

## TWO NEW LECYTHIDACEAE AND TWO NEW APOCYNACEAE FROM MALAYSIA

by

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(Leiden).

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During the year 1936 the first of us made a trip to the island of Enggano (W. coast of Sumatra, Residency of Benkoelen) for the special purpose of collecting Cryptogams. During this trip also a number of Phanerogams could be gathered. The collections made are preserved at the Rijksherbarium at Leiden, duplicates are to be found in the Herbarium at Buitenzorg. The Phanerogams were preliminary identified by Dr. D. F. VAN SLOOTEN (*Leguminosae*, *Flacourtiaceae*, *Combretaceae*, *Gramineae*) and by Dr. C. G. G. J. VAN STEENIS<sup>1</sup>). Afterwards some additional determinations were made by several specialists (BREMEEKAMP, HENRARD, JONKER, MISS KOSTER, LAM, J. J. SMITH, UTTIEN) and by the authors. It resulted that a few species proved to be hitherto undescribed. Two of them will be published below, together with two others met with in the collections of the Rijksherbarium during our investigations. Some others will be published elsewhere in this periodical.

### LECYTHIDACEAE

*Barringtonia flagellata* LÜTJEH. et VAN OOSTSTR., n. sp. — fig. 1, a—g. Arbor parva, circ. 5 m alta; ramulis pallide cinereis, teretibus, juvenilibus in sicco longitudinaliter corrugatis; foliis ad ramulorum apices aggregatis, glaberrimis, angustè oblongo-ellipticis vel oblongis, apice breviter acuminatis, basi breviter suboblique cuneatis, breviter angusteque decurrentibus, (22—)31—35 cm longis, (6—)10—12.5 cm latis, chartaceis, in sicco utrinque pallide viridibus, costa supra anguste subacute

<sup>1</sup>) To Dr. D. F. VAN SLOOTEN and especially to Dr. C. G. G. J. VAN STEENIS (Buitenzorg) may be expressed my sincere thanks for their invaluable help in identifying my collections.

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prominula, subtus valde prominente, nervis lateralibus utrinque 14—16, fere ad marginem ascendentibus, arcuatim plusminusve confluentibus, supra prominulis, subtus prominentibus, nervulis rete gracile supra parum, subtus valde prominulum efficientibus; margine obsolete ser-

