtus costa nervis venisque venula et inter venulos glabra, nervis utroque latere costae 17—19. *Stipulae* 9 mm longae, basi 2 mm latae, extus glabrae. *Inflorescentiae* parte nondum defoliata ramorum insertae, 3—4 cm longae et 4—5 cm diam., puberulae, floribus 45—100. Pedunculus 6—10 mm longus. Involucella puberula, squamis foliaribus quam stipulaceis bis longioribus. Internodia basalia paniculae 9—15 mm longa. Pedicelli 3—4 mm. *Flores* plurimi 5-meri, aliqui 6-meri. *Flos masculus*: *Calyx* 0.7 mm altus, extus intusque puberulus. *Corolla* lutea tubo 2.2 mm alto; pilis fauce insertis obtusis; lobis triangularibus 2.3 mm longis et 1.6 mm latis. *Stamina* antheris emarginatis 0.8 mm longis. *Discus* lacunis plerumque 10 impressus. *Stylodium* vix supra discum productum. *Flos femineus*: *Ovarium* subglobosum 2.0 mm diam. et 1.2 mm altum, plerumque 5-loculare, puberulum. *Calyx* ut floris masculi, sed 0.5 mm altus. *Corolla* ut floris masculi, tubo lobisque tamen paulo latioribus. *Staminodia* antheris apice emarginatis 0.7 mm longis, absentia pollinis excepta ab antheris staminum vix distinguendis. *Discus* lacunis interdum vix conspicuis. *Stylus* 3 mm longus, rubro-punctatus, stigmatibus 5 in discum breviter et obtuse lobatum 1.5 mm diam. cohaerentibus. *Bacca* globosa, 10- vel interdum 12-sulcatus, 7 mm diam., 5- vel interdum 6-locularis.

Hab. terrae Borneënsis partem septemtrionalem.

Borneo. British North Borneo: Sandahan District, Suanlamba River, AGAMA 565 ♀ NY (ex herb. For. Bur., Manila) (typus), A (dupl. typi); Bettotan River near Sandahan, B. KLOSS 19025 fr. NY; Sandahan, ELMER 20134 fr. L, A, GH, id. 20090 fr. U, L, A, GH, EVANGELISTA 760 ♂ NY (co-typus), A (dupl. co-typi), CASTRO 2706 fr. A; Tawao, ELMER 21576 ♂ U, A, GH; s.l., WOOD 1324 ♂ A.

Floribus majoribus, plurimis 5-meris, antheris apice emarginatis *Pl. sandahanica* a speciebus aliis series huius recedit. Speciem hanc

a *Pl. enneandra* differre RIDLEY (Journ. of Bot. LXX, p. 193, 1932) jam cognovit.

Species alia forsitan ad seriem hanc ducenda, absentia florum tamen haud certe locanda, a J. et M. S. CLEMENS parte septemtrionali terrae Borneënsis lecta (27593, Dallas, alt. 900 m), foliis latioribus (21—22 cm longis et 8.5—9 cm latis), utroque latere costae nervos 11—12 exhibentibus, bacca 6-loculari noscenda.

Series 2. X e n a e. *Stipulae* ovatae, margine haud incurvatae. Cetera ut in serie precedenti.

Reperta in Insula Philippinensi Mindanao dicta. — Species 6.

6. *Pleiocarpidia lanaensis* MERR. in Philipp. Journ. Sc. XX, p. 462 (1922); id., Enum. Philipp. Pl. III, p. 524 (1923).

Arbor usque ad 5 m alta. *Rami* novelli complanati et utrimque bisulcati, puberuli, deinde teretes 2.5—4 mm diam., indumentum diu retinentes. *Folia* petiolo 10—25 mm longo, pubescente; lamina 11—28 cm longa et 3.3—10 cm lata, acuminata, basi obtusa vel rotundata, subcoriacea, supra nitidula, sicc. utrimque brunnea, colore supra tamen interdum saturatiore, supra costa densius pubescente excepta glabra, subtus costa nervis venulis breviter pubescentibus exceptis vix conspicue puberula, nervis utroque latere costae 15—20, ut costa colore a partibus aliis laminae haud distinguendis. *Stipulae* 6—8 mm longae, dimidio inferiore 4 mm latae, extus subglabrae, apice conspicue bilobatae. *Inflorescentiae* parte nondum defoliata ramorum insertae, 3—4 cm longae et 3—4 cm diam., puberulae, floribus 50—75. Pedunculus 9—20 mm longus, basi in speciminibus investigatis (an semper?) involucello tetramero cinctus. Involucella puberula, squamis foliaribus quam stipulaceis vix conspicue longioribus. Internodia basalia paniculae 5—20 mm longa. Pedicelli 4—5 mm. *Flores* in specimine investigato plurimi 5-meri, aliqui 6-meri. *Flos masculus* nondum examinatus. *Flos femineus*: *Ovarium* subglobosum 3 mm diam. et 2.5 mm altum, puberulum, plerumque 5-loculare. *Calyx* 0.7 mm altus, extus intusque puberulus. *Corolla* tubo 1.5—2.0 mm alto, apicem versus paulum dilatato; pilis fauce insertis 0.7 mm longis, apicem versus haud dilatatis, breviter apiculatis, constrictionibus 3—5 septatis; lobis 2—3 mm longis et 1.7—2.2 mm latis. *Staminodia* antheris subquadratis 0.3 mm longis latisque. *Discus* lacunis vix conspicuis impressus, interdum lacunis nullis. *Stylus* 3 mm longus, haud punctatus, lobis plerumque 5 luteo-viridibus in discum breviter et obtuse lobatum, 1.5 mm diam. cohaerentibus. *Bacca* plerumque 5-locularis, globosa, plerumque 5-sulcata, vix conspicue carunculata, 7 mm diam.

Hab. Insulam Philippinensem Mindanao dictam.

Philippine Islands. Mindanao; Lanao, MRS CLEMENS 882 (typus), nondum vidi; Zamboanga, RAMOS et EDAÑO B.S. 37226 ♀ NY; Bukidnon, Mt. Candoon, RAMOS et EDAÑO B.S. 38988 fr. NY.

Typus species huius a me nondum examinatus, sed specimina citata cum descriptione, corolla a MERRIL 7-mera dicta excepta, bene congruunt.

Series 3. *Pogonantha* e. *Folia* plerumque oblonga, interdum lineari-oblonga vel oblongo-elliptica, costa distincte canaliculata, subtus valde prominente et sectione quadrangulari, venulis laxe reticulatis subtus prominulis; *stipulae* parvae, e basi saccata subito in lobum subulatum, intus canaliculatum, apice interdum bilobatum vel bidentatum contractae. *Inflorescentiae* parte nondum defoliata ramorum insertae, trichotome corymbosae, axe involucello singulo cinctae; bracteae aliae paucae et minutae, interdum nullae. *Calyx* pelviformis, breviter vel indistincte lobatus vel denticulatus. *Corolla* fauce dense barbata, lobis interdum planis, interdum distincte gibbosis.

Distributae in terrae Borneënsis partibus septemtrionali et occidentali. — Species 7—13.

7. *Pleiocarpidia longipetala* (RIDL.) BREM. n. comb.; *Urophyllum longipetalum* RIDL. in Journ. of Bot. LXX, p. 193 (1932).

Rami novelli in specimine investigato non conservati; adulti teretes, 4—4.5 mm diam., glabrescentes. *Folia* petiolo 8—11 mm longo, sulco adpresse pubescente excepto glabrescente; lamina oblonga 13—15.5 cm longa et 4.5—5.5 cm lata, breviter acuminata, basi acuta vel contracta, coriacea, opaca, sicc. supra olivaceo-brunnea et subtus costa nervisque badiis exceptis olivaceo-viridis, utrimque margine revoluta brevissime adpresse pubescente excepta glabrescens, nervis utroque latere costae 12—13 subtus prominentibus. *Stipulae* ignotae. *Inflorescentiae* 1.5 cm longae et 2 cm diam., puberulae, floribus 30—45. Pedunculus 3—4 mm longus. Involucellum puberulum, squamis foliaribus usque ad 4.5 mm longis et 5 mm latis, squamis stipulaceis 1.7 mm longis latisque. Internodia basalia corymbi 3—4 mm longa. Pedicelli 2.5—4 mm. *Flores* 7-meri. *Flos masculus*: *Calyx* 2 mm altus. *Corolla* tubo 3.5 mm longo, lobis planis 3.5 mm longis et basi 2.5 mm latis. *Stamina* antheris vix apiculatis 1.2 mm longis, supra barbam productis. *Discus* lacunis oblongis 14 impressus. *Stylodium* nullum. *Flos femineus et bacca* ignoti.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak: near Kuching, HAVILAND 1662 ♂ K (typus).
 Inflorescentiis breviter pedunculatis contractis, floribus magnis
 7-meris a speciebus aliis series huius facilius distinguenda.

8. *Pleiocarpidia capituligera* (RIDL.) BREM. n. comb.; *Urophyllum capituligerum* RIDL. in Journ. of Bot. LXX, p. 222 (1932).

