

VAN RHEEDE'S
HORTUS MALABARICUS
ENGLISH EDITION

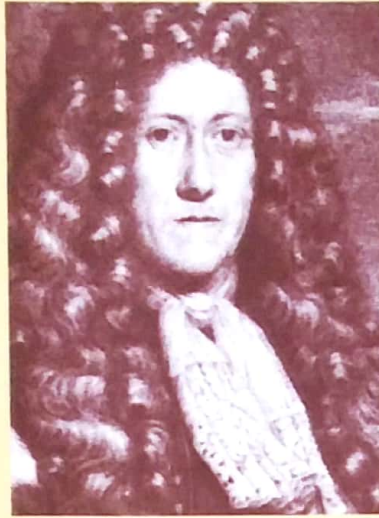
With Annotations and Modern Botanical Nomenclature

By
K.S. MANILAL

VOLUME - 2



UNIVERSITY OF KERALA



Hendrik Adriaan Van Rhee de (1636 – 1691) was the compiler and promoter of *Hortus Malabaricus*, written in Latin and published from Amsterdam in 12 volumes during 1678-1693. He was born in a noble family in Utrecht, Netherlands and came to India as a soldier in the army of the Dutch East India Company. Rhee de was in Malabar (the present federal state of Kerala) during 1667-1677, first as the Captain, then as the Commodore and finally as the Dutch Governor of Cochin. His fame as an eminent soldier and a shrewd administrator is overshadowed by his contribution to the botanical science through the compilation of the monumental work *Hortus Malabaricus*. This work was the result of about 30 years of compiling and editing by a team of specialists working under the guidance of Rhee de.

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(MALABAR GARDEN)

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MODERN BOTANICAL NOMENCLATURE

by
K. S. MANILAL
Emeritus Professor

Research Supported by the Department of Science & Technology
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HORTI INDICI MALABARICI

ON SHRUBS

of the Malabar Kingdom, Most Celebrated among the Indians

Described in Latin, Malayalam, Arabic and Brahminic characters and names.

Together with their flowers, fruits and seeds, sketched in their natural size
by expert painters (artists) and exhibited in a lively manner.

*To which is added besides an accurate description of the same,
as regards their colour, smell, taste, properties and chiefly
their medicinal powers that are most accurately demonstrated.*

Adorned by

HENRY VAN REEDE TOT DRAAKESTEIN

Very recently Governor of the Malabar Kingdom,
now Extraordinary Senator of the Supreme Council among
Indo-Belgians and First Successor destined to the ordinary

and

JOHN CAESARIUS

Ecclesiastic in Cochin,

Enriched with notes and illustrated with commentaries by
JOANNES COMMELINUS



Printed at Amsterdam
with the expenses of the widow of John van Someren
and of John Van Dyck.
In the year 1679.

Dedication

To the Most Noble and Distinguished Lords

AEGIDIUS VALCKENIER

Consul and Senator of the City of Amsterdam and
Director of the Society for East India and so on,

JOHN HUDDE

Lord in Waeveren and Consul and Senator of
The City of Amsterdam, etc.,

JOHN HUYDEKOOOPER

Equestrian Lord Maerseveen and Neerdijck and
Ex-consul and Senator of the City of Amsterdam and
Director of the Society of East India, and so on,

PETER VAN DAM

Advocate and Councillor General of the
Society for East India, United Belgium, etc.

Quite deservedly this second part of the Malabar Garden, richly laden with fruits, is offered and dedicated to you, Most Distinguished and Noble Lords, not only because it has been compiled and arranged in that region where by good administration Your Excellencies are zealous in promoting its prosperity with more than ordinary diligence, but because this second part has been composed by me who feel bound to acknowledge it in honour of Your Excellencies as my patrons and friends, and in token of my gratitude, if not by the rarity of Indian plants, certainly for the reason that I have been persevering at it, Most Noble and Distinguished Lords,

I remain,

Your Excellencies' most humble and devoted servant,

HENRY VAN REEDE
TOT DRAACKESTEYN

To the honour of the most genteel and most hard working person

D. HENRY A. REEDE,
Lord from Drakensteyn,

Recently the Supreme Moderator at Cochin and
Supreme Assessor of the most worthy Senate in Belgian India,
the Composer and Chief Promoter of this
Malabar Garden,

and
D. JOHN CASEARIUS,
Most Faithful Pastor in the Church of Cochin when alive,
Most sharp witted and most accurate writer of this same work.