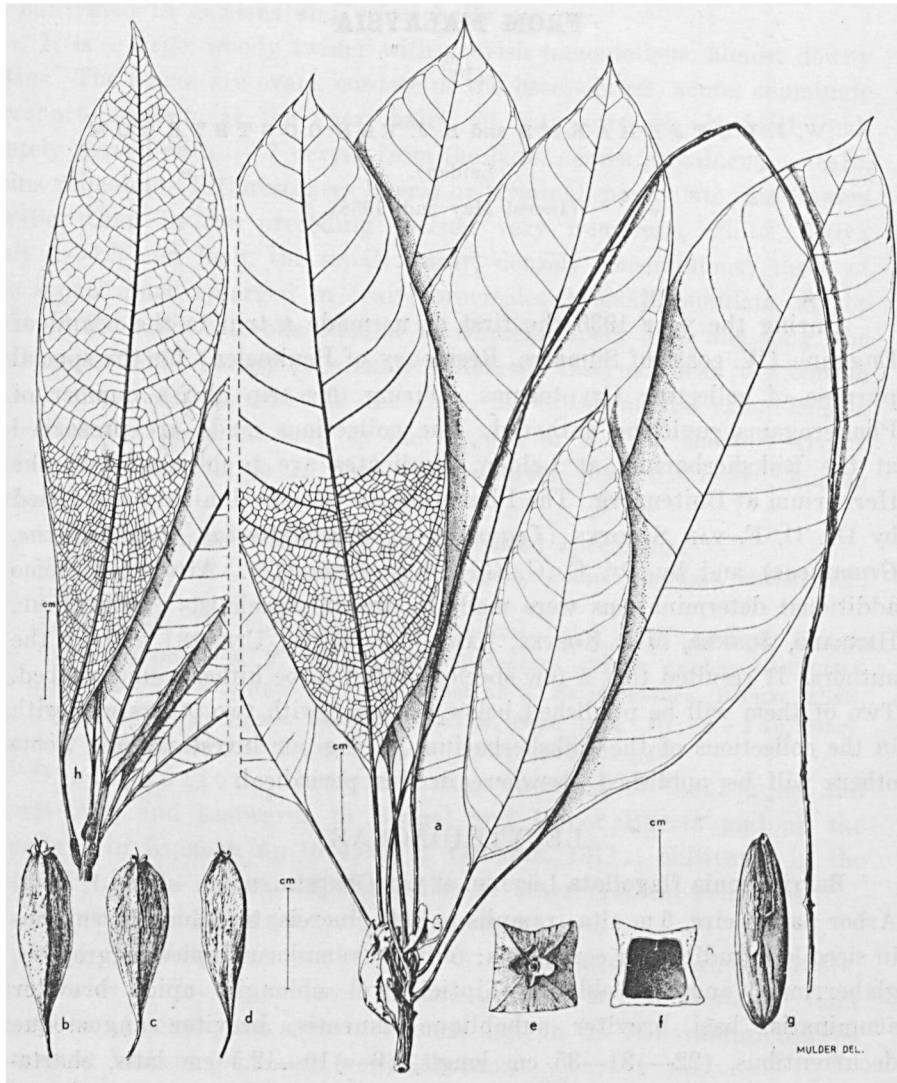


Fig. 1, a—g: *Barringtonia flagellata* LÜTJEH. et VAN OOSTSTR., (LÜTJEHARMS n. 4189, type); a, top of a branch with leaves and rhachis of an infructescence, destitute of fruits; b—d, fruits; e, fruit from above; f, cross section of fruit; g, seed; h: *Barringtonia confusa* LÜTJEH. et VAN OOSTSTR., (ZIPPELIUS n. 53/d, type), top of a branch.

rulata, angustissime revoluta; petiolo gracili, (6—)9.5—11 cm longo, in sicco striatulo, pallide olivaceo, basi incrassato, atrobrunneo; alabastris et floribus ignotis; infructescentiis terminalibus, longissime racemiformibus, solitariis, circ. 85 cm longis, rhachi gracili, circ. 2 mm crassa, in sicco longitudinaliter striata, cicatrices florum irregulariter, nunc sparse, nunc conferte dispositas gerente, basi bracteis nonnullis ovato-lanceolatis margine minute ciliatis, 6—7 mm longis instructa; fructubus pedicellatis, pedicello 1—1.5 cm longo, acute quadrangularibus, anguste obpyriformibus, circ. 5 cm longis, 1.7—2 cm diametro, reliquiis calycis stylique coronatis, unilocularibus; semine unico, anguste elongato-ellipsoideo vel oblanceolato-ellipsoideo, circ. 3 cm longo, circ. 1.2 cm crasso; sepalis 4, in fructu ovato-oblongis, late triangularibus vel semiorbicularibus, 3—4 mm longis, glabris.

TYPE: Malay Archipelago, Enggano (Res. of Benkoelen, Sumatra), forest near Boea-Boea,  $\pm$  100 m alt., June 3, 1936, leg. W. J. LÜTJEHARMS n. 4189 (type in Herb. Lugd. Bat.).

VERNACULAR NAME: poetat (Malayan, Palembang).

OBS. 1. According to the fieldnotes the fruits of this new species are of a reddish colour.

OBS. 2. Somewhat below the leaves at the apex of the only twig of the type collection there is a sessile leafy bud scale of a narrow spatulate form, rounded at the apex and measuring ca.  $5 \times 2$  cm. At the apex of the twig below the bracts surrounding the base of the peduncle there are two or three small, petioled leaves of about  $1\frac{1}{2}$ —2 cm length.