Arbor usque ad 12 m alta. *Rami* novelli complanati et utrimque bisulcati, primum praesertim ad nodos sparse puberuli, mox glabrescentes tamen, deinde obtuse quadrangulares vel subteretes, mox lignescentes et cortice griseo-brunneo opaco vestiti. *Folia* petiolo 10—20 mm longo, sulco adpresse pubescente excepto glabrescente; lamina oblonga 15—24 cm longa et 5.7—7.7 cm lata, acuminata, basi rotundata vel subacuta, subcoriacea, opaca, sicc. supra saturate brunnea et subtus costa nervisque nigrescentibus exceptis dilute brunnea, primum utrimque dense puberula, sed mox glabrescens, nervis utroque latere costae 13—14 subtus prominentibus. *Stipulae* 5 mm longae, basi 3 mm latae, extus primum dense, sed mox parce puberulae. *Inflorescentiae* griseo-puberulae, floribus 45—100. Pedunculus 1.5—3 cm longus. Involucellum griseo-puberulum 7 mm diam. Internodia basalia corymbi 7—25 mm; sequentia brevissima: flores cuiusque corymbi inde quasi in capitula tria dispersi. Pedicelli 1—1.5 mm. *Flores* 5-meri. *Flos masculus*: *Calyx* 0.7 mm altus, extus puberulus, intus glaber. *Corolla* tubo 2 mm longo, lobis planis 1.8 mm longis et basi 1.7 mm latis. *Stamina* antheris obtusis 0.7 mm longis. *Discus* semiglobosus, lacunis 10 valde conspicuis impressus. *Stylodium* nullum. *Flos femineus* et *bacca* matura ignoti.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak: Saribas, Paku, HAVILAND et HOSE 3415 ♂ K (typus), SAR, U (exempla typi), fl. Nov.; Saribas, Jitu, id. 3417 ♂ K, SAR, L, fl. Dec.; Upper Redjang River, Gat, J. et M. S. CLEMENS 21711 fr. A.

Maxime ut species sequens, sed corollae lobis planis et alabastro inde centro haud depresso, inflorescentia griseo-puberula ab ea facilius distinguenda. A speciebus aliis series huius floribus 5-meris munitis insuper inflorescentia multiflora diversa.

9. *Pleiocarpidia magnifolia* BREM. n. spec.; typus: HALLIER 1813 in herbario Lugdunensi.

Arbor. *Rami* novelli nondum noti; adulti subteretes, haud conspicue bisulcati, cortice griseo-brunneo opaco vestiti. *Folia* petiolo sulco dense ferrugineo-pubescente excepto brevissime pubescente et deinde glabrescente; lamina oblonga 22—30 cm longa et 7—9 cm lata,

acuminata, basi acuta, herbacea, opaca, sicc. brunnescens, supra costa subpubescente excepta, subtus costa nervis venulis densius sed breviter adpresse pubescentibus exceptis utrimque glabra, nervis utroque latere costae 13—14 subtus prominentibus. *Stipulae* ignotae. *Inflorescentiae* brevissime ferrugineo-pubescentes, floribus circ. 81. Pedunculus 2.5—3.5 cm longus. Involucellum dense pubescens, squamis foliaribus obovatis 4—6 mm, stipulaceis 3—5 mm longis. Internodia basalia corymbi 9—12 mm; sequentia breviter: flores inde ad apicem ramulorum congesti. Pedicelli 1—2 mm. *Flores* 5-meri. *Flos masculus*: *Calyx* 1.3 mm altus, extus puberulo-pubescentis. *Corolla* alabastro centro depressa et circum depressionem carunculis 5 ornata, tubo 2 mm alto, lobis gibbosis 2.5 mm longis et basi 1.2 mm latis. *Stamina* antheris utroque extremo obtusis 1.1 mm longis. *Discus* apice haud conspicue impressus. *Stylodium* parvum. *Flos femineus* et *bacca* ignoti.

Hab. terrae Borneënsis partem austro-occidentalem.

Borneo. Western Division: G. Kenepai, HALLIER 1813 ♂ L (typus) (e BZ).

Speciei precedenti proxima, sed foliis majoribus et tenuioribus, indumento ferrugineo, corolla alabastro centro depressa ab ea recedens.

10. *Pleiocarpidia kinabaluensis* BREM. n. spec.; typus: J. et M. S. CLEMENS 32279 in herbario Arboreti Arnoldiani.

Arbor usque ad 6 m alta. *Rami* novelli primum praesertim ad nodos puberuli, mox glabrescentes, sicc. nigrescentes, primum quadrisulcati, mox subteretes, 2—3 mm diam.; veteriores tarde et irregulariter cortice dilute brunneo vel albedo, nitidulo vestiti. *Folia* petiolo primum puberulo, deinde glabrescente, marginibus sulci tamen pertinaciter pubescentibus, 6—16 mm longo; lamina anguste oblonga 8—15 cm longa et 1.8—4.8 cm lata, apice in caudam attenuata, basi acuta, subcoriacea, subopaca, sicc. plerumque olivacea, interdum brunnea tamen, subtus dilutius, foliorum novellorum nigrescens, primum supra sparse et subtus dense lepidotopuberula, mox glabrescens, nervis utroque latere costae 8—11 subtus prominulis. *Stipulae* 3—7 mm longae, extus primum puberulae, deinde glabrescentes. *Inflorescentiae* breviter adpresse pubescentes, 1.5 cm diam., post florationem plus quam bis latiores, floribus circ. 27. Pedunculus primum adpresse pubescens, deinde glabrescens, 10—13 mm longus, gracilis. Involucellum plerumque e squamis foliaribus filiformibus 6—8 mm longis et squamis stipulaceis ovatis 2—2.5 mm longis formatum. Pedicelli 2 mm longi, fructu usque ad 6 mm accrescentes. *Flores* 5-meri. *Flos*

masculus: *Calyx* 0.6 mm altus, extus puberulus. *Corolla* albida vel viridula, roseo-barbata, alabastro centro depressa, depressione tuberculis 5 circumdata, tubo 1.5 mm alto, lobis 1.5 mm longis, basi 1.3 mm latis. *Stamina* antheris oblongis utroque extremo obtusis 1.1 mm longis. *Discus* conicus, lacunis 10 impressus, *Styloidium* 0.4 mm supra discum productum, bifidum. *Flos femineus*: *Ovarium* subglobosum 2.0 mm diam., 1.3 mm altum, puberulum, 5-loculare. *Calyx* ut floris masculi, distinctius lobatus tamen. *Corolla* ut floris masculi. *Staminodia* antheris subquadratis, utroque extremo obtusis, 0.7 mm longis. *Discus* pulviniformis, lacunis vix conspicuis. *Stylus* crassus, stigmatibus 5 crocatis in discum breviter et obtuse lobatum cohaerentibus. *Bacca* lutea, parva.

Hab. terrae Borneënsis partem septemtrionalem.

Borneo. British North Borneo. Mt Kinabalu: Dallas, alt. 900 m, J. et M. S. CLEMENS 27580 fr. L, A; Panataran River, alt. 1200 m, id. 32598 fr. L, A; Penibukan, alt. 1200—1500 m, id. 30542 fr. L, A; id. 31035 fr. L, A; id. 40833 ♂ L, A; Tenompok, alt. 1500 m, id. 28187 fr. L; id. 28367 fr. L; id. 28367a ♂ L, A; id. 28674 ♂ L, A; id. 29688 fr. L, A; Marai Parai, alt. 1500 m id. 32279 ♀ A (typus), L (dupl. typi); Colombon River, alt. 1650 m, id. 34092 (ster.) A; Gurulau Spur, alt. 2400 m?, M. S. CLEMENS 10807 ♂ A (co-typus); ead. 10818 ♂ A.

Pl. kinabaluensis foliis angustioribus a speciebus aliis ad seriem hanc relatis differt; inflorescentia e floribus circ. 27 composita positionem inter species precedentes et sequentes occupat.

11. *Pleiocarpidia sintangensis* BREM. n. spec.; typus: HALLIER 2542 in herbario Lugdunensi.

Arbor. *Rami* novelli vix complanati, quadrangulares et profunde quadrisulcati, sparse puberuli, sed mox glabrescentes, deinde subtretes, 4 mm diam.; veteriores cortice griseo-brunneo opaco vestiti. *Folia* petiolo sulco adpresse pubescente excepto glabrescente, 8—12 mm longo; lamina oblongo-elliptica 9—13 cm longa et 3.4—5.0 cm lata, acuminata, basi acuta vel contracta, coriacea, sicc. supra olivaceo-brunnea, subtus costa saturate brunnea vel badia excepta dilute brunnea, supra glabra, subtus primum costa nervisque dense adpresse pubescens, inter nervos primum dense, deinde sparsius lepidoto-puberula, supra nitida vel nitidula, margine revoluta, nervis utroque latere costae 8—10 subtus prominentibus. *Stipulae* 5 mm longae et basi 4 mm latae, extus sparse puberulo-pubescentes, mox glabrescentes tamen. *Inflorescentiae* 1.5 cm longae et 2 cm diam., puberulae, floribus circ. 15. Pedunculus 3—5 mm longus. Involucellum carnosum, subglabrum, squamis foliaribus

stipulaceis subaequilongis, 1—2 mm longis. Internodia basalia corymbi 3—5 mm longa. Pedicelli 2—4 mm. *Flores* plurimi 6-meri, aliqui 7-meri. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* subglobosum 3.5 mm diam., sparse puberulum, plerumque 6-loculare. *Calyx* plerumque 6-angularis, 0.7 mm altus, extus sparse puberulus. *Corolla* in specimine investigato immatura centro depressa et circum depressionem tuberculis 6 vel interdum 7 ornata, lobis gibbosis 2 mm longis et basi 1.7 mm latis. *Staminodia* antheris ovoideis obtusis 0.4 mm longis. *Discus* apice lacunis plerumque 12 impressus. *Stylus* crassus stigmatibus plerumque 6 in discum breviter lobatum cohaerentibus. *Bacca* globosa glabra, plerumque 12-sulcata et 6-locularis.

Hab. terrae Borneënsis partem austro-occidentalem.

Borneo. Western Division. District Sintang: between G. Kelam and S. Djemela, HALLIER 2542 ♀ L (typus) (e BZ); at the base of G. Kenepai, id. 1628 ♀ U (e BZ).

Foliis crassinerviis, inflorescentiis paucifloris, corolla alabastro centro depressa ad species sequentes accedit; pedunculo brevi, floribus 6-meris ab eis tamen facilliter distinguenda. Corollae color ignotus.

12. *Pleiocarpidia macrura* BREM. n. spec.; typus: J. et M. S. CLEMENS 31384 in herbario Horti Bogoriensis.

Arbor parva. *Rami* novelli praesertim ad nodos puberuli, mox toti glabrescentes, sicc. nigrescentes, haud profunde quadrisulcati, deinde obtuse quadrangulares vel subteretes, 1.5 mm diam., mox cortice griseo-brunneo opaca vestiti. *Folia* petiolo primum dense pubescente, deinde sulco adpresse pubescente excepto sparse puberulo, 8—15 mm longo, sicc. nigrescente; lamina oblonga 8—13 cm longa et 3—4.2 cm lata, longe caudata et longe mucronata, basi acuta, subcoriacea, opaca, sicc. supra saturate brunnea, subtus costa nervisque fuscis vel costa subnigra exceptis dilute olivacea, primum lepidoto-puberula, mox glabrescens, nervis utroque latere costae 8—11 subtus valde prominentibus. *Stipulae* 5—10 mm longae, extus glabrescentes. *Inflorescentiae* puberulae, floribus circ. 15. Pedunculus subglaber 1.5—2.5 cm longus. Involucelli squamae subaequales, 3 mm longae. *Flores* 5-meri. *Flos masculus*: *Calyx* 1 mm altus, extus puberulus. *Corolla* alabastro centro depressa et circum depressionem tuberculis 5 ornata, saturate purpurea, tubo 2.4 mm alto, lobis gibbosis 2.6 mm longis et basi 1.3 mm latis. *Stamina* antheris oblongis 1.3 mm longis, minute apiculatis. *Discus* conicus, lacunis 10 impressus. *Stylodium* parvum. *Flos femineus*: *Ovarium* subglobosum 2.7 mm diam. et 2.2 mm altum, puberulum, 5-loculare.

Calyx 0.7 mm altus. *Corolla* ut floris masculi, tubo lobisque latioribus tamen. *Staminodia* antheris ovoideis 0.6 mm longis, longius apiculatis quam staminum antheris. *Discus* pulviniformis lacunis 10 parvis impressus. *Stylus* crassus stigmatibus 5 crassis truncatis subpatentibus. *Bacca* luteo-rubra, vix distincte sulcata, 6 mm diam., 5-locularis.

Hab. terrae Borneënsis partem septemtrionalem.

Borneo. British North Borneo. Mt Kinabalu, alt. 1200—1500 m, J. et M. S. CLEMENS 31384 ♂ BZ (typus), L et A (exempla typi); Colombon River, alt. 1800 m, id. 33771 ♀ A (co-typus), L (dupl. co-typi).

A specie precedenti foliis angustioribus, floribus 5-meris distincta; a specie sequenti foliis angustioribus, stipulis majoribus, inflorescentia 15-flora, involucello subregulari distinguenda. *Corolla* ut in specie sequenti purpurea.

13. **Pleiocarpidia parvistipula** BREM. n. spec.; typus: J. et M. S. CLEMENS 32516 in herbario Arboreti Arnoldiani.

Rami novelli puberuli, mox glabrescentes tamen, quadrisulcati, deinde obtuse quadrangulares vel subteretes, sicc. nigrescentes, 2.5 mm diam.; veteriores cortice griseo-brunneo nitidulo vestiti. *Folia* petiolo sulco sparse et breviter adpresse pubescente excepto glabrescente 6—10 mm longo; lamina elliptico-oblonga 6.3—11.5 cm longa et 3.2—4.8 cm lata, abrupte acuminata, basi subacuta vel rotundata, margine revoluta, coriacea, supra nitidula, sicc. olivaceo- vel violaceo-brunnea, costa nervisque subtus tamen saepe badiis vel subnigris, primum puberula sed mox glabrescens, subtus tamen pertinaciter sed minutissime lepidota, nervis utroque latere costae 7—8 subtus valde prominentibus. *Stipulae* 3—5 mm longae, extus glabrescentes, interdum diu persistentes. *Inflorescentiae* 2 cm longae et 1.5 cm diam., parce puberulae, floribus 9. *Pedunculus* 8—10 mm longus. *Involucellum* subglabrum, squamis foliaribus plerumque 1.5—2 mm longis, interdum tamen multo longioribus, stipulaceis vix 0.5 mm longis. *Internodia* basalia corymbi 3—5 mm. *Pedicelli* 2—3 mm longi. *Flores* 5-meri. *Flos masculus*: *Calyx* extus vix puberulus, 1.3 mm altus. *Corolla* alabastro centro depressa et circum depressionem tuberculis 5 ornata, badia, luteolo-barbata, tubo 3 mm alto, lobis gibbosis 2.5 mm longis, basi 1.5 mm latis. *Stamina* antheris 1.3 mm longis, lobis basi apiculatis. *Discus* lacunis 10 impressus. *Stylodium* 0.3 mm supra discum productum, 5-lobatum. *Flos femineus* ignotus. *Bacca* luteo-rubra.

Hab. terrae Borneënsis partem septemtrionalem.

Borneo. British North Borneo. Mt Kinabalu: Marai Parai, alt. 1800 m,

J. et M. S. CLEMENS 32516 ♂ A (typus), L (dupl. typi), fl. Apr.; M. S. CLEMENS 10967 ♂ A, fl. Dec.; Penibukan, Ridge above Pina Taki River, alt. 1200—1500 m, J. et M. S. CLEMENS 31055 ♂ BZ, L, fl. Jan.; id. 31271 fr. L.

Stipulis parvis et squamis involucelli stipulaceis minimis species haec ab omnibus congeneribus facilliter distinguenda; floribus rubris ad speciem precedentem accedit.

Series 4. *Graptophyllae*. *Folia* oblonga vel oblanceolata, sicc. maculis irregularibus obscure marmorata, costa canaliculata, nervis subtus prominentibus, venulis laxe reticulatis subtus prominulis; *stipulae* e basi saccata subito in lobum subulatum, intus canaliculatum, apice haud rare bilobatum contractae. *Inflorescentiae* parte nondum defoliata ramorum insertae, trichotome corymbosae, plerumque valde contractae, axe involucello singulo cinctae; bractee aliae conspicuae; flores circ. 15. *Flores* 5-meri. *Calyx* pelviformis, breviter lobatus vel fere ad medium fissus. *Corolla* fauce dense barbata, lobis gibbosis et corolla inde albastro centro depressa et circum centrum tuberculis 5 ornata.

Distributae in terrae Borneënsis partibus septemtrionali et occidentali. — Species 14—16.

14. *Pleiocarpidia holectomia* BREM. n. spec.; typus: J. et M. S. CLEMENS 21401 in herbario Arboreti Arnoldiani.

Arbor 6—7.5 m alta. *Rami* novelli primum complanati et utrimque bisulcati, puberuli, deinde subteretes et glabrescentes, mox lignescens et cortice griseo-brunneo opaco vestiti. *Folia* petiolo marginibus sulci longe et dense adpresse pubescentibus exceptis puberulo, 8—10 mm longo; lamina 14.5—17 cm longa et 5.2—7.0 cm lata, acuminata, basi subacuta et subito in petiolum contracta, subcoriacea, opaca, sicc. supra saturate et subtus dilute brunnea, foliorum juniorum olivaceo-brunnea tamen, margine breviter pubescente et costa subtus puberula exceptis utrimque glabrescens, nervis utroque latere costae circ. 8. *Stipulae* extus puberulae, parvae, mox deciduae. *Inflorescentiae* axilla interdum duae superpositae, olivaceo-puberulae. Pedunculus 10—20 mm longus. Involucellum sparse puberulum, 7—8 mm diam. Bractee aliae ovatae, 1.5—3.5 mm longae, puberulae. Internodia basalia corymbi 5—14 mm longa, plerumque circ. 7—8 mm. Pedicelli 1.5—3.0 mm, fructu usque ad 9 mm accrescentes. *Flos masculus*: *Calyx* 1.5 mm altus, subtruncatus vel breviter et irregulariter lobatus, extus puberulus, intus glaber. *Corolla* tubo nondum maturo 1.5 mm alto, lobis 3.8 mm longis et basi 2 mm latis. *Stamina* antheris oblongis, utroque extremo obtusis,

1.2 mm longis. *Discus* pulviniformis lacunis 10 minoribus impressus. *Styloidium* 0.4 mm supra discum productum. *Flos femineus*: *Ovarium* 4.5 mm diam. et 3 mm altum, puberulum, 6-loculare. *Calyx* annularis 1.3 mm altus, puberulus. *Corolla* ut floris masculi. *Staminodia* nulla. *Discus* ut floris masculi sed sulcis lacunisque nullis. *Stylus* stigmatibus crassis et brevibus, luteo-rubris 6. *Bacca* haud profunde 12-sulcata, 7 mm diam., 6-locularis.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak. Upper Redjang River, Kapit, J. et M. S. CLEMENS 21401 ♀ A (typus); id. 21394 ♂ A (co-typus).

Inter species ad seriem hanc relatas ramis foliisque glabrescentibus, inflorescentia laxa faciliter noscenda. A speciebus series precedentis bracteis valde conspicuis recedens. Absentia tota staminodiorum in flore femineo (e qualitate qua nomen specificum derivatum) in genere hoc rara videtur.

15. **Pleiocarpidia capitata** BREM. n. spec.; typus: J. et M. S. CLEMENS 28307 in herbario Arboreti Arnoldiani.

Rami novelli dense ferrugineo-villosi, quadrisulcati, deinde ferrugineo-tomentosi, subteretes, 2.2 mm diam.; veteriores cortice brunneo opaco vestiti, indumentum diu retinentes. *Folia* petiolo ferrugineo-tomentoso, 7—10 mm longo; lamina oblonga vel oblanceolata, 7—13.5 cm longa et 1.7—3.9 cm lata, caudato-acuminata, basi acuta, subcoriacea, opaca, sicc. utrimque brunnea, supra primum puberula sed mox glabrescens, subtus primum dense ferrugineo-villosa, deinde costa nervisque tomentellis exceptis subglabra, nervis utroque latere costae 8—9. *Stipulae* 6—7 mm longae, basi 4 mm latae, extus primum dense tomentosae, deinde glabrescentes et nigricantes. *Inflorescentiae* valde contractae, 8—10 mm diam., ferrugineo-tomentosae. *Pedunculus* 5 mm longus. *Involucellum* ferrugineo-tomentosum, squamis foliaribus linearibus 3—4 mm longis, squamis stipulaceis 2 mm longis. *Pedicelli* 2.5 mm longi. *Flores* plurimi 5-meri, aliqui 6-meri. *Flos masculus*: *Calyx* 1—1.5 mm altus, indistincte lobatus, extus dense ferrugineo-tomentosus, intus puberulus. *Corolla* viridula, extus fere tota densius pubescens, tubi longitudine immaturitatis causa haud determinanda, lobis 1.7 mm longis et basi 1.4 mm latis. *Stamina* antheris oblongis obtusis 1.2 mm longis. *Discus* conicus lacunis plerumque 10 profunde impressus. *Styloidium* minimum. *Flos femineus et bacca* ignoti.

Hab. terrae Borneënsis partem septentrionalem.

Borneo. British North Borneo. Mt Kinabalu, Tenompok, alt. 1500 m, J. et M. S. CLEMENS 28307 ♂ A (typus), L (dupl. typi), fl. Febr.

Species haec et *Pl. cephalotes* a congeneribus omnibus inflorescentia subcapitata distinctae; a *Pl. cephalotes* indumento ferrugineo, petiolis, stipulis, pedunculis brevioribus, involucellis minoribus, calyce indistincte lobato recedens.

16. *Pleiocarpidia cephalotes* (RIDL.) BREM. n. comb.; *Urophyllum cephalotes* RIDL. in Journ. of Bot. LXX, p. 222 (1932).

Arbor usque ad 10 m alta. *Rami* novelli dense rufo-hirsuti et sub indumento rufo olivaceo-puberuli, complanati et utrimque bisulcati, deinde sparse rufo-hirsuti et olivaceo-puberuli, subteretes, 1.5 mm diam.; veteriores cortice griseo opaco vestiti, indumentum puberulum diu retinentes. *Folia* petiolo sulco puberulo excepto rufo-hirsuto, 10—15 mm longo; lamina 8—12.5 cm longa et 2.4—3.7 cm lata, caudato-acuminata, basi acuta, subcoriacea, opaca, sicc. supra fusca vel interdum nigra, subtus griseo-brunnea, primum inter nervos utrimque minute lepidota, mox glabrescens, margine, costa utrimque, nervis subtus primum dense, deinde sparse rufo-pubescentibus, interdum costa excepta tota glabrescens, nervis utroque latere costae circ. 10. *Stipulae* 10 mm longae, basi 3 mm latae, extus pubescentes. *Inflorescentiae* valde contractae, puberulo-pubescentes. Pedunculus 10—20 mm longus. Involucellum squamis subaequalibus 6—8 mm longis et 2—3 mm latis. Pedicelli sub anthesin 1—2 mm; postea sicut internodia inferiora corymbi usque ad 6 mm excrescentes. *Flos masculus*: *Calyx* 1.5 mm altus, fere usque ad medium in lobos triangulares 5 fissus, extus intusque puberulus. *Corolla* luteola, extus fere tota puberula, tubo 2 mm alto, lobis 2 mm longis et basi 1.4 mm latis. *Stamina* antheris oblongis, 0.8 mm longis, apice mucronulatis, lobis infra minutissime mucronulatis. *Discus* pulviniformis, lacunis vix conspicuis. *Stylodium* vix supra discum productum. *Flos femineus*: *Ovarium* ovoideum 2.7 mm diam., sparse puberulum, 5-loculare. *Calyx* et *corolla* ut floris masculi. *Staminodia* antheris ovoideis, apiculatis, 0.5 mm longis. *Discus* ut floris masculi. *Stylus* 2 mm longus, stigmatibus 5 elliptico-oblongis, obtusis, 0.7 mm longis, subpatentibus. *Bacca* globosa, 10-sulcata, 7 mm diam., lutea, 5-locularis.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak; Matang, GARAI 1043 ♂ K (typus), SAR, U (exempla typi); HAVILAND 1470 ♀ SAR (co-typus meus); GARAI 1046 ♂ K, SAR, U; HAVILAND? s.n. (June 20th 1893) ♀ SAR; ibidem, alt. 300 m, J. et M. S. CLEMENS 20910 fr. A; Mt Poi, alt. 1200 m, J. et M. S. CLEMENS 20070 et 20240 fr. A; Penkulu Ampat, HAVILAND 665 ♂ et 148 ♀ SAR; s.l., COLL. INDIG. MUS. SAR. 2422 ♀ A.

Maxime ut species precedens, sed differentiis supra enumeratis ab ea distinguenda.

Specimen alium regione eadem lectum (Upper Rejang River, J. et M. S. CLEMENS 21406 fr. A) ad speciem hanc accedit, sed partibus adultis omnibus subglabris ab ea conspicue diversa; forsitan var. nov. *glabrescens* habenda.

Series 5. *Trichocla* e. *Folia* lineari-oblonga, oblanceolata, oblonga vel oblongo-elliptica, costa nervisque subtus dense pubescentia, tomentosa vel villosa, costa canaliculata, nervis subtus prominentibus, venulis laxe reticulatis subtus prominulis; *stipulae* in speciebus aliquibus basi saccatae et supra basin in lobum linearem marginibus incurvatis contractae, plerumque tamen ovatae vel ovato-triangulares, supra basin haud contractae et marginibus haud incurvatis, apice plerumque bidentatae vel bilobatae. *Inflorescentiae* trichotome corymbosae vel paniculatae, uno vel duobus involucellis cinctae; bractae semper conspicuae. *Flores* 5-meri. *Calyx* campanulatus lobis quam tubo longioribus vel tubo subnullo. *Corolla* fauce dense barbata, lobis neque corniculatis neque gibbosis.

Distributae in terra Borneënsi. — Species 17—24.

17. **Pleiocarpidia chlamydantha** BREM. n. spec.; typus: HAL-
LIER 1749 in herbario Lugdunensi.

Arbor parva. *Rami* novelli vix distincte quadrisulcati, obtuse quadrangulares, fulvo-tomentosi; mox subteretes, 2.5—3.5 mm diam., indumentum tomentellum diu retinentes. *Folia* petiolo dense fulvo-pubescente 8—12 mm longo; lamina lineari-oblonga vel oblanceolata 11.5—16 cm longa et 2.7—4.7 cm lata, in caudam angustam usque ad 3 cm longam attenuata, basi subobtusa vel subrotundata, subcoriacea, opaca, sicc. utrimque fusca, supra primum costa dense fulvo-villosa, deinde tota glabrescens, subtus costa nervis venulis dense fulvo-villosa, inter nervos primum sparse pubescens, deinde glabrescens, nervis utroque latere costae 10 — 12. *Stipulae* basi saccatae et supra basin paulum contractae et marginibus paulum incurvatis, 10—11 mm longae, basi 3.5 mm latae, apice subintegrae, extus sparse adpresse pubescentes, sicc. nigrescentes, mox deciduae. *Inflorescentiae* trichotome corymbosae vel subpaniculatae sed semper involucello singulo cinctae, fusco-tomentellae, floribus 20—40. Pedunculus 7—13 mm. Involucellum sparse pubescens, squamis ovatis, 4 mm longis, mox deciduis. Internodia basalia corymbi 3—4 mm. Bractae ovatae, sparse pubescentes, sicc. nigrescentes, 4—6 mm longae, basi concavae, ultimae in pedicellos egredientes et basi ovarii insertae, omnes mox deciduae. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* ovoideum, dense

fusco-pubescentis, 1.7 mm diam. et 1.3 mm altum, 5-loculare. *Calyx* sparse pubescens, tubo quam lobis brevior, lobis ovatis subacutis 0.7 mm longis, intus subglaber. *Corolla* extus sparse puberula, tubo 0.7 mm alto, lobis 1.7 mm longis et basi 1.0 mm latis. *Staminodia* minima antheris didymis 0.3 mm longis, brevissime apiculatis. *Discus* apice haud conspicue impressus. *Stylus* 0.6 mm altus, stigmatibus 5 ovatis subobtusis 1 mm longis. *Bacca* matura ignota.

Hab. terrae Borneënsis partem austro-occidentalem.

Borneo. Western Division. G. Kenepai, HALLIER 1749 ♀ L (typus) (e BZ); Kapuas, Biong (?), TEYSMANN H.B. 7997 L (e BZ).

Species haec et species sequens a speciebus aliis series huius stipulis basi saccatis et supra basin contractis, margine paulum recurvatis recedunt; a specie sequenti inflorescentia involucello singulo cincta, bracteis majoribus, ultimis basi ovarii insertis facilliter distinguenda.

18. **Pleiocarpidia opaca** BREM. n. spec.; typus: COLL. INDIG. MUS. SAR. 2031 in herbario Arboreti Arnoldiani.

Rami novelli quadrisulcati, obtuse quadrangulares, rufo-villosi; mox subteretes, 3—4 mm diam., fusco-tomentelli, indumentum diu retinentes. *Folia* petiolo sulco rufo-villoso excepto fusco-tomentello 5—7 mm longo; lamina lineari-oblonga 11—14,5 cm longa et 3.0—3.9 cm lata, caudato-attenuata, basi rotundata, subcoriacea, opaca, sicc. utrimque fusca, supra costa et margine villosis exceptis glabra, subtus costa rufo-villosa, nervis venulisque adpresse rufo-pubescentis, nervis utroque latere costae 11—14. *Stipulae* e basi ovata et saccata longe caudatae, marginibus supra basin paulum incurvatis, 12.5 mm longae, basi 6 mm latae, apice bidentatae, extus sparse adpresse pubescentes, sicc. nigrescentes, mox deciduae. *Inflorescentiae* axillis plerumque duae superpositae, paniculatae, ramulis infimis tamen plerumque multum redactis, involucellis duobus cinctae, omnibus partibus, floribus 20—40 inclusis, brevissime tomentellis. Pedunculus 5—10 mm. Internodium infimum axis 6—11 mm, secundum usque ad 6 mm. Involucellum secundum majus quam infimum, squamis 3—3.5 mm longis, foliaribus ovatis, 2 mm latis, stipulaceis ovato-orbicularibus usque ad 3.5 mm latis. Bractee ovatae, 2.5—3.5 mm longae, in pedicellos egredientes, ab ovario remotae tamen. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* subglobosum 2.2 mm diam. et 1.5 mm altum, 5-loculare. *Calyx* tubo subnullo, lobis late ovato-triangularibus 0.7 mm longis et 1.2 mm latis, intus glaber. *Corolla* tubo in specimine examinato nondum maturo, lobis 1.5 mm longis, basi 1.3 mm latis, pilis fauce insertis resino rubro-brunneo impletis. *Staminodia* antheris subglobosis 0.3 mm diam. *Discus*

lacunis 10 impressus. *Stylus* stigmatibus 5 crassis. *Bacca* ignota.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak, s.l., COLL. INDIG. SAR. MUS. 2031 ♀ A (e PNH) (typus).

Ad speciem precedentem accedens, sed characteris supra jam enumeratis ab ea faciliter distinguenda.

19. *Pleiocarpidia pilosa* (RIDL.) BREM. n. comb.; *Urophyllum pilosum* RIDL. in Journ. of Bot. LXX, p. 219 (1932).

Arbor 4.5—6 m alta. *Rami* novelli rufo-hirsuti, primum 1—2 mm diam., deinde usque ad 3.5 mm accrescentes, indumentum diu retinentes. *Folia* petiolo rufo-hirsuto 3 mm longo; lamina linear-oblonga 10—15 cm longa et 2.8—4.1 cm lata, caudata, basi rotundata vel subcordata, herbacea, opaca, sicc. supra saturate brunnea, subtus rufa, albido-punctata tamen, costa utrimque dense rufo-hirsuta, ceterum supra sparsissime et subtus sparse rufo-hirsuta, nervis utroque latere costae circ. 12. *Stipulae* ovato-triangulares 12—13 mm longae et 6.5 mm latae, bilobatae, lobis acutis usque ad 4 mm longis, extus ad marginem densius rufo-hirsutae, ceterum sparse rufo-hirsutae et sub indumento nigrescentes, intus dimidio superiore glabrescentes. *Inflorescentiae* paniculatae, involucellis duobus cinctae, floribus 15. Pedunculus sicut involucellum inferius rufo-hirsutus, 7 mm longus. Involucellum inferius squamis foliaribus 3.5 mm longis et 1 mm latis, stipulaceis 3 mm longis et 2 mm latis. Ramuli pedicellique sicut ovaria et calyces albido-hirsuti. Internodia infima ramulorum 4.5 mm longa; pedicelli 1.5—2 mm. Bractee lineares 2.5 mm longae, in pedicellos egredientes. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* subglobosum 1.5 mm altum et 2 mm diam., 5-loculare. *Calyx* tubo subnullo, lobis ovato-triangularibus 1.2 mm longis et latis, intus subglaber. *Corolla* tubo 1.6 mm alto, lobis ovato-triangularibus 2.5 mm longis et 1.5 mm latis, fauce albo-barbata. *Staminodia* antheris 0.6 mm longis, brevissime apiculatis. *Discus* crassus. *Stylus* 2.5 mm altus, stigmatibus 5 truncatis 1 mm longis. *Bacca* remisse purpurea.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak. Rejang River: Kapit, HAVILAND 2962 ♀ K (typus) fl. Aug., SAR (dupl. typi); KALONG 2985 ♀ SAR, L, U, fl. Mar.; Gat, J. et M. S. CLEMENS 21717 fr. A.

Stipularum forma ad species sequentes accedens, sed foliis angustioribus, basi haud rare subcordatis, petiolis brevissimis, inflorescentia pauciflora ab eis faciliter cognoscenda.

20. *Pleiocarpidia borneënsis* (MIQ.) BREM. n. comb.; *Urophyll-*

lum borneënsis Miq. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 238 (1869), BOERL., Handl. Fl. Ned. Ind. II (1), p. 128 (1891); MERR. in Journ. Asiat. Soc. Straits, Special Number 1921, p. 559; non apud VAL. in Engl. Bot. Jaarb. XLIV, p. 556 (1910), nec apud RIDL. in Journ. of Bot. LXX, p. 223 (1932).

Rami novelli primum dense ferrugineo-pubescentes, obtuse quadrangulares, 2.5—3.5 mm diam.; veteriores nondum noti. *Folia* petiolo dense ferrugineo-pubescente 8—9 mm longo; lamina oblonga 13—16.5 cm longa et 4.0—5.6 cm lata, caudato-acuminata, basi subobtusata vel rotundata, subcoriacea, opaca, sicc. supra griseo-brunnea et subtus dilute brunnea costa nervis venulis tamen ferrugineis, supra costa mox glabrescente excepta glaberrima, subtus costa nervis venulis dense pubescentibus exceptis sparsissime pubescens, nervis utroque latere costae 11—12. *Stipulae* ignotae. *Inflorescentiae* trichotome corymbosae, dense griseo-brunneo-pubescentes, floribus 30—45. Pedunculus 8—10 mm longus. Involucellum post florationem deciduum nondum visum. Bractee lineares usque ad 3 mm longae, in pedicellos egredientes. Pedicelli fructuum 3—7 mm longi. *Flores* ignoti. *Bacca* globosa, 5-sulcata, 6.5 mm diam., calycis lobis 5 vix 0.5 mm longis et disco lacunis aliquibus impresso coronata, 5-locularis.

Hab. terrae Borneënsis partem australem.

Borneo. South Borneo, s.l., DE VRIESE s.n. fr. U (typus).

Specimen a Miquel descriptum et adhuc solum notum valde imperfectum. A speciminibus a Ridley ad speciem hanc relatis quae ad genus *Urophyllum* Wall. ipsum pertinent inflorescentia trichotome corymbosa faciliter distinguendum tamen; quoad specimen a Valetton hic relatum cf. speciem 23. Indumento et forma foliorum ad speciem sequentem accedens, inflorescentia trichotome corymbosa, calycis lobis brevioribus ab ea tamen certe diversa.

21. *Pleiocarpidia Elmeri* BREM. n. spec.; *Urophyllum* sp. apud MERR. in Univ. Cal. Publ. Bot. XV, p. 281 (1929); typus: ELMER 21471 in herbario Arboreti Arnoldiani.

Arbor parva. *Rami* novelli dense ferrugineo-puberuli, subteretes, 3.7 mm diam.; veteriores nondum noti. *Folia* petiolo dense ferrugineo-pubescente 6—7 mm longo; lamina elliptico-oblonga 10—18.5 cm longa et 4.5—6.5 cm lata, caudato-acuminata, basi acuta vel subacuta, herbacea, opaca, sicc. supra saturate et subtus dilute olivacea, supra costa glabrescente excepta glaberrima, subtus costa nervisque dense brunneo-pubescentibus exceptis sparse pubescens, nervis utroque latere costae 8—11. *Stipulae* basi saccatae et supra basin in lobum linearem marginibus tamen haud incurvatis con-

tractae, 15 mm longae, basi 1.5 mm latae, extus sparse et breviter pubescentes, mox deciduae. *Inflorescentiae* subpaniculatae, involu-cellis duobus cinctae, dense ferrugineo-pubescentes, floribus circ. 45. Pedunculus 7—12 mm longus. Involucella squamis foliaribus anguste linearibus 12—14 mm longis et stipulaceis circ. 5 mm longis composita. Bractee lineares, in pedicellos egredientes. Internodia basalia paniculae circ. 10 mm; pedicelli fructuum 2—4 mm. *Flores* ignoti. *Bacca* calycis lobis 5 ovato-triangularibus 0.9—1.2 mm longis et 1.2—1.7 mm latis coronata, 5-locularis.

Hab. terrae Borneënsis partem septemtrionalem.

Borneo. British North Borneo. Elphinstone Province, Tawao, ELMER 21471 A (typus), dupl. GH.

Specimina baccis valde immaturis munita sed sine floribus. Indumento et forma foliorum ad speciem precedentem accedens, sed inflorescentia involu-cellis duobus cincta ad species sequentes vergens.

22. *Pleiocarpidia rufescens* BREM. n. spec.; typus: HALLIER 3187 in herbario Lugdunensi.

Ramorum novellorum apices ignoti, partes preservatae ferrugineo-tomentosae, subteretes, 3.5 mm diam.; rami veteriores cortice brunneo opaco vestiti, indumentum diu retinentes. *Folia* petiolo dense ferrugineo-tomentoso 13—18 mm longo; lamina oblanceolata 15—21 cm longa et 4.8—7.4 cm lata, caudata, basi subacuta, herbacea, opaca, sicc. utrimque rufescens, supra costa longe sed sparse villosa excepta glabra, subtus costa nervisque dense villosa, ceterum sparse villosa, nervis utroque latere costae 12—14. *Stipulae* ignotae. *Inflorescentiae* paniculatae, dense rufo-tomentosae, floribus circ. 20. Pedunculus 2—3.5 cm longus. Involucella decidua nondum visa. Bractee lineares. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* 5-loculare, loculis costa e pariete externa oriente carentibus. *Calyx* tubo 0.4 mm longo, lobis tubo subaequilongis, ovatis. *Corolla* tubo 1.5 mm alto, lobis 2 mm longis, basi 1.2 mm latis. *Staminodia* parva antheris 0.6 mm longis, utroque extremo emarginatis. *Discus* lacunis 10 impressus. *Stylus* crassus stigmatibus 5 obtusis apice incurvatis. *Bacca* matura ignota.

Hab. terrae Borneënsis partem austro-occidentalem.

Borneo. Western Division. Müller Mts, Amai Ambit, HALLIER 3187 ♀ L (e BZ) (typus).

Maxime ut species sequens, sed foliis longius petiolatis, nervos pauciores exhibentibus, sicc. rufescentibus, absentia costarum cum ovarii septis alternantium ab ea faciliter distinguenda. Indumento foliorum ad *Pl. polyneuram* accedens.

23. *Pleiocarpidia paniculata* (RIDL.) BREM. n. comb.; *Urophyllum paniculatum* RIDL. in Journ. of Bot. LXX. p. 223 (1932) p.p.;—an *U. borneënsis* MIQ. apud VAL. in Engl. Bot. Jahrb. XLIV, p. 556 (1910)?

Rami novelli primum dense rufo-pubescentes, obtuse quadrangulares, 3.5 mm diam.; veteriores cortice griseo opaco vestiti. *Folia* petiolo dense rufo-pubescente 9—14 mm longo; lamina nunc oblonga et 14—17.5 cm longa, 3.5—4.7 cm lata, nunc anguste obovata et 15—20 cm longa, 6.5—8 cm lata, caudato-acuminata, basi subobtusata vel rotundata, subcoriacea, opaca, sicc. supra saturate brunnea vel nigrescens, subtus dilute brunnea, costa, nervis, venulis rufis tamen, supra costa dense, ceterum sparse pubescens, deinde costa sola pubescens, subtus costa nervis venulis dense rufo-pubescentes, ceterum primum sparse, deinde sparsissime pubescens, nervis utroque latere costae 16—20. *Stipulae* ovato-triangulares 10—16 mm longae et 3.5—4 mm latae, extus sparse rufo-pubescentes et sub indumento nigrescentes. *Inflorescentiae* plerumque in parte defoliata ramorum, interdum aliquae foliis sustentatae, subpaniculatae, plerumque involuclis duobus cinctae, dense rufo-pubescentes, 3—4.5 cm longae et 3—4 cm diam., floribus 75—100. Pedunculus usque ad 1.4 cm longus, interdum tamen subnullus, casu quo ramuli infimi debiliores. Involucella rufo-pubescentia squamis foliaribus anguste triangularibus usque ad 3 mm longis, stipulaceis ovatis paulo brevioribus. Bractee lineares usque ad 3 mm longae, plerumque tamen minores, superiores in pedicellos egredientes. Pedicelli 1.5—2 mm longi. *Flos masculus* ignotus. *Flos femineus*: *Ovarium* semiglobosum 3 mm diam. et 1.7 mm altum, sparse rufo-pubescentia, 5-loculare, septis cum costis e pariete externa usque ad centrum loculi salientibus alternantibus. *Calyx* extus sparse rufo-pubescentia, intus glaber, tubo 0.3 mm alto, lobis latissime ovato-triangularibus 0.4 mm longis. *Corolla* tubo 2 mm alto, orem versus dilatato, fauce parce barbato, lobis viridulis ovatis 3.5 mm longis latisque. *Staminodia* antheris globularibus, apice vix conspicue mucronulatis, 0.4 mm longis. *Discus* semiglobosus, apice lacunis 10 vix conspicuis impressus. *Stylus* stigmatibus 5 obtusis, sicc. crocatis. *Bacca* matura ignota.

Hab. terrae Borneënsis partes occidentalem et australem.

Borneo. Sarawak; Kuching, HAVILAND 2986 ♀ K (typus), SAR (dupl. typi), fl. Mai.; id. 2154 ♀ SAR., fl. Jan.; id. 2964 ♀ SAR, fl. Febr. Western Division; Landak, TEYSMANN H.B. 11283 fr. L. Southern and Eastern Division; Hayup, Hub. WINKLER 2111 L?

Numerus septorum quaque bacca 5 non 4, et septa ipsa haud bifurcata ut a RIDLEY l.c. descripta. Specimina ab ELMER in parte

septemtrionali terrae Borneënsis lecta et a RIDLEY ad speciem hanc relata, ad speciem aliam pertinent, cf. speciem 24. Specimen a HUB. WINKLER lectum et a VALETON ad *Pl. borneënsis* relatum, forsitan ad speciem hanc ducendum, sed paupertate speciminis determinatio incerta manet.

23 a. *Pleiocarpidia bracteolata* (RIDL.) BREM. n. comb.; *Urophyllum bracteolatum* RIDL. in Journ. of Bot. LXX, p. 221 (1932).

Speciem hanc adhuc imperfecte notam nondum examinare potui et inde in clavi non memoravi. Inflorescentia paniculata et discus lacunis 10 impressus speciem ad *Pleiocarpidiam* pertinere docent; indumentum, calycis lobi tubo longiores, bracteae conspicuae positionem eius in serie *Trichocladarum* certefaciunt. Indumento rufo, forma et dimensionibus foliorum ad *Pl. paniculatam* accedere videtur, nervis utroque latere costae 13, inflorescentiis 2 cm longis, bracteis 4 mm longis, corolla 3 mm longa ab ea tamen certe diversa. Flores a Ridley 4-meri dicti 5-meri habendi, nam discus lacunis 10 impressus praesentiam staminum 5 demonstrat.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Sarawak; Mt Singhi, HAVILAND 2016 ♂ K (typus), nondum vidi.

24. *Pleiocarpidia polyneura* (MIQ.) BREM. n. comb.; *Urophyllum polyneurum* MIQ. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 239 (1869); BOERL., Handl. Fl. Ned. Ind. II (1), p. 128 (1891); MERR. in Journ. Asiat. Soc. Straits, Special Number 1921, p. 560.

Arbor 12 m alta, trunco 8 cm diam. *Rami* novelli quadrangulares et quadrisulcati, densius hirsuti, deinde obtuse quadrangulares vel subteretes et sparse hirsuti, 4—4.5 mm diam.; veteriores cortice brunneo opaco vestiti. *Folia* petiolo 8—12 mm longo, marginibus sulci dense hirsutis exceptis sparse rufo- vel ferrugineo-hirsuto; lamina oblonga 21—25 cm longa et 6.5—8.8 cm lata, acuminata, basi subobtusata vel rotundata, herbacea, opaca, sicc. supra plerumque brunnea, interdum olivacea tamen, subtus dilute olivaceo-brunnea, costa, nervis, venulis saturatoribus, supra primum costa densius et longius ferrugineo-villosa excepta sparse villosa, deinde costa sparse villosa et ceterum glabrescens, subtus primum dense villosa, deinde costa nervisque densius villosis exceptis sparse hirto-villosa, nervis utroque latere costae 20—25 supra impressis. *Stipulae* ovatae 1.7—2.0 cm longae et 0.8—1.2 cm latae, extus primum dense, deinde sparse rufo- vel ferrugineo-villosae, sub indumento nigrescentes, apice haud rare bilobatae. *Inflorescentiae* aliquae in parte defoliata ramorum,

aliquae in axillis foliorum, paniculatae, involucellis duobus cinctae, sparse rufo- vel ferrugineo-hirtae, floribus 25—50, 6 cm longae et 7 cm diam., fructigerae 7 cm longae et 9 cm diam. Pedunculus 1—1.5 cm longus. Involucella squamis foliaribus anguste ovatis usque ad 6 mm longis, stipulaceis ovatis 5 mm longis. Bractee angustiores, usque ad 4 mm longae, ultimae in pedicellos egredientes. Pedicelli 3—7 mm longi, fructuum usque ad 12 mm. *Flores* plurimi 5-meri, aliqui interdum 6-meri. *Flos masculus* maturus ignotus. *Flos femineus*: *Ovarium* semiglobosum 3.0 mm diam. et 2.0 mm altum, sparse rufo-hirtellum, 5-loculare, septis cum costis e pariete externa usque ad medium loculorum salientibus alternantibus. *Calyx* extus sparse hirtus, intus sericeus, tubo 2 mm alto, lobis tubo aequilongis, acuminatis. *Corolla* tubo 2 mm alto, lobis 4 mm longis, basi 2 mm latis, extus dense adpresse pubescentibus. *Staminodia* antheris ovoideis 0.8 mm longis, utroque extremo obtusis. *Discus* lacunis 10 vix conspicuis impressus. *Stylus* 2.5 mm altus, stigmatibus 5, rare 6 obtusis, sicc. pallidis. *Bacca* sordide rubro-lutea, deinde nigricans, usque ad 13 mm diam., haud sulcata, plerumque 5-locularis.

Hab. terram Borneënssem.

Borneo. Sine loco sed probabiliter in parte australi: DE VRIESE s.n. U (typus); L (specimen alabastris masculis munitum, a MIQUEL non visum, sed sine dubio duplicatus typi habendum). Central East Borneo; West Kutei, H. Petah, alt. 600 m, ENDERT 3189 ♀ BZ (co-typus meus), fl. et fr. Sept.

Specimen alium in terra Borneënsi lectum (TEYSMANN H.B. 11279 BZ) sine dubio speciei huic affine est, foliis multo minoribus, nervos pauciores exhibentibus, fructibus minoribus ab ea tamen recedit; paupertate speciminis species haec haud describenda.

Specimen in parte septemtrionali terrae Borneënsis lectum (British North Borneo, Elphinstone Prov., Tawao, ELMER 21332 A) etiam ut MERRILL (Univ. Cal. Publ., Bot., XV, p. 282 (1929) jam cognovit, ad speciem hanc accedere videtur, indumento tomentoso, haud villosa ab ea tamen certe distinctum: paupertate speciminis species haec etiam indescritpta manet.

Pl. polyneura ipsa numero nervorum et indumento faciliter a congeneribus distinguenda.

Series 6. *Ceratopetalae*. *Folia* lanceolata vel lanceolato-oblonga, sicc. per pilam vitream spectata nigro-punctata, costa canaliculata, subtus neque valde prominente neque quadrangulari, nervis subtus prominulis, venulis e nervis rectangulariter salientibus subdense clathratis, subtus prominulis; *stipulae* e basi saccata subito

in lobum subulatum, intus late canaliculatum, apice integrum contractae. *Inflorescentiae* trichotome corymbosae, involucello singulo cinctae, bracteis haud parvis, floribus circ. 45. *Calyx* pelviformis, fere usque ad medium lobatus. *Corolla* fauce dense barbata, lobis ad medium dorsum corniculatis.

Species unica in terrae Borneënsis parte orientali lecta. — Species 25.

25. **Pleiocarpidia corniculata** BREM. n. spec.; typus: ENDERT 3831 in herbario Horti Bogoriensis.

Arbor parva circ. 5 m alta. *Rami* novelli complanati et profunde bisulcati, dense rufo-pubescentes, deinde subteretes et pubescentia minus densa vestiti, 1.8 mm diam. *Folia* petiolo rufo-pubescente 6—10 mm longo; lamina 6.5—15 cm longa et 2.1—4.8 cm lata, caudato-acuminata, basi acuta, herbacea, opaca, sicc. ut partes ceterae novellae brunnescens, margine, costa utrimque et nervis subtus primum dense, deinde sparse rufo-pubescentis, ceterum glabra, nervis utroque latere costae 6—9. *Stipulae* 5—7 mm longae, basi 1.7—2.4 mm latae, extus primum dense rufo-pubescentes, deinde sparse pubescentes. *Inflorescentiae* parte nondum defoliata ramorum insertae, dense rufo-pubescentes. Pedunculus 1.7—2.8 cm longus. Involucellum squamis foliaribus linearibus 6 mm longis, stipulaceis ovato-lanceolatis 4 mm longis, rufo-pubescentis. Bractee lineares, sub indumento difficiliter distinguendae, haud parvae tamen. Internodia basalia corymbi 4—12 mm longa; alia multo breviora. Pedicelli 1—2 mm. *Flores* 5-meri, aliqui tamen 4-meri. *Flos masculus*: *Calyx* 1.5 mm altus, extus dense rufo-pubescentis, intus glaber. *Corolla* extus fere tota dense rufo-pubescentis, alabastro sub apice corniculis 5 stellato-patentibus ornata, rosea, tubo 1.3 mm alto, pilis fauce insertis viridulis, lobis ovatis 1.5 mm longis et 0.6 mm latis. *Stamina* antheris ovato-oblongis obtusis 0.6 mm longis. *Discus* alte conicus, lacunis 10 impressus. *Stylodium* minimum, 0.1 mm supra discum productum, 5-lobatum. *Flos femineus* et *bacca* ignoti.

Hab. terrae Borneënsis partem orientalem.

Borneo. Central East Borneo; West Kutei, H. Petak, alt 450 m, ENDERT 3831 ♂ BZ (typus), fl. Oct.

Species a congeneribus corollae lobis corniculatis faciliter distinguenda, foliis siccis per pilam vitream spectis nigro-punctatis forsitan ad seriem *Graptophyllarum* accedens.

Series 7. *Callophyllae*. *Folia* elliptica, elliptico-oblonga vel oblonga, costa canaliculata, subtus valde prominente, nervis subtus prominentibus, venulis dense reticulatis utrimque prominulis;

stipulae oblongae vel ellipticae, apice integrae, subcarinatae, intus subglabrae, cicatricem transverse oblongum relinquentes. *Inflorescentiae* trichotome corymbosae, involucello singulo cinctae, bracteis paucis, floribus 75—100. *Calyx* fere usque ad basin in lobos triangulares divisus. *Corolla* fauce dense barbata, lobis neque gibbosis neque corniculatis.

Species unica in terrae Borneënsis parte occidentali lecta. — Species 26.

26. *Pleiocarpidia coffeoides* BREM. n. spec.; typus: HALLIER 1991 in herbario Lugdunensi.

Habitus „ut *Coffea*” dictus. *Rami* novelli subglabri, valde complanati, deinde obtuse quadrangulares et bi- vel quadrisulcati, 2.5—3.5 mm diam.; veteriores cortice brunneo opaco vestiti. *Folia* petiolo subglabro 10—12 mm longo, gracili; lamina 10—34 cm longa et 3.5—9.5 cm lata, subito in caudam anguste linearem obtusam contracta, basi acuta, subobtusa vel subrotundata, subcoriacea, utrimque nitidula, sicc. foliorum novellorum brunnea, aliorum olivacea, subtus pallidior tamen, costa nervisque subtus plerumque rubro-brunneis, primum subtus pubescens, sed mox glabrescens, costa tamen interdum indumentum sparse puberulo-pubescentis retinente, nervis utroque latere costae 9—10. *Stipulae* 10—15 mm longae et 3—6 mm latae, subacutae, extus densius pubescentes, marginem versus tamen glabrescentes. *Inflorescentiae* densius sed haud conspicue puberulo-pubescentes. Pedunculus usque ad 3.7 cm longus, sparse pubescens. Involucellum squamis foliaribus triangularibus, stipulaceis orbicularibus. Internodia basalia corymbi usque ad 15 mm longa; internodia sequentia bracteis parvis suffulta; alia pedicellique ebracteati. Pedicelli 2—3.5 mm longi, fructuum longiores. *Flores* plurimi 5-meri, aliqui 6-meri. *Flos masculus* maturus ignotus. *Flos femineus*: *Ovarium* ovoideum 2.4 mm diam., sparse puberulum, 5-loculare. *Calyx* tubo subnullo, lobis late triangularibus 0.3 mm longis, extus intusque subglabris. *Corolla* extus puberula tubo 1.3 mm alto, lobis ovatis 2 mm longis et basi 1.4 mm latis. *Staminodia* antheris oblongis apiculo triangulari 0.2 mm longo comprehenso 0.7 mm longis. *Discus* sine lacunis. *Stylus* 2 mm altus, stigmatibus 5 ovatis acutis subpatentibus, stylo subaequilongis. *Bacca* ignota.

Hab. terrae Borneënsis partem occidentalem.

Borneo. Western Division; District Sintang, Base of G. Kenepai, HALLIER 1888 ♀ L (e BZ); S. Kenepai, id. 1991 ♀ L (e BZ) (typus); Liang Gagang, id. 2734 ♀ L (e BZ); Amai Ambit, id. 3145 ♂ L (e BZ). Sarawak; Mt Matang, COLL. INDIG. E, 283 SAR; s.l., COLL. SAR. MUS. 1835 A (e PNH).

Species haec a congeneribus stipulis subcarinatis, intus subglabris, foliis dense reticulatis facilliter distinguenda.

INDEX SPECIERUM IN GENERE *PLEIOCARPIDIA*
NUNCUPATARUM.

2. *assahanica* BREM. n. spec.
20. *borneënsis* (MIQ.) BREM. n. comb. (*Urophyllum borneënsis* MIQ. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 238, 1869).
- 23a. *bracteolata* (RIDL.) BREM. n. comb. (*Urophyllum bracteolatum* RIDL. in Journ. of Bot. LXX, p. 221, 1932).
15. *capitata* BREM. n. spec.
8. *capituligera* (RIDL.) BREM. n. comb. (*Urophyllum capituligerum* RIDL. in Journ. of Bot. LXX, p. 222, 1932).
16. *cephalotes* (RIDL.) BREM. n. comb. (*Urophyllum cephalotes* RIDL. in Journ. of Bot. LXX, p. 222, 1932).
17. *chlamydantha* BREM. n. spec.
26. *coffeoides* BREM. n. spec.
25. *corniculata* BREM. n. spec.
4. *deliensis* BREM. n. spec.
21. *Elmeri* BREM. n. spec.
1. *enneandra* (WIGHT) K. SCH. in Engl. u. Prantl, Natürl. Pflanzenfam., Nachtr. I, p. 314, 1897.
enneandra (WIGHT) K. SCH. apud MERR. in Univ. Cal. Publ. Bot. XV, p. 282, 1929 = *sandahanica*.
14. *holectomia* BREM. n. spec.
10. *kinabaluensis* BREM. n. spec.
6. *lanaënsis* MERR. in Philipp. Journ. of Sc. XX, p. 462, 1922.
7. *longipetala* (RIDL.) BREM. n. comb. (*Urophyllum longipetalum* RIDL. in Journ. of Bot. LXX, p. 193, 1932).
12. *macrura* BREM. n. spec.
9. *magnifolia* BREM. n. spec.
18. *opaca* BREM. n. spec.
23. *paniculata* (RIDL.) BREM. n. comb. (*Urophyllum paniculatum* RIDL. in Journ. of Bot. LXX, p. 223, 1932).
13. *parvistipula* BREM. n. spec.
3. *peltistigma* (MIQ.) BREM. n. comb. (*Urophyllum peltistigma* MIQ., Fl. Ind. Bat., Suppl., p. 542, 1860).
19. *pilosa* (RIDL.) BREM. n. comb. (*Urophyllum pilosum* RIDL. in Journ. of Bot. LXX, p. 219, 1932).
24. *polyneura* (MIQ.) BREM. n. comb. (*Urophyllum polyneurum* MIQ. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 239, 1869).
22. *rufescens* BREM. n. spec.

5. *sandahanica* BREM. n. spec.
 II. *sintangensis* BREM. n. spec.

INDEX SPECIERUM IN GENERIBUS ALIIS NUNCUPATARUM AD *PLEIOCARPIDIAM* TRADUCENDARUM.

- Aulacodiscus enneandrus* (WIGHT) K. SCH. in Engl. u. Prantl. Natürl. Pflanzenfam. IV (4), p. 66, 1891 = **Pl. enneandra**.
 — *Maingayi* KING et GAMBLE in Journ. Asiat. Soc. Beng. LXXII, p. 189, 1903 = **Pl. enneandra**.
 — *premnoides* Hook.f. in Benth. et Hook.f., Gen. Pl. II (2), p. 71, 1873 = **Pl. enneandra**.
Axanthes enneandra WIGHT in Calc. Journ. Nat. Hist. VII, p. 144, 1847 = **Pl. enneandra**.
Urophyllum borneense MIQ. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 238, 1869 = **Pl. borneënsis**.
 — — — apud RIDL. in Journ. of Bot. LXX, p. 223, 1932 = **Urophyllum vulpinum** BREM. inedit.
 — — — apud VAL. in Engl. Bot. Jahrb. XLIV, p. 556, 1910 = species *Pl. paniculatae* affinis.
 — *bracteolatum* RIDL. in Journ. of Bot. LXX, p. 221, 1932 = **Pl. bracteolata**.
 — *capituligerum* RIDL. in Journ. of Bot. LXX, p. 222, 1932 = **Pl. capituligera**.
 — *cephalotes* RIDL. in Journ. of Bot. LXX, p. 222, 1932 = **Pl. cephalotes**.
 — *enneandrum* (WIGHT) RIDL. in Journ. of Bot. LXX, p. 193, 1932 = **Pl. enneandra**.
 — *longipetalum* RIDL. in Journ. of Bot. LXX, p. 193, 1932 = **Pl. longipetala**.
 — *paniculatum* RIDL. in Journ. of Bot. LXX, p. 223, 1932 = **Pl. paniculatum**.
 — *peltistigma* MIQ., Fl. Ind. Bat., Suppl., p. 542, 1860 = **Pl. peltistigma**.
 — *pilosum* RIDL. in Journ. of Bot. LXX, p. 219, 1932 = **Pl. pilosa**.
 — *polyneurum* MIQ. in Ann. Mus. Bot. Lugd.-Bat. IV, p. 239, 1869 = **Pl. polyneura**.

INDEX SPECIMINUM PROLATORUM.

(Speciminum numeri a numeris hic speciebus impositis uncis inclusis secuti; si specimen ut species typus habendum est, numerus specificus asterisco signatus).

AGAMA 565 (5*).

- CASTRO 2706 (5).
 CLEMENS (M. S.) 882 (6*); 10807 et 10818 (10); 10967 (13).
 CLEMENS (J. et M. S.) 20070, 20240 et 20910 (16); 21394 (14);
 21401 (14*); 21406 (cf. 16); 21711 (8); 21717 (19); 27580 (10);
 27593 (cf. 5); 28187 (10); 28307 (15*); 28367, 28367a, 28674,
 29688, 30542 et 31035 (10); 31055 et 31271 (13); 31384 (12*);
 32279 (10*); 32516 (13*); 32598 (10); 33771 (12); 34092 et
 40833 (10).
 COLL. INDIG. cf. NAT. COLL.
 CORNER 29443 (1).
 EDANO cf. RAMOS et EDANO.
 ELMER 20090 et 20134 (5); 21332 (cf. 24); 21471 (21*); 21576 (5).
 ENDERT 3189 (24); 3831 (25*).*
 EVANGELISTA 760 (5).
 FORBES 3050a (3).
 GARAI (HAVILAND'S COLL.) 1043 (16*); 1046 (16).
 GRESHOFF 1149 (3).
 HALLIER 1628 (11); 1749 (17*); 1813 (9*); 1888 (26); 1991 (26*);
 2542 (11*); 2734 et 3145 (26); 3187 (22*).*
 HAVILAND (cf. GARAI et KALONG) 148, 665 et 1470 (16); 1662 (7*);
 2016 (23a*); 2154 (23); 2962 (19*); 2964 (23); 2986 (23*); s.n.,
 June 20th 1893 (16).
 HAVILAND et HOSE 3415 (8*); 3417 (8).
 HELFER Herb. E. I. C. 2938 (1).
 HOSE cf. HAVILAND et HOSE.
 KALONG (HAVILAND'S COLL.) 2985 (19).
 KLOSS 19025 (5).
 KRUKOFF 4362 (2).
 LOERZING 5645 (4*).*
 MAINGAY 938 (1).
 NAT. COLL. SAR. MUS. E. 283 et 1835 (26); 2031 (18*); 2422 (16).
 RAHMAT SI BUEA (BARTLETT'S COLL.) 6537, 6798, 7134, 7344 et
 7518 (2); 7650 (2*); 7953 et 9859 (2).
 RAMOS et EDANO 37226 et 38988 (6).
 TEYSMANN H. B. 3834 (3*); 7997 (17); 11279 (cf. 24); 11283 (23).
 VRIESE, DE s.n. (20*); s.n. (24*).*
 WINKLER, HUB. 2111 (23?).*
 WOOD 1324 (5).
 WRAY 2665 (1).
 YATES 1368 (2).