The older days celebrated Orpheus, the sacred singer;
Why the mortals and Gods perished:
For he was the first to institute good rites and
Appeasing of Gods it helps to have instituted these:
By the soft sweetness of his music he softened flinty hearts,
By his enticing lyre he stopped the course of violent streams
And gave feeling to pebbles and
brought the forests to listen to the music of his lyre.

Recently a greater Orpheus did the Malabar land worship
 The fatherland, muses and God as will did love.
 And the church having honoured the weighty
 Mystic of the sacred, and Mathema having physically taught her
 Offspring, in one place he started singing my sweet melodies,
 As the herbage grew green again,
 In another place the forest was triumphantly rejoicing
 Marking with her hand, such a man, O land of Cochin,
 Did the Brahmins, the Yogis, Banians,
 The people blissfully ignorant of lust, did admire:
 Illustrious author, do you leave behind with your departure this people so sad?
 Hail, O guest so very dear to us!
 Because you bestow magnificent books, rich in art,
 Without expense or labour or style for anyone.
 And what Dioscorides, Theophrastus and what luminaries the old or new held,
 Rightly admire, this same book the painter and author
 A discalced monk collected by long labour, with a hand rather rough,
 This same thing Reede promoted, which is big indeed in weight,
 But bigger in its pursuit and perpetual in its praise.
 Reede was the first to cut into the bowels of the herbs,
 Reading a lot and teaching minute things:
 And fearing that only a Belgian could please himself
 By the cultivation of these delicious plants,
 With a view to donate them to the sweet-tongued Latinum
 (to the sweet-tongued Italians),
 Casarius took up his pen and with a lively hand described
 The experimented (herbs) according to tabulation (classification),
 Fortified with these treasures, he resolved to visit
 The domestic deities of his fatherland, but
 Hard adverse circumstances deny him this,
 For an attack of pneumonia troubled his chest, diarrhea troubled his stomach,
 And thus the wasting fever snatched him away,
 To whom the whole of his life was thus pious, sufficient as an end,
 (these were the last words written by him in the church).
 Is it thus, as the fatherland is waiting for you with a burning desire,

You depart deplored, go to the heavenly Kingdom?
And do you leave this great volume unfinished?
Why not finish it as you have finished others, as soon as possible?
To which I did add very much, let there be no praise.
I harnessed all my strength to those shrubs, which have medicinal value.
And so a foreigner who wishes to have a thorough knowledge of these plants,
Let him read these things, and after having read, then he will go away wiser.
Illustrious Lords, to whom we offer all our thoughts and wishes,
Our indebtedness, prayers, grant easily your patronage to this your client,
Keep off with a strong hand the trivial flies from this nectar;
Thus by our zeal and your favour, every year commodities, grain and wealth
Will return to the treasury.

Given at Batavia of Jacatra,
which is in the Greater Java,
dated 18 February, 1678.

WILHEM TEN RHYNE, M.D., etc.

JOHN COMMELINUS
TO
THE READER OF BOTANY

Dear Reader,

Here comes out now this part dealing with Shrubs, or the second fence of the Malabar Garden, full of very many hitherto unknown plants and others, which have been of course described by some Botanists, but which have not been clearly outlined. Our authors on the contrary have taken the trouble to exhibit to us with the utmost care the exact description of all of them. And, O, would that it was granted to the most learned Sir Arnold Syen of pious memory, to illustrate them by the continuation of his Annotations on obscure passages, as he had begun in the first part dealing with Trees! But, the thread of his life was cut away in the bloom of his age by immature death, not without huge detriment to this work, and most of all to that of the famous Academy of Lyons, in which he was holding the office of a Professor with such great celebrity, that so far no one has been able to reach the height to which he was raised. Assuredly, his pupils and all those

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who are interested in Botanical matters suffered an irreparable loss, just when the Botanical science appeared to attain the summit of its perfection, when alas, with this blow, it is all dashed to the ground! For when no one restores the damage of fortune, and the work begun has necessarily to be carried on, I on my part have added these annotations, which if they do not attain due perfection, yet they may be able to confer some degree of utility for the illustration of certain plants which here under the larva of unknown names will go forth into the scene. About those, which I have had nothing to say, I have passed over in silence, for it is better to say nothing, rather than babble off many things that are uncertain. I have also retraced to their first authors, the plants of which I had sure knowledge, and with a view to understand our authors better, as far as possible, I have coupled the plants with Bauhin Pinax and I have compared certain others with the descriptions of certain more recent Botanists such as the learned Prosperus Alpinus, Jacob Cornatus, William Piso, Jacob Bontius, Jacob Breynius and others, all of whom have written after Bauhin.