OBS. 3. This interesting new species must be considered as to belong to the subgenus *Stravadium* (JUSS.) MEISSN. On account of the mature fruit showing the rests of four dissipiments it probably belongs to the section *Doxomma* (MIERS) NIEDENZ. It is at once characterized by its long and slenderly curved inflorescence, its long and slender petioles, the obscurely serrulate and narrowly revolute margin of the leaf-blades and the sharply quadrangular, narrow-obpyriform, pedicellate fruit.

OBS. 4. Some of the apparently closely related species are *B. Eberhardtii* GAGNEP., *B. longipes* GAGNEP., *B. cochinchinensis* (BL.) MERR., *B. kratensis* CRAIB. With *B. Eberhardtii* it has the long slender inflorescence in common, it differs, however, by the larger leaves, with obscurely serrate leaf-margin, in having 14—16 (instead of 5—7) pairs of nerves and by the petiole being much longer. From *B. longipes* it differs by the slightly larger leaves and longer petioles, and by the form of the fruit, which has the same length but is about half as broad and is

distinctly and sharply quadrangular, while in *B. longipes* it is obscurely angular or almost smooth (according to GAGNEPAIN). *B. cochinchinensis* and *kratensis* have the leaves smaller and more or less distinctly serrate. Moreover, *B. cochinchinensis* has the petiole relatively longer and the fruit oblong-cylindrical, more or less acute at *both* ends. The fruit of *B. kratensis* seems to be unknown. The fruit of our new species shows a superficial resemblance to that of *B. acutangula* (L.) GAERTN., but the leaves in the latter species are entirely different.

OBS. 5. The branch we possess of our new species shows a certain resemblance to two specimens preserved in the Rijksherbarium at Leiden, collected by ZIPPELIUS in Amboina (ZIPPELIUS 53/d), identified by BLUME as *Barringtonia rubra* BL. Comparing the Enggano plant with that of Amboina, it is, however, obvious that there are several distinctive characters. The Enggano plant has the leaves narrow oblong-elliptic or oblong (the broadest part in the middle), the apex shortly acuminate, the base shortly cuneate and somewhat oblique with a petiole of (6—)9.5—11 cm being the  $\frac{1}{3}$ — $\frac{1}{4}$  part of the length of the blade. The number of lateral nerves amounts to 14—16. The plant from Amboina has the leaves oblanceolate-oblong, the broadest part above the middle, the apex shortly acuminate, the base distinctly cuneate, not distinctly oblique, whereas the petiole has a length of 2.5—5 cm, being  $\frac{1}{7}$ — $\frac{1}{9}$  part of the length of the blade. The number of lateral nerves amounts to 17—19. Moreover the rhachis of the inflorescence in the Enggano specimen is much longer, though this needs not to be of any importance as the Enggano plant is in fruiting stage, whereas one of the specimens from Amboina has only young flowers. These flowers show an undivided calyx; the calyx on the fruits in the Enggano specimen is distinctly 4-fid.

Studying the plant of ZIPPELIUS there arose some difficulties, which might be of interest from a nomenclatorial point of view. These difficulties have reference to the name *Barringtonia rubra* added by BLUME to the plants of ZIPPELIUS, but their real origin is much older and can be carried back to the conception of *Eugenia acutangula* by LINNAEUS.

The species *Eugenia acutangula* as it has been established by LINNAEUS in the first edition of his *Species Plantarum* must be regarded as a mixture of two units, viz.:

1. A Ceylon species, according to MIERS <sup>1)</sup> represented in the Hermann Herbarium at the British Museum, London, which has to bear the name *Barringtonia acutangula* (L.) GAERTN.

<sup>1)</sup> MIERS in *Transact. Linn. Soc.*, 2nd series, Botany, I, 1875, p. 80.

2. The plant described and figured by RHEEDE in his *Hortus Malabaricus*, Vol. IV, 1673, p. 15, tab. 7, to which plant MIERS gives the name *Butonica rubra*<sup>1)</sup>, based on *Stravadia rubra* PERSOON<sup>2)</sup>, the latter species with the exception of the synonym of RUMPHIUS. If we consider this species as to belong to the genus *Barringtonia*, the correct name must be *Barringtonia rubra* (PERS.) BLUME, for BLUME created this combination in VAN HOUTTE, *Flore des Serres*, VII, 1851, p. 23. It must be emphasized that in making the new combination BLUME had in mind a plant from the Moluccas (see below) and not from British India. Unfortunately this Moluccan plant is another one as that of RHEEDE, so that BLUME's new combination must be considered as valid for the name only, excluding the description.

In the second edition of his *Species Plantarum* LINNAEUS added to the synonyms given already in the first edition the name *Butonica terrestris rubra* used by RUMPHIUS in his *Herbarium Amboinense*, III, 1743, p. 181, tab. 115. This plant, however, represents a third species different from the two others mentioned above in various characters. MIERS in his memoir "On the *Barringtoniaceae*"<sup>3)</sup> based his species *Butonica terrestris* MIERS (not RUMPH. as mentioned by MIERS) on two specimens collected by HORSFIELD from Banca and from Patjetan (East Java) and on the description and plate of RUMPHIUS. He makes the supposition that indeed the plants of HORSFIELD represent the same species as RUMPHIUS's *Butonica terrestris rubra*. There is, however, no certainty at all about this, as the specimens of HORSFIELD and the description of MIERS do not fit very well for RUMPHIUS's plant. It seems better to leave the identity of the species figured by RUMPHIUS undecided for this moment.

Now there are, as stated above, in the Rijksherbarium at Leiden two sheets of *Barringtonia*, both from Amboina, collected by ZIPPELIUS, and bearing the name *Barringtonia rubra* BL. in BLUME's handwriting. These specimens fairly well correspond with the description given by BLUME in VAN HOUTTE, *Fl. des Serres*, l.c. under *Barringtonia rubra* BL. As has been already pointed out, the specific epitheton *rubra* cannot be used for these plants as it is connected with the species figured by RHEEDE. Now there are three possibilities:

<sup>1)</sup> MIERS, l.c. p. 70.

<sup>2)</sup> PERSOON, *Synopsis Plantarum* II, 1807, p. 30.

<sup>3)</sup> MIERS, l.c.

1. The specimens of Amboina collected by ZIPPELIUS represent the same species as RUMPHIUS's plate;

2. they belong to *Butonica terrestris* MIERS; this species based on the specimens of HORSFIELD only;

3. they represent a species different both from that of RUMPHIUS and from *Butonica terrestris* MIERS. In the latter case we must regard the Amboina specimens of ZIPPELIUS as representatives of a new species.

Comparing the specimens of ZIPPELIUS with MIERS's description of *Butonica terrestris* and with the HORSFIELD specimens, we can state that the differences are so important that they can impossibly belong to the same species. So the second possibility is already excluded. Do the specimens of ZIPPELIUS possibly belong to RUMPHIUS's species? This question must stay unsolved, as nobody knows exactly what is the species of RUMPHIUS. Anyhow the specimens of ZIPPELIUS, being identic or not with RUMPHIUS's species, have to bear a valid name, as the name *Barringtonia rubra* given to them by BLUME is related to *Tsjeria Samstravadi* of RHEEDE, as stated above. We therefore propose the name *Barringtonia confusa*.

One could put forward that *Barringtonia confusa* is the same species as RUMPHIUS's *Butonica terrestris alba* (= *Butonica silvestris alba*) (Herb. Amboin. III, 1743, p. 181, tab. 116), the base of *Stravadia alba* PERS. = *Stravadium album* (PERS.) DC. = *Barringtonia alba* (PERS.) BL. Here again must be stated that nobody knows RUMPHIUS's species, and that it is impossible to prove the identity of both.

MERRILL, in his paper entitled "An interpretation of RUMPHIUS's Herbarium Amboinense", 1917, supposes the identity of RUMPHIUS's *Butonica terrestris rubra* and *Butonica terrestris alba* with *Barringtonia racemosa* (L.) BL. As a representative of *Butonica terrestris alba* the Bureau of Science, Manila, distributed specimens collected by ROBINSON (no. 467), which doubtless belong to *Barringtonia racemosa* (L.) BL. The latter species rather well agrees with RUMPHIUS's not too clear description of *Butonica terrestris alba*, but not so well with his plate, which shows distinctly petiolate leaves with slender petioles, whereas the leaves of *B. racemosa* (L.) BL. are very shortly and broadly petiolate or almost sessile, so that in our opinion the identity must be doubted.

*Barringtonia confusa* LÜTJEH. et VAN OOSTSTR., n. sp. — fig. 1, h.

*B. rubra* BL. in VAN HOUTTE, Fl. des Serres, VII (1851) p. 23, quoad descript.

Arbor?, ramulis in sicco cinereo-brunneis, teretibus, in sicco longitudinaliter obscure corrugatis, glaberrimis; foliis ad ramulorum

apices aggregatis, glaberrimis, oblanceolato-oblongis, apice acuminatis, basi valde cuneatis anguste decurrentibus, (23.5—)26—33(—37) cm longis, (5.5—)6.5—8.5(—10) cm latis, chartaceis, in sicco cinereo-  
viridibus, supra opacis, subtus nitidulis, costa supra prominula, subtus prominente, nervis lateralibus utrinque 17—19, patentibus, ad marginem ascendentibus, haud confluentibus sed prope marginem nervulis transversalibus connectis, supra prominulis subtus prominentibus, nervulis supra et subtus rete gracile prominulum efficientibus, margine obsolete, prope basin obsolete crenulatis, non vel angustissime revoluta; petiolo gracili, 2.5—5 cm longo, supra subapplanato, in sicco striatulo, cinereo-  
viridi, basi valde incrassato, in sicco ruguloso, brunneo-rufescente; inflorescentiis in axillis foliorum superiorum positis, solitariis, racemiformibus, juvenilibus circ. 23 cm longis, circ. 70-floribus, rhachi gracili, circ. 1.5 mm crassa, tereti, farinosa; floribus valde immaturis (alabastris globosis circ. 3 mm diam.) pedicellatis, in axillis bractearum minutarum lanceolarum, circ. 0.5 mm longarum positis, pedicello 2.5—3 mm longo, plusminusve farinoso, basi articulato, in alabastro receptaculo obconico, 2 mm alto, subfarinoso, calyce globoso cupulato, integro, circ. 3 mm alto, subfarinoso vel glabro, petalis 3, orbicularibus, valde concavis, filamentis numerosis, ovario 3-loculari.

TYPE: Malay Archipelago, Amboina, leg. ZIPPÉLIUS n. 53/d (type in Herb. Lugd. Bat.; a specimen with very young flowers and a sterile specimen).

OBS. 1. See the remarks under obs. 5 belonging to *Barringtonia flagellata*, p. 94.

OBS. 2. On account of the calyx being cup-shaped and entire in bud, the new species seems to belong to the subgenus *Butonica* (JUSS.) NIEDENZ. It is among others characterized by the slenderly petioled leaves. It is a curious fact that the majority of the species possessing such slender petioles seems to belong to the subgenus *Stravadium* (JUSS.) NIEDENZ.

OBS. 3. The flowers of the type specimen are in a very young stage. They permitted, however, to get an impression of the form of the entire calyx, the number of the petals and of the cells of the ovary. The form of the petals we described as to be orbicular, it is possible, however, that this form will change afterwards. The number of petals and cells of the ovary being 3 is very remarkable, but in several flowerbuds we dissected this number was constantly found. As we have only one specimen at hand, it is impossible to decide if the 3-merous corolla and ovary represent a constant feature or merely a slight anomaly.

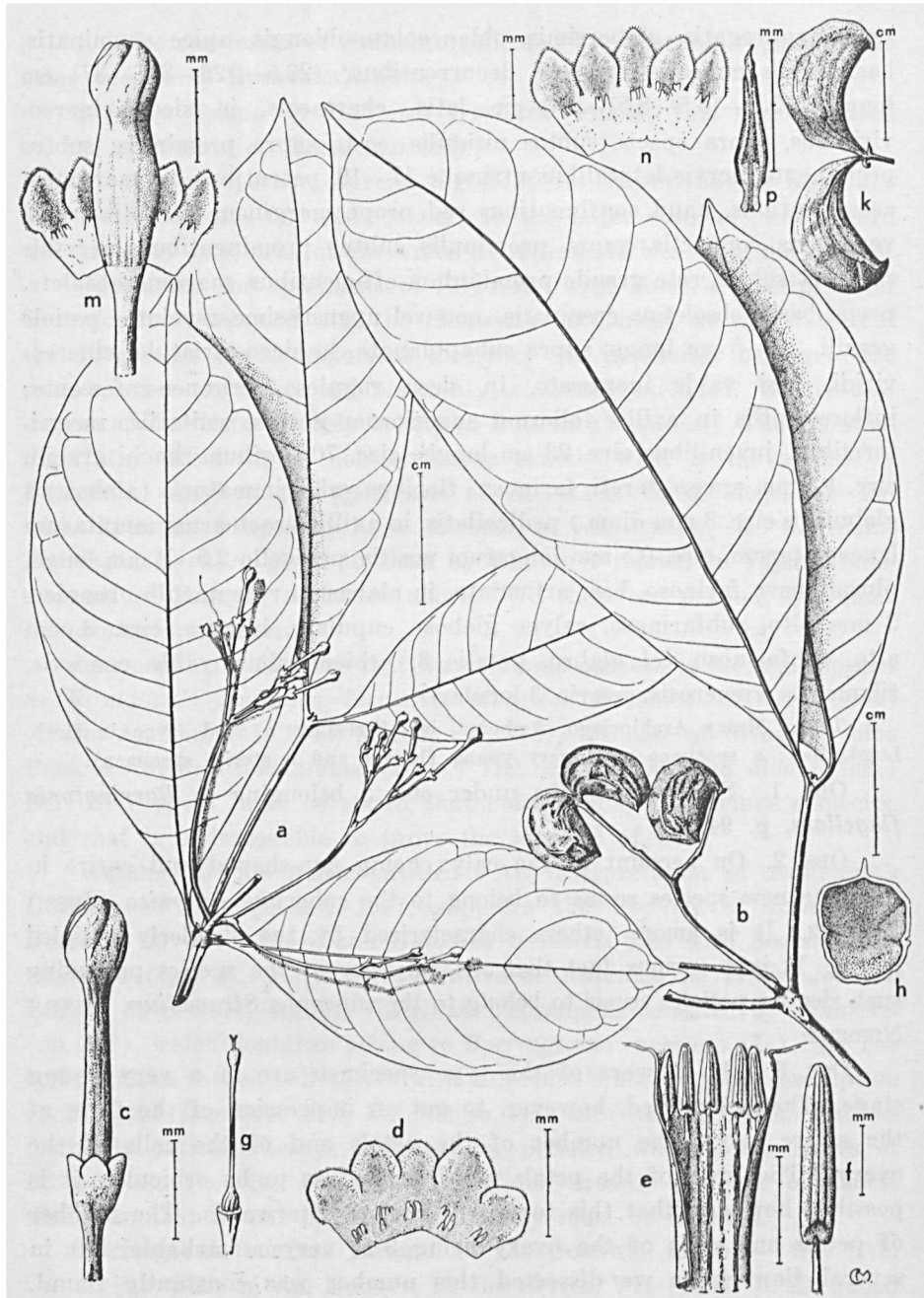


Fig. 2, a—h: *Tabernaemontana carinata* LÜTJEH. et VAN OOSTSTR., (LÖRZING n. 6994, type); a, flowering branch; b, fruiting branch; c, flowerbud; d, calyx, opened; e, upper part of corolla tube; f, stamen; g, pistil; h, cross section of fruit; k—p: *Tabernaemontana inaequalifolia* LÜTJEH. et VAN OOSTSTR., (LÜTJEHARMS n. 4461, type); k, fruit; m, flowerbud with opened calyx; n, calyx, opened; p, young stamen.



## APOCYNACEAE

**Tabernaemontana inaequalifolia** LÜTJEH. et VAN OOSTSTR., n. sp. —  
fig. 2, k—p.

Arbor, circ. 8—10 m alta, ramulis glabris, pallide griseo-viridibus, adultis teretibus, juvenilibus subangulatis vel compressis, 3—5 × 2—3.5 mm diam., foliis chartaceis, in paribus distincte inaequalibus, glabris, utrinque opacis, subtus pallidioribus, majoribus singulae paris ellipticis vel oblongo-ellipticis, apice breviter acute acuminatis, basi subobliquis, acutis plusminusve angusteque decurrentibus, 16—30 cm longis, 6.5—13 cm latis; minoribus singulae paris late ellipticis vel ellipticis vel interdum oblongo-ellipticis, apice in foliis latioribus plusminusve abrupte acuminatis, in angustioribus acuminatis basi rotundatis breviter abrupteque decurrentibus, 7—25 cm longis, 4.5—10.5 cm latis; costa supra impressa, subtus prominente, nervis primariis supra prominulis, subtus prominentibus, in foliis majoribus singulae paris (10—)11—13(—15), in foliis minoribus (5—)8—11; petiolo supra canaliculato, apice anguste alato, in foliis majoribus singulae paris 15—28 mm, in foliis minoribus (9—)11—17(—23) mm longo; stipula singula intrapetiolaris triangulari excavata, circ. 3 mm longa, stipulae foliorum binorum oppositorum lineis prominulis interpetiolaribus connatae; inflorescentiis supraaxillaribus, supra pseudodichotomiam ramulorum decussate positis, lobis calycis ciliatis exceptis glabris, pedunculatis, cymosis, pedunculo 3—5.5 cm longo, ramis primariis circ. 10—12 mm longis, pedicellis apice incrassatis, (7—)10—12(—16) mm longis; calyce campanulato, in floribus immaturis circ. 5 mm alto, 5-partito, lobis margine ciliolatis, circ. 2.5 mm longis, exterioribus 2 triangularibus intus ad basin glandulis circ. 2—3, minutis, ligulatis instructis, interioribus 3 paulo latioribus, ovatis vel late ovatis, margine membranaceis, intus ad basin glandulis circ. 3—6, ut supra instructis; corollae tubo (in floribus valde immaturis) glabro, lobis extus glabris, staminibus 5, filamentis prob. brevibus, supra medium tubi corollae insertis, antheris prob. breviter sagittatis, apiculatis, stigmatibus exannulatis; folliculis binis, interdum singulis, in vivo aurantiacis, patentibus, falcato-clongatis, plusminusve allantoideis, subcarnosis, basin versus attenuatis, sessilibus, mucronulatis, obsolete 3-lineatis, circ. 2.5—4.5 cm longis, 1.5—2.2 cm latis; seminibus, usque ad 11 (in folliculis minoribus interdum 2), rubroarillatis, curvato-oblongis vel reniformibus, ad hilum valde sulcatis, circ. 11—15 mm longis, 5—7 mm latis, testa crustacea, longitudinaliter sulcata, minute papillata, albumine ruminato.

TYPE: Malay Archipelago, Enggano (Res. of Benkoelen, Sumatra), forest near Boea-Boea,  $\pm$  100 m alt., June 9, 1936, leg. W. J. LÜTJELARMS n. 4461 (type in Herb. Lugd. Bat.).

VERNACULAR NAMES: bentaoes (Malayan, Palembang), ekaniohkoë (Enganese).

OBS. 1. According to the field notes a tree of about 8—10 m height with a trunk of 13 cm in diam. at 1.5 m above the ground. The fruits are orange-red with an unpleasant smell; the aril is red and according to a native tree collector the flowers should be white. Latex white. In contradistinction to the surrounding trees, this one was fully bare of epiphytes.

OBS. 2. We arrange this species and the following one under *Tabernaemontana*, referring to the remarks on that genus given by MERRILL in his paper published in the Contributions from the Arnold Arboretum, VIII, 1934, p. 143, with which remarks we fully agree.

OBS. 3. Although the inequality of the leaves of one leafpair in this species is a character occurring in many other representatives of the genus, it is so obvious here, that we did not hesitate to derive the specific epitheton from this character.

*Tabernaemontana carinata* LÜTJEL. et VAN OOSTSTR., n. sp. — fig. 2, a—h.

Arbor? Frutex? Ramulis glabris, angulatis vel subcompressis, 2.5—4 mm diametro; foliis chartaceis, in paribus distincte inaequalibus, glabris, utrinque opacis, subtus pallidioribus, ellipticis vel oblongo-ellipticis, apice plusminusve abrupte breviter obtusiuscule acuminatis, basi decurrento-cuneatis, acutis, 13—25 cm longis, 6—11 cm latis, nervis primariis utrinque 10—12, supra subimpressis vel leviter prominentibus, costa nervisque primariis subtus distincte prominentibus; petiolo 8—12 mm longo, supra plano vel subcanaliculato, angustissime alato, basi stipula singula intrapetiolarum triangulari excavata circ. 3 mm longa praedita, stipulis foliorum binorum oppositorum lineis prominulis interpetiolaribus connatis; inflorescentiis supraaxillaribus, supra pseudo-dichotomiam ramulorum decussate positae, pedunculatae, cymosae, pedunculo glabro, 5—6 cm longo, ramis primariis glabris, 1—1.5 cm longis, pedicellis glabris usque ad 13 mm longis; calyce 5-partito, lobis suborbicularibus apice rotundatis, extus puberulentis, margine ciliolatis, circ. 2 mm longis, intus ad basin glandulis 3—4, minutis, anguste ligulatis instructis; corollae tubo (in floribus fere maturis) circ. 14 mm longo, 1.5—2 mm diam.; glabro, apice subdilatato, lobis in alabastro globulam formantibus, probabiliter suborbicularibus, extus puberulentis; staminibus 5, filamentis brevibus supra medio in dilatatione tubi corollae

insertis, antheris anguste oblongis, brevissime obtuseque sagittatis, 2.5 mm longis; stigmatibus exannulato, cylindrico, apiculo elongato breviter bifido praedito; folliculis binis vel interdum singulis, sessilibus, recurvis, falcatis, fere semiorbicularibus, 2.5—2.8 cm longis, 1.5—2 cm latis, dorso alato-carinatis, lateraliter utrinque carina obsoleta praeditis; seminibus circ. 4, arillatis, subcurvatis, lateraliter subcompressis, ad hilum valde sulcatis, circ. 13 mm longis, 6—8 mm latis, testa crustacea longitudinaliter sulcata, minute papillata, albumine leviter ruminato.

TYPE: Malay Archipelago, Berhala-island (East Coast of Sumatra),  $\pm$  80 m alt., November 2, 1919, leg. J. A. LÖRZING n. 6994, with almost expanded flowers and mature fruits (type in Herb. Lugd. Bat.).

Obs. 1. Concerning the conception of this species as a *Tabernaemontana* we may refer to Obs. 2 under the preceding species, *T. inaequalifolia*.

Obs. 2. We met with this species during our investigation of *Tabernaemontana inaequalifolia*, with which species it shows a superficial resemblance. It is at once distinguished, however, by the quite different fruit. It was originally distributed by the Herbarium at Buitenzorg under the name of *T. sphaerocarpa* BL. In contradistinction with *T. carinata* which has the foliicles mostly in pairs, falcate or semi-orbicular, distinctly carinate at the back, those of *T. sphaerocarpa* are mostly solitary, more or less globular and much larger.