NOTES ON THE CONVOLVULACEAE OF BOMBAY

BY

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Whilst checking the Convulvaceae of my Khandala collections with the types at Kew Herbarium, and going through the pertinent literature on the family, I gathered a fair number of notes that may very well serve towards the revision of the family at least as far as Bombay Province is concerned; this I consider the more necessary as Blatter on account of his untimely death in 1934 could not carry out his plans of a complete revision of the plants of Bombay. In the hope that these notes may prove of interest to other botanists in India, I hasten their publication.

One of the most striking features of the family Convulvaceae is the very "fluid" state of the boundaries or limits separating adjoining genera. This is particularly the case with the genera Merremia Dennst., Convolvulus Linn., Ipomoea Linn., Argyreia Lour., Lettomania Roxb., Calonyction Choisy, etc. In point of fact, the arrangement of many of these genera in Kew Herbarium obviates the difficulty by grouping together such genera as Ipomoea, Operculina, Calonyction, Aniscea, etc., under the genus Ipomoea. The difficulties in separating the genera are such that some of the Kew botanists, seriously or otherwise, have suggested as a practical working idea the grouping together of most of the Convulvaceae under Ipomoea and Convolvulus, as Linn. did in his Species Plantarum. It is interesting to note that Bentham and Hooker in Gen. Plant. have fused Calonyction, Quamoclit, Operculina, Aniscea, Batatas and Ipomoea proper under the genus Ipomoea.

From the point of view of the practical systematist, the result of this confusion is that there is scarcely a genus of the Indian Convulvaceae
that has not been placed at one time or another under a number of different
genera. Such a procedure naturally complicates the problems of
nomenclature almost to the limit of endurance for the poor systematist
who attempts to work at the Convolvulaceae. In the following pages,
I have followed the treatment of van Ooststroom, who in recent years
has produced an up-to-date monograph of the family, at least as far as
India and South-East Asia are concerned. For a comprehensive list
of the most important references, the reader is referred to the bibli-
ography at the end of this paper. For purposes of ready reference and
comparison, I have attempted to follow the same order of genera and
species as Cooke in his Flora; it is not my intention nor my claim to have
produced a complete revision of the family, as I have left out almost
entirely such plants as are found to occur exclusively in Sind, since both
politically and ecologically Sind can scarcely be called a part of the
Province of Bombay.

To give a complete list of synonyms is beyond the scope of this
paper, and would take too much unnecessary space; all those synonyms,
however, are given which in any way affect the present name of the plant.
References are also given to the most important books or papers on each
subject, and among such important books, I include those especially
written on the plants of Bombay. As far as possible I have also tried to
give a reference to Gamble’s Flora of the Presidency of Madras, for al-
though this is not the latest, in my opinion it is the most critical of Indian
Floras; as a proof of the careful study with which Gamble prepared his
Flora one has but to examine the Madras sheets in Kew Herbarium,
many of which show detailed dissections or diagrams or both made by
Gamble whilst preparing his book. Merrill’s Enumeration of Philippine
Flowering Plants and other works by the same author are also quoted on
numerous occasions, on account of the importance of Merrill’s critical
studies on the subject of plant nomenclature. In every case I have
checked the references given and have satisfied myself of their accuracy.
Finally I have tried to give a reference to a good illustration of the plant
in question, those books being preferably quoted which are more easily
available to Indian students.

It will not be out of place in conclusion to insert here a few sentences
with which Choisy concludes the introduction to the Convolvulaceae
in DC. Prodr. 9: 324, 1845: “A most unhappily intricate order as
regards the distinction of genera and the synonymy of the species . . .
In consequence we exhort and pray the diligent reader not to give up the
work of revising his Convolvulaceae, and in particular not to cut the
Gordian knot easily by creating new species and proposing new names
which may render the already obscure synonymy even more obscure; more-}
over, if he does not find his plant among the Ipomeæa, to look
for it among the Argyreæ or Jacqemontiæ; perhaps he will be luckier
than ourselves, and may even correct our mistakes.”

2. CUSCUTA Linn.

Corolla twice as long as the calyx or longer............. C. reflexa.
Corolla less than twice as long as the calyx: Scales at the base of corolla tube O............. C. hyalina.
Scales at base of corolla tube present and fimbri-
ate.......................................................... C. chinensis.

The main difference between this Cuscata and the following species, according to Yuncker, is in the length of the corolla tube, which in C. reflexa is about three times as long as the calyx, whilst in the other two species it is scarcely longer than the calyx.

Cuscata hyalina Roth, Nov. Pl. Sp. 100, 1821; Clarke, 226; Choisy, 286; Englemann, 490; Cooke, 225; Yuncker, 235, f. 127 A-D. (non Wight, nec Boiss.).

Cuscata arabica Wight, Icon. t. 1371, 1850 (non Fresen.).


Cuscata chinensis Lamk. in Encycl. Meth. 2: 229, 1786; Clarke, 226; Choisy, 279; Wight, Icon. t. 1373; Englemann, 479; Cooke, 225; Yuncker, 209, f. 80 A-G.

Cuscata sulcata Roxb., Hort. Beng. 12, 1814; Fl. Ind. 1: 477, 1820 (non Wall.).

Cuscata hyalina Wight, Icon. t. 1372; Illustr. 2: t. 168, f. 12, 1850 (non Roth).

2. ERYCIBE Roxb.

Following Gamble, I have separated the variety wightiana Clarke and restored it to specific rank. The differences between the two species are given in the following key adapted from Gamble, Flor. Pres., Madr. p. 930:

Corolla yellowish, leaves elliptic-oblong or obovate, abruptly and sharply acuminate; base attenuate, up to 12.5 cms. long, 3 cms. broad, the petiole 8-13 mm. long; cymes axillary or in terminal panicles; berry 13 mm. long, ellipsoid.

Corolla white; leaves elliptic or obovate, sometimes almost orbicular, sometimes even lanceolate, abruptly and usually abruptly acuminate, base cuneate or rounded, up to 10.2 cms. long, 3.5 cms. broad, the petioles 6.5 mm. long, cymes axillary and elongate or in terminal panicles; berry 13 mm. long, ovoid.

1. E. paniculata.

2. E. wightiana.

Erycibe paniculata Roxb., Pl. Cor. 2: 31, t. 159, 1798; Clarke, 180; Graham, 137; Dalz. and Gilb. 169; Wight, Illust. t. 180; Peter, 21, f. 10 E-F; Cooke, 225.

Erycibe wightiana Graham, 137; Hall. f. in Bull. Herb. Boiss. 5: 737, 1897; Gamble, 930.

Erycibe paniculata var. wightiana Clarke, in Hook. f. Fl. Brit. Ind. 4: 181, 1883; Cooke, 226.

3. PORANA Burm.

Merrill in his Enum. Phil. Fl. Pl. 3: 358, 1923 and elsewhere, spells the generic name as Porana; van Ooststroom in his monograph and all
other authors consulted spell it as *Porana*; Burmann in his *Flora Indica* 51, t. 21, f. 1, spells it also as *Porana*. I have failed to find the reason for Merrill's departure from the accepted spelling.  

Calyx much enlarged in fruit. ........................................... *P. malabarica*.  
Calyx not or scarcely enlarged in fruit. ................................... *P. paniculata*.

**Porana malabarica** Clarke in *Hook. f. Fl. Brit. Ind.* 4: 223, 1883;  
Peter, 24, f. 11C; Cooke, 227.;  
*Porana racemosa* Graham, 133; Dalz. and Gibs. 162 (non Roxb.).

**Porana paniculata** Roxb., *Pl. Cor.* 3: 31, t. 235, 1819; Clarke, 222;  
Choisy, 6: 189, 1833; Cooke, 227; van Ooststroom in *Blumea* 3: 93, 1938.

4. **NEUROPTETIS** Wall.

Van Ooststroom in *Blumea*, 5: 268-73, 1942, has placed the plants of Western India under a new specific name, the plants being quite distinct from *N. racemosa* Wall. The following key is based on that of van Ooststroom and is given here as a help to distinguish the two species of *Neuropeltis*; *N. racemosa* Wall. does not occur in the western parts of India.

Corolla tube inside hairy at the base of the filaments.  
Styles as long as or shorter than the breadth of the stigma. Tenasserim, N. W. part of the Malay Peninsula. .................................................. *N. racemosa* Wall.

Corolla tube inside glabrous at the base of the filaments.  
Styles much longer than the breadth of the stigma. British India (Deccan Peninsula). *N. malabarica* Oostst.

**Neuropeltis malabarica** van Ooststroom in *Blumea* loc. cit.  
*Neuropeltis racemosa* auct. plur. (non Wall.)

For a description of the plant, see van Ooststroom, loc. cit. This new species is quite clearly different from *N. racemosa* Wall.; the styles are only about as long as or even shorter than the width of the stigma, the whole of style and stigma being very short and included in the lower part of the corolla, the filaments are hairy at the base with a conspicuous tuft of hairs; whilst in *N. racemosa* Wall. the long style makes the stigma almost exserted, or at least forces it up to nearly the top of the corolla, the filaments being quite glabrous at the base.

5. **CRESSA** Linn.

A common and widely distributed plant; specimens found on either side of the Mediterranean shores are remarkably similar to the Indian specimens. Prostrate, erect or suberect shrubby plant. For the nomenclature of this species, see Cooke, 228.

6. **EOLVULUS** Linn.

Erect or suberect, but not rooting at the nodes.............. *E. alsinoides*.  
Prostrate and rooting at the nodes....................... *E. nummularius*.

**Evolvulus alsinoides** Linn., Sp. Pl. 392, 1762; Clarke, 220; Wight,  
Illustr. t. 168 bis; Hall. f. in Engler, Bot. Jahrb. 18: 85, 1894;

Evolvulus hirsutus Graham, 133; Dalz. and Gibs. 162.

"The forma on which Linnaeus based this species is the common British India form spread throughout S.E. Asia." van Ooststroom, loc. cit.


Evolvulus alainoides Jackson, in Ind. Kew. 7: 840, 1893 (non Linn.).

This is a new record for the Province of Bombay, and is not mentioned by Cooke. In the city of Bombay it is common in lawns (Santapau 8042—80461); Thirumalachar sent me some specimens collected by him in Bangalore; Mayuranathan reports its presence in Madras city; van Ooststroom gives the following localities from which the plant has been collected: Calcutta, Howrah, Silipur Botanic Gardens, Hughly District, Bardwan, Motabari in Behar, Benares Hindu University, etc.

E. nummularius is an American plant, native of from Mexico to N. Argentine, and the West Indies; it is also found in tropical Africa and Madagascar, and seems to be gradually spreading in India. The following description is taken from van Ooststroom loc. cit. pp. 115-116:

"A perennial herb. Stems several prostrate, rooting at the nodes, simple or slightly branched, slender, terete, pilose with short, patent, curved hairs, glabrescent, often l ignescent at the node, variable in length, 10-40 cm. long; internodes to 20 mm. long. Leaves distichous, shortly petioled; petiole grooved above, pilose or glabrous, 1-5 mm. long, occasionally to 12 mm.; limb broad-ovate, elliptic or orbicular, sometimes obovate or oblong, rounded or emarginate at the apex, rounded, truncate or subcordate, sometimes slightly oblique at the base, variable in size, middle-sized leaves 4-15 mm. long, 3-15 mm. broad, larger ones up to 25 mm. long and 18 mm. broad, glabrous on both sides or sparsely appressed-pilose beneath especially on the nerves, sometimes also above, the margins sometimes ciliate, especially near the base, midrib and 2-5 pairs of lateral nerves more or less distinct beneath. Flowers 1 or 2 in the leaf-axils, on the main stems or on short lateral branches penduncles none or very short, rarely longer, up to 10 mm, long (f. pedunculatus); pedicels 2-6 mm. long, occasionally longer, recurved in fruit; bracteoles linear or lanceolate, acute, 0.5-1.5 mm. long. Sepals equal, 2.5-4 mm. long, ovate-oblong, obtuse or acute, minutely mucronate with microscopic pellucid dots, sparsely pilose or glabrous, but with ciliate margin; with distinct midrib and reticulate nervation; often reflexed in fruit. Corolla white, rarely pale blue, rotate to broadly funnel-shaped, 5-7 mm. long, the tube short, the limb about 8 mm. in diam., 5-lobed, the lobes distinct, sparsely pilose bands. Filaments inserted about 2 mm. above the corolla base, 2-3 times as long as the oblong anthers. Ovary globular, glabrous. Capsule globular, as long as or a little longer than the sepals, 2-celled, 4-valved, 4- or less-seeded."
7. BONAMIA Thouars.

Asa Gray in the Proc. Amer. Acad. 5: 337, 1862, suggested the fusion of the genus Breweria with Bonamia, the older name Bonamia being retained for the combined genus. Bentham and Hook. in Gen. Plant. 2: 877, did not accept the fusion; Peter in Engl. and Prantl. Pflanzenfamilien, Jackson in Index Kew., Cooke in his Flora follow Bentham and Hooker in keeping the two genera separate. Hallier f., Merrill and van Ooststroom follow Asa Gray in fusing the two genera. On the other hand Bentham and Hooker make Seddera Hochst., a section of Breweria, whilst O. Kuntze in Rev. Gen. Pl. places all the species of Seddera under Convolvulus. I have followed van Ooststroom in uniting Breweria and Seddera under Bonamia Thouars.


Breweria cordata Blum., Bijdr. 722, 1825; Choisy, 6: 493, 1844; Clarke, 223; Cooke, 230.

Breweria semidigyna O. Kuntze, Rev. Gen. Pl. 440, 1891 (Brewera)

Breweria Roxburghii Choisy, 493; Wight, Icon. 1370.

Bonamia latifolia (Hochst. et Steud.) Santapau, comb. nov.

Seddera latifolia Hochst. et Steud. in Flora 27, Bes. Beibl. 8, t. 5 B-C. 1844.


8. SHUTEREIA Choisy.

Van Ooststroom in Blumea 3: 287, 1939, writes that in recent literature one finds generally the name Hewittia Wight et Arn. (1837) for this genus; there is however an older name, Shutereia Choisy (1833) and in consequence the older name has been adopted by van Ooststroom; this has necessitated the altering of Shutereia Wight et Arn. a name of a genus in the Leguminosae. This procedure is in accordance with the latest edition of the International Rules of Botanical Nomenclature, Art. 16, but the fact that the name Hewittia has been generally used up to the present and the necessary change in the Leguminosae, if Choisy’s name be adopted, are reasons for the inclusion of Hewittia among the Nomina Conservanda; until this is done, however, the name for the genus must be Shutereia Choisy.


Convolvulus sublobatus Linn. f., Suppl. 135, 1781.

Convolvulus bicolor Vahl, Symb. 3: 25, 1794; Bot. Mag. t. 2205.

Shutereia bicolor Choisy, 6: 486, t. 2, f. 11, 1833.

Hewittia bicolor Wight et Arn. in Madr. Journ. Lit. and Sci. 5: 22, 1837; Clarke, 216; Wight, Icon. t. 835; Peter, 25, f. 12 B; Hall. f. in Bull. Herb. Boiss. 5: 379-380, 1897; Cooke, 231; Merill, in Phil. Journ. Sci., 1 (Suppl.): 120, 1906; Gamble, 924.
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Hewittia sublobata O. Kuntze, Rev. Gen. Pl. 441, 1891; Merrill, 359.

9. ANISEIA Choisy.


Anisea uniflora Choisy, 6: 483, t. 2, f. 9, 1833; Wight, Icon. t. 850; Graham, 133; Dalz. and Gibs., 163; Peter, 25, f. 12 A., 1897; Cooke, 231.

Ipomoea uniflora R. et Schult., Syst. Veg., 4: 247, 1819; Clarke, 291 (non Blume).

10. CONVULVULUS Linn.

Erect, shrubby plant; corollas small, blue. Prostrate or twining herb; corolla about 2.5 cms. long, and about as much in diam., pink or white with pink stripes.

Convulvulus arvensis Linn., Sp. Pl. 153, 1753; Clarke, 219; Choisy, 479; Graham, 132; Dalz. and Gibs., 163; Hall. f. in Engler, Bot. Jahrb. 18: 108, 1894; Cooke, 234; Gamble, 925; van Ooststroom in Blumea 3: 283, 1939.

Convulvulus Rotterianus Choisy, 6: 477, 1833; Clarke, 219; Dalz. and Gibs., 164; Cooke, 233.

11. JACQUEMONTIA Choisy.

Jacquemontia paniculata (Burm. f.) Hall. f. in Engler Bot. Jahrb. 16: 541, 1893; Cooke, 235; Merrill, 359; Gamble, 926; van Ooststroom in Blumea 3: 269, 1939.

Ipomoea paniculata Burm. f., Fl. Ind. 50, t. 21, f. 3, 1768.

Convulvulus parviflorus Vahl, Symb. 3: 29, 1794; Clarke, 220 (non Dalz., nec Desr.).

12. MERREMIA Dennst.

Leaves entire:

Leaves reniform, usually broader than long, 12-25 mm. broad.

Leaves not reniform, longer than broad:

Seeds pubescent or hairy:

Seeds hairy with long hairs.

Seeds with fulvous velvety pubescence.

Seeds glabrous:

Many or all the leaves 3-lobed or 3-toothed at the apex.

Leaves not 3-toothed at the apex; base auriculate dentate.

M. emarginata.

M. umbellata.

M. hederacea.

M. tridentata.

M. hastata.
Leaves 5-7-partite or lobed:
Corolla yellow; leaves palmately divided:
Stems glabrous; leaves palmately cut nearly
 to the base..............................M. rhyncocarpa.
Stems with long spreading deciduous hairs;
 leaves divided to less than half of the
 way down...............................M. vitifolia.
Corolla white; leaves digitately divided; stems
with long deciduous hairs from bulbous
bases.................................M. aegyptia.

Merremia emarginata (Burm. f.) Hall. f. in Engler, Bot. Jahrb. 16: 552, 1893; Cooke, 236; Gamble, 928; Merrill, 362; van
Ooststroom in Blumea, 3: 312, 1939.
Evoluteus emarginatus Burm. f., Fl. Ind. 77, f. 30, f. 1, 1768.
Convolvulus reniformis Roxb., Fl. Ind. 2: 67, 1824; et t.: 481, 1832.
Ipomoea reniformis Choisy, 6: 446, 1833; Clarke, 206; Graham,
131; Dalz. and Gibbs., 164.

Merremia umbellata (Linn.) Hall. f. in Engler, Bot. Jahrb. 16:
552, 1893; Cooke, 237; Gamble, 928; Merrill, 362; van Ooststroom
in Blumea 3: 333, 1939.
Convolvulus umbellatus Linn., Sp. Pl. 155, 1753; Wall., Cat. 2329.
Convolvulus cymosus Desr. in Lamk. Encycl. Meth. 3: 556, 1791.
Ipomoea cymosa R. et Schult.; Syst. 4: 241, 1819; Choisy, 6: 461,
1833; Clarke, 211.
Merremia cymosa Baker et Rendle, in This.-Dyer, Fl. Trop.

Examination of large numbers of specimens both in the field and in
Herb. Kew, has convinced me of the correctness of Cooke's remark that
the corolla is lineate, against the statement of Hallier f. in Engler, Bot.
Jahrb. 18: 133, that the corolla is never or very rarely lineate.

Merremia tridentata (Linn.) Hall. f. in Engler, Bot. Jahrb. 16:
552, 1893; Cooke, 237; Gamble, 928; van Ooststroom in Blumea
3: 315, 1939.
Ipomoea tridentata Roth in R. et Schult., Arch. Bot. 1(3): 38,
1798; Clarke, 205; Choisy, 447; Graham, 131; Dalz. and
Gibs. 165.

Merremia hastata (Desr.) Hall. f. in Engler, Bot. Jahrb. 16: 552,
1893; Cooke, 238; Gamble, 929; Merrill, 361.
Convolvulus hastatus Desr. in Lamk. Encycl. Meth. 3: 542, 1789
(non Sieb., nec Thumb., nec Forsk.).
Convolvulus simplex Pers., Syn. 1: 178, 1805 (non Spreng.).
Ipomoea denticulata R. Br., Prodr. 485, 1810; Bot. Reg. 1: 317,
1818; (non Choisy).
Convolvulus denticulatus Spreng., Syst. 1: 603, 1825.
Merremia tridentata subs. hastata van Oostst. in Blumea 3: 317,
1939.

Merremia hastata Hall. f. has leaves which differ from those of
M. tridentata in size and shape; the peduncles in M. hastata are much
longer, the sepals and corolla much larger, the capsules much bigger.
For these reasons I am inclined to retain *M. hastata* as a separate species, against van Ooststroom, who makes of *M. hastata* but a subspecies of *M. tridentata*.

**Merremia hederacea** (Burtn. f.) Hall. f. in Engler, Bot. Jahrb. 18: 118, 1894; Merrill, 361; van Ooststroom in Blumea 3: 302, 1939. *Evolvulus hederaceus* Burtn. f., Fl. Ind. 77, t. 30, f. 2, 1768.

*Ipomoea chrysoides* Ker-Gawl. in Bot. t. 270, 1818; Choisy, 469; Clarke, 206; Wight, Icon. t. 157; Dalz. and Gibs., 166. *Merremia chrysoides* Hall. f. in Engler, Bot. Jahrb. 16: 552, 1893; Cooke, 238; Gamble, 929.


**Merremia vitifolia** (Burtn. f.) Hall. f. in Engler, Bot. Jahrb. 16: 552, 1893; Cooke, 239; Gamble, 928; Merrill, 362; van Ooststroom in Blumea 3: 329, 1939.

*Convolvulus vitifolius* Burtn. f., Fl. Ind., 45, t. 18, f. 1, 1766. *Ipomoea vitifolia* Blume, Bijdr. 790, 1825; Choisy, 454; Clarke, 213; Graham, 132; Dalz. and Gibs., 165.


*Batatas pentaphylla* Choisy, 6: 436, 1833; Graham, 129; Dalz. and Gibs., 167.

**Merremia dissecta** (Jacq.) Hall. f. in Engler, Bot. Jahrb. 16: 552, 1893; Cooke, 240; Gamble, 928. *Convolvulus dissectus* Jacq., Obs. 2: 4, 1761. *Ipomoea dissecta* Pers. in Linn. Syst. (ed. 15), in nota, 1795 (non Linn.).

*Ipomoea sinuata* Ortega, Hort. Matr. Decad. 7: 74, 1798; Clarke 214; Graham, 132; Dalz. and Gibs., Suppl. 59.


13. **OPERCULINA** Silva Manso.

Batatas paniculata Choisy, 6 : 436, 1833; Graham, 129; Dalz. and Gibs., 167.

Ipomoea diversifolia R. Br., Prodr. 487, 1810; Merrill, 365; van Ooststroom in Blumea 3 : 545, 1940.
Ipomoea laciniata Clarke, 220; Cooke, 250.

Ipomoea cairica (Linn.) Sweet, Hort. Brit. 287, 1827; Hall. f. in Engler, Bot. Jahrb. 18 : 148, 1893; Gamble, 918 (excl. var. I. pulchella Roth); Merrill, 364; van Ooststroom in Blumea 3 : 542, 1940.
Convulvulus cairicus Linn., Syst. ed. 10, 922, 1759.
Ipomoea palmata Forsk., Fl. Aeg.-arab. 43, 1775; Clarke, 214; Cooke, 250.
Ipomoea pulchella Wight, Icon. t. 156, (non Roth).

Ipomoea pes-tigrisidis Linn., Sp. Pl. 162; Clarke, 204; Graham, 132; Wight, Icon., t. 836; Dalz. and Gibs., 165; Hall. f. in Engler, Bot. Jahrb. 18 : 134, 1893; Cooke, 250; Gamble, 918; Merrill, 367; van Ooststroom in Blumea 3 : 504, 1940.
Ipomoea pes-tigrisidis Linn., var. hepaticafoilia Clarke, 204.

Ipomoea Batatas (Linn.) Lamk., Tabl. Encycl. 1 : 465, 1791; Clarke, 202; Hall. f. in Engler, Bot. Jahrb. 18 : 138, 1893; Cooke, 251; Merrill, 364; van Ooststroom in Blumea 3 : 512, 1940.
Convulvulus edulis Choisy, 6 : 435, 1833.

Pharbitis Leari Dalz. and Gibs., Suppl. 58.

"I. Leari Paxt... which is sometimes found in culture for ornamental purposes seems to be not or scarcely different from I. congesta R. Br." (van Ooststroom, loc. cit.). Examination of the specimens in Herb. Kew. shows that I. Leari Paxt. is also very similar to I. hederacea Jacq. and I. Nil Roth, from both of which it differs mainly on account of a more or less glabrous and slightly smaller calyx.

Convulvulus Nil Linn., Sp. Pl. (ed. 2) 219, 1763.
Ipomoea scabra Forsk., Fl. Aeg.-arab. 44, 1775.
Ipomoea hederacea auct. plur. (non Jacq.)

"Several authors have interpreted this species as being identical with the North American Ipomoea hederacea (Linn.) Jacq. (Convulvulus hederaceus Linn., Sp. Pl. ed. 1 (1753), p. 154, p. p.; id. ed. 2 (1762), p. 219, p. p.) and have mentioned it under that name... The true I. hederacea is probably now and then cultivated in gardens. I did not see any specimens from Malaysia." (van Ooststroom, loc. cit.)

This is a common plant in Khandala, and from the range of its distribution in the district, I find it very difficult to accept the plant as an
introduction and not a native in the western parts of India. I have always found, as regards Khandala, that introduced plants grew almost exclusively along the main road, or along the railway line, or if in the ravines, along the streams passing through the bottom of the ravines; no introduced plant has been found on top of the highest hills in the district; and yet this plant is abundant on the very highest parts of Bhima hill, the highest spot about Khandala.

**Ipomoea alba** Linn., Sp. Pl. 161; Hall. f. in Meded. Rijks. Herb. Leiden, i. 25, 1911; et 46:19, 1922; van Ooststroom, in Blumea, 3:547, 1940.

**Convolvulus aculeatus** Linn., Sp. Pl. 155.

**Ipomoea bono-nax** Linn., Sp. Pl. 228, 1762; Bot. Mag. t. 752; Clarke, 197.

**Calonyction spectinum** Choisy, 6:441, t. 1, f. 4, 1833 (excl. var. 6); Cooke, 252;


**Calonyction Roxburghii** G. Don, Gen. Syst. 4:263, 1837; Graham, 130.

**Ipomoea muricata** (Linn.) Jacq., Hort. Schoenbr. 3:40, t. 323, 1794 (non Cav.); Clarke, 197; van Ooststroom in Blumea, 3:551, 1940.

**Convolvulus muricatus** Linn., Mant. 44, 1767.

**Calonyction muricatum** Don, Gen. Syst. 4:264, 1838; Graham, 130; Hall. f. in Engler, Bot. Jahrb. 18:154, 1893; et in Bull. Herb. Boiss. 5:1044, 1897; Cooke, 252; Gamble, 922; Merrill, 370.

**Ipomoea purpurea** (Linn.) Roth, Bot. Abh. 27, 1787; Clarke, 200;

Hall. f. in Engler, Bot. Jahrb. 18:137, 1893; Cooke, 252;

Merrill, 367; van Ooststroom in Blumea 3:496, 1940.

**Convolvulus purpureus** Linn., Sp. Pl. 1:219, 1762; Bot. Mag. t. 113.

**Pharbitis hispida** Choisy, 6:438, 1833.


**Ipomoea angulata** Lamm. in Tabl. Encycl. 1:464, 1791; van Ooststroom in Blumea 3:553, 1940.

**Ipomoea phoenicea** Roxb., Pl. Ind. 2:92, 1824; et 1:502, 1832.

**Quamoclit phoenicea** Choisy, 6:433, 1833; Gamble, 919; Merrill, 379.

**Quamoclit cocinea** Clarke, 199; et alior. plur. auct. (non Linn.).

Van Ooststroom, loc. cit., p. 555, following Hallier f. holds the view that the Indian plant is quite different from the North American *Ipomoea cocinea* Linn. Sp. Pl. 160 (Quamoclit cocinea Moench.). The differences between the two species can be seen in a note by Hall. f. in Bull. Herb. Boiss. 7:415, 1899.

**Ipomoea Quamoclit** Linn. Sp. Pl. 159; Clarke, 199; Bot. Mag. t. 244; van Ooststroom in Blumea 3:555, 1940.

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THE SYSTEMATIC POSITION OF THE FAMILY MORINGACEAE
BASED ON THE STUDY OF MORINGA PTERYGOGUSPERMA
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(With 2 plates)

The family Moringaceae has long been known to be of uncertain affinity. Following Genera Plantarum (1), Hocher (8) places it at the end of Polybetales and remarks, 'A natural order of very doubtful affinity which has been referred to near Resedaceae, Cuparidaceae, Melianthaeae, Violariaceae, Polygalaceae, Leguminosae, Bignoniaceae (sic.) and others.'

Wettstein (10) as well as Engler and Diels (2) have placed it in the series Rhoeadales after the family Resedaceae. The former, however, admits that the family is of uncertain and doubtful affinity and says, 'Die Stellung der Familie, die jetzt am meisten hier angeschlossen wird, ist eine gerissene und unsicher. Morphologisch steht sie den Vorhergehenden nicht nahe. Das vorheren kurzer Gymnospor, von myrosin sowie das sero-diagnostische Verhalten (positive Reaktion mit Resedaceae und Capparidaceae, negative mit Cruciferae v. s. T. mit Papavinaeae) spricht etwas für eine verwandtschaft.'

Haines (4) places the family itself in suborder 5. Moringinae of the Order Parietales of the Series Choripetales between the suborder 3. Flacourtineae (including the families Flacourthaceae, Violaceae, Turneraceae and Pitkporaceae) and suborder 4. Tamaricineae (including the family Tamaricineae) on the one hand and suborder 6. Passiflorineae (including the families Carpaceae, Passifloraceae, Cucurbitaceae and Begoniaceae) on the other. This position, however, has been regarded as doubtful and he further states that these suborders in question have little in common with one another.

Hutchinson (6) places this family under Order No. 10 Capparidaceae after the family Capparidaceae and before the family Tovaricaceae. The next Order No. 12 No. 11 Cruciferae contains the family Cruciferae followed by the Order No. 12 Violaceae containing the families Violaceae and Resedaceae.

Schnett (9) after examination of the families in the Series No. 10 Rhoeadales states that the families Papavaceae, Tovaricaceae, Cruciferae and Resedaceae have common characters. No periplasmic is formed in the anther-tapetum. The mature pollen grain is 2- or 3-nucleate and the ovule has thick nucellus and 2 integuments. 'The development of the embryo-sac is of the normal type. There may be differences in the formation of the female archesporium. Papavaceae and Tovaricaceae have primary archesporial cell, which cuts off wall cells while in Resedaceae and Cruciferae the tendency of formation of wall cells is suppressed in course of formation of the embryo-sac. With regard to the family Moringaceae he bases his conclusions on the work of Rutgers (8).