Come in, therefore, Candid Reader, and enter this part of the Malabar Garden, where without a speck of doubt you will be wrapped into the admiration and compelled into the praises of the goodness of that Great Creator of all things, who abundantly adorns the surface of the earth with Trees, Shrubs and Herbs and bestows with a generous hand the use of all things upon the sons of men.

PART TWO
OF
THE MALABAR GARDENS
ON
TREES

K a i d a

FIG. 1, 2, 3, 4, 5.



AIDA, in the Language of the Brahmins *Bandaki*, is a spinous or prickly shrub, with numerous branches (stems) which very often show a transit, and to the one looking through them sky is (accessible) visible, fixed to the ground, and grows on the banks of rivers.

Leaves (are) oblong and cuspidate of five, or seven cubits (*1 cubit = 45 cm to 55 cm*) and are provided with three of prickles, two at the margins, one in the middle and striated in length by very fine veins, and is dark green.

In the place of flowers cottony white fascicles arise above the origin of leaves, the flocks or white apices of which, sprinkled with flour like pollen are attached to branch-lets of the middle, very white and shining petiole.

These fascicles are first enveloped in oblong, white, cuspidate leaves which are also provided with spines or prickles at the margins and in the middle, and the leaves being opened, they come out, turning red by longer opening and are with white leaves of strong, biting smell.

Kaivā-tuddi. Lat.
 നെട കകുട്ടി *Mal.*
Bondaki.
 बोंडकी *Bram.*
 قَهْدِي طَقْطَقْ *Arab.*



Fig. 1

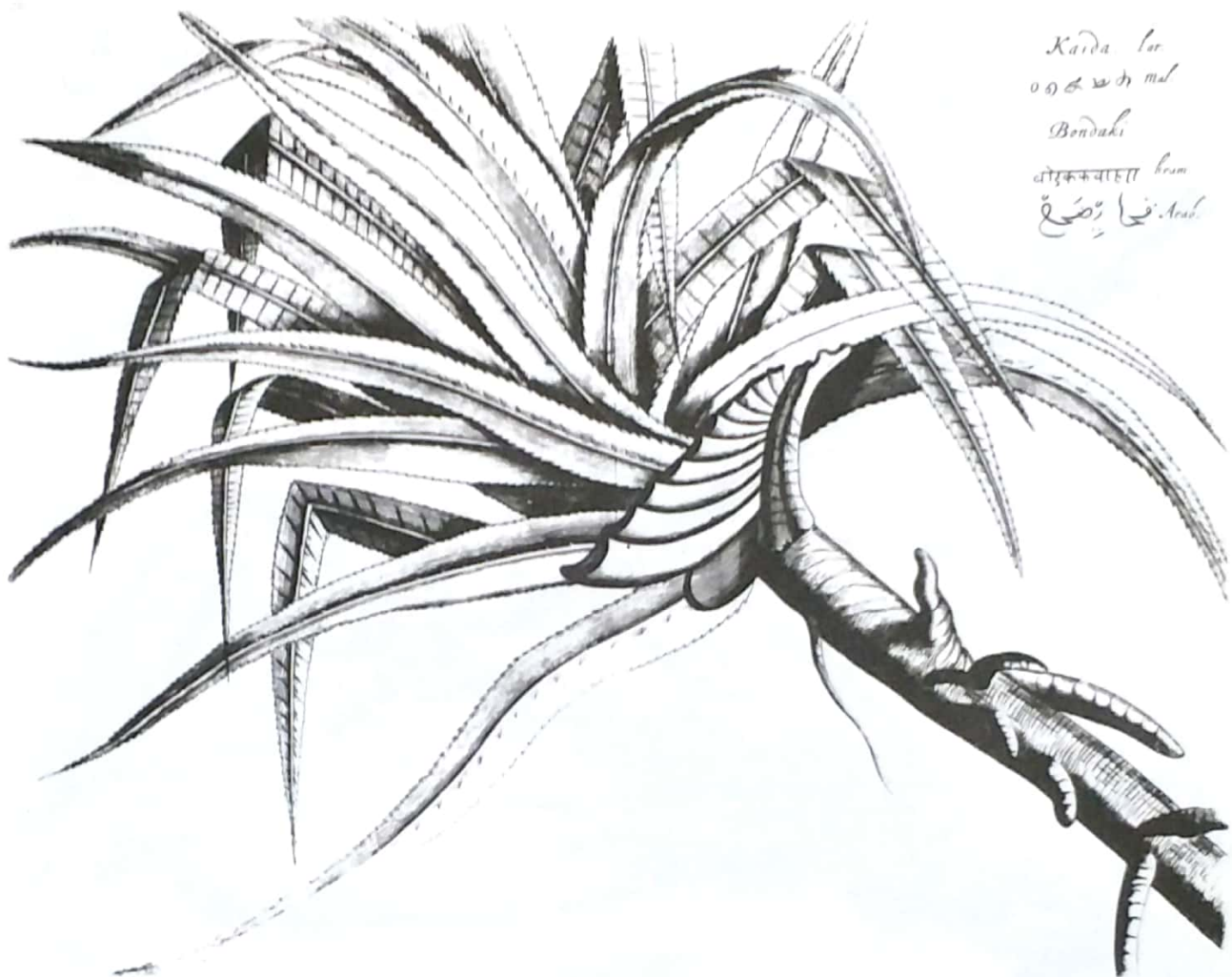


Fig. 2

Fruits which succeed whitish fascicles, are oblong-round and rather big, first of dark green colour, then as they become mature with reddish colour in the rind, bulging out with closely compressed swellings and in each swelling provided with three red, hard, woody nipples, with the flesh inside yellow and succulent.

Spreading the leaves on the ground, the natives lay (serve) food upon them.

Women decorate themselves with the flowers because of the pleasing smell.

The gentiles called Pulaya feed upon the fruits, so also elephants.



Kaida. Lat.

കാദി. mal.

Bondaki

बोडकुराहा. bram.

فوا رصية. Arab.

Fig. 3

Its Powers

The juice of leaves together with that of roots is administered to maniacs in bath. Flowers adapted to a small drink with *Sandal* and *Cumin* and together crushed and hypo-gastrically (lower median part of the abdomen) smeared on the genitals restore their powers or strength. A decoction prepared from the root removes dysentery. From its juice an anti-arthritis oil is deposited by cooking.



Kaidà lac.
००४४० mal.
Bondaki
बोदकवाहो bram.
نبا رصع Arab.

Fig. 4

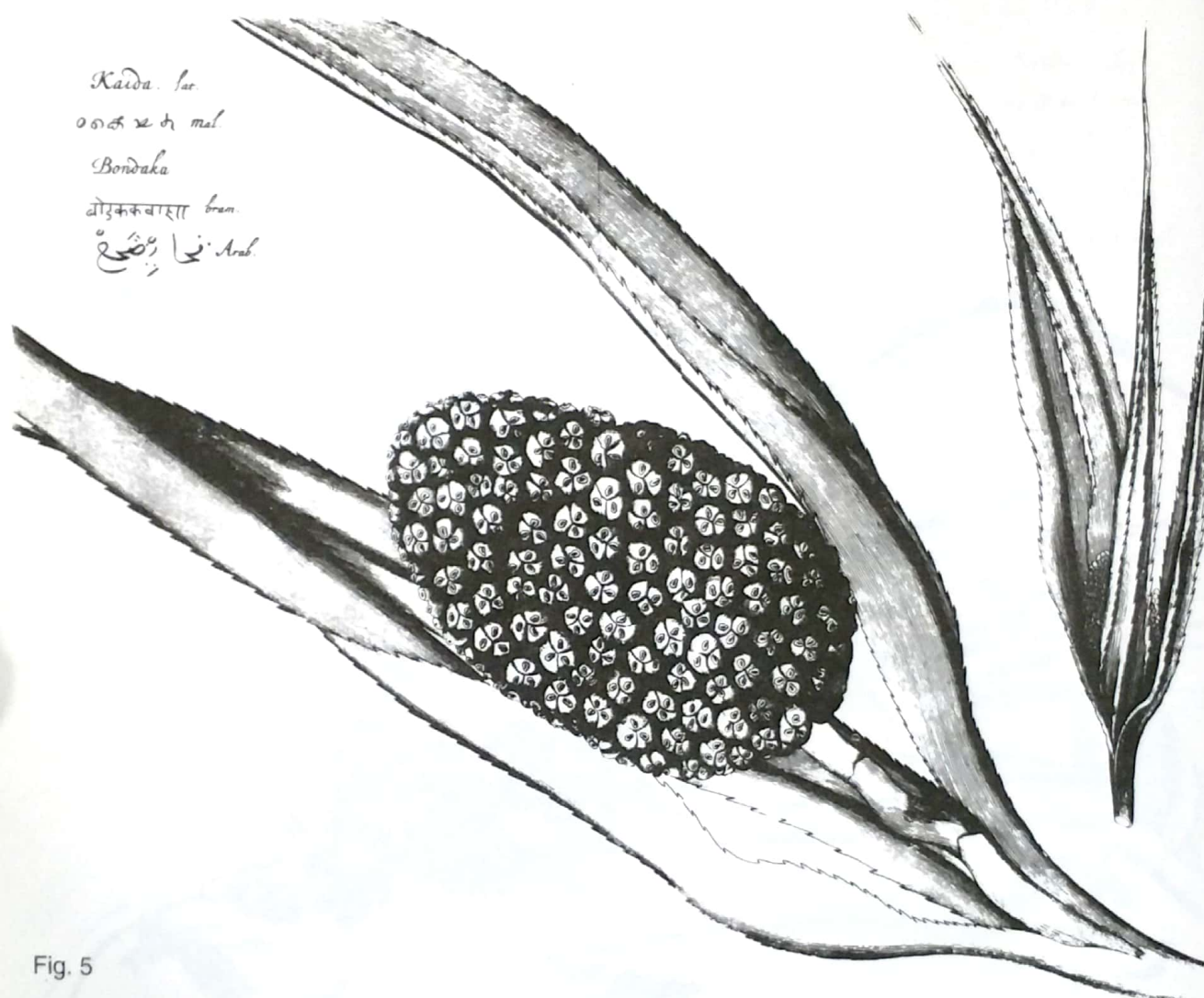


Fig. 5

Pandanus kaida Kurz, J. Asiat. Soc. Bengal 38: 148. 1869; Stone in Dassan., Rev. Handb. Fl. Ceylon 3: 308. 1981; Manilal & Suresh, New Botanist 11: 123. 1984 [PANDANACEAE].

Kaida Rheede, Hort. Malab. 2: 1-2, t. 1-5. 1679.

The name Kaida [Malayalam script on t. 2-5] refers to *Pandanus* in general and thadi means logs (stems or trunks), the latter appearing only in the habit drawing of t. 1. The name Kaida is still used [not Kaidathadi, which means the stem of Kaida]. The species is common in the vicinity of Cochin but seems to be rare in other parts of Malabar. It is also cultivated; cuttings planted to mark borders (boundaries), but there appear to be wild populations (escapes?) forming thickets.



Kaidā Taddi

FIG. 6



HIS species of *Kaida* is different from the first only in the fruits.

The fruits however of this are rather big, more round in shape bulging out with diverse larger nodes in the body, which are distinguished with deep and broad furrow. And are distinguished on the surface of the nodes with seven or eight small nodes. And in the surface of each node with flesh yellow inside, excavated in the middle with an empty hollow space with whitish powdery flesh, containing a round oblong seed in the middle node of each one.

Its Powers

Juice extracted from tender leaves taken with *sugar* heals dysentery; liquor pressed from mature fruits mixed with *sugar* is given against Aphthis (small whitish ulcer on the surface of a mucus membrane).

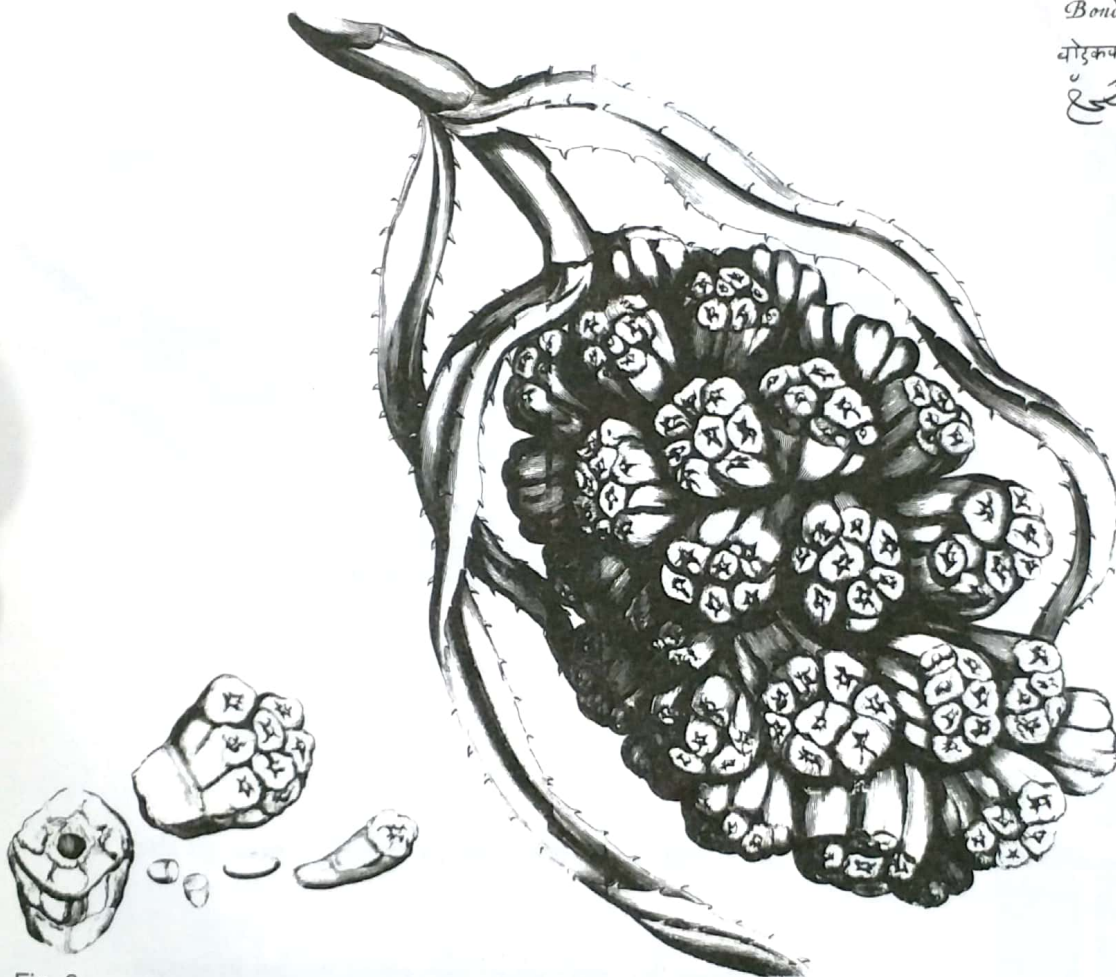
Kaida-Taddi. lac.
കൈതടി മാ.
Bondaka
ബണ്ടക വാഴ *brum.*
فانجاضع *Arab.*


Fig. 6

Pandanus fascicularis Lam., Encycl. 1: 372. 1783; Stone in Sald. & Nicols., Fl. Hassan Distr. 780. 1976. - *Pandanus odoratissimus* sensu auct. non L.f., Suppl. Pl. 424. 1782, nom. illeg. (incl. type of *Keura odorifera* Forssk. 1775); Stone in Dassan., Rev. Handb. Fl. Ceylon 3: 311. 1981; Manilal & Sivar., Fl. Calicut 301. 1982; Stone in Matthew, Fl. Tamilnadu Carn. 3(2): 1681. 1983; Manilal & Suresh, New Botanist 11: 123. 1984 [PANDANACEAE].

Kaida-taddi Rheede, Hort. Malab. 2: 3, t. 6. 1679.

Kaida is all that appears in Malayalam script on t. 6, the name still used for *Pandanus* in general. This species is sometimes called Pookaida, flower-pandanus. This refers to the male inflorescence, used as a fragrant hair decoration. The odour actually comes from the bracts, not the stamens. It is widely distributed along the coasts of Malabar.



Perin-Kaida-Taddi

FIG. 7



IS another species of *Kaida* called *Kaida-Taddi*, also differing from the first in fruits.

Fruits of this are oblong-round and are swollen with lesser nodes which are also separated with deep furrows and are provided in the surface of each node with a red-blackish papilla: and are yellowish red and of strong smell and less displeasing.

Its Powers

Is of the same powers as of the first.

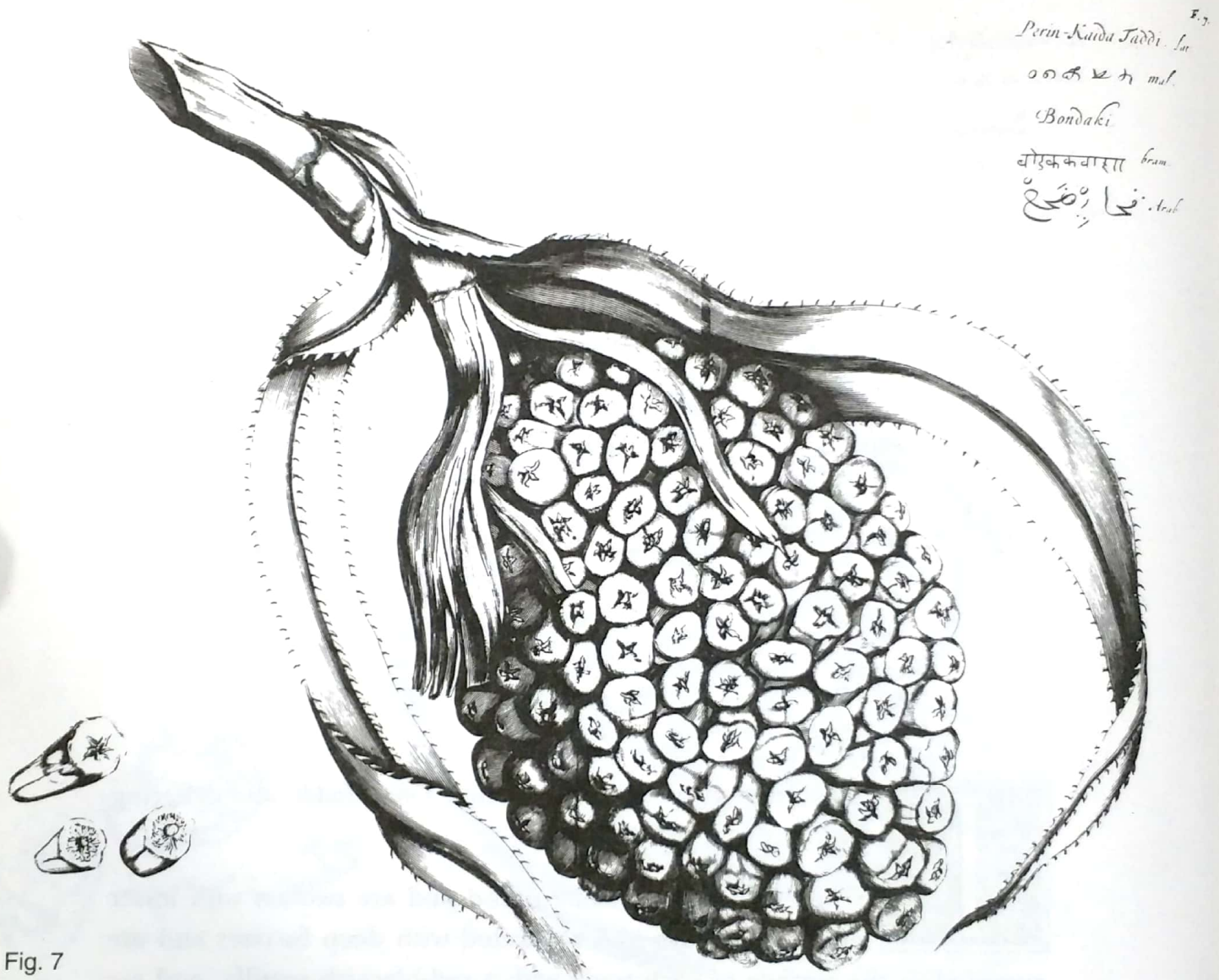


Fig. 7

Pandanus unipapillatus Dennst., Schlüssel 15, 23, 27. 1818. -*Pandanus canaranus* Warb. in Engl., Pflanzenr. IV:9: 75. 1900; St. John, Bot. Mag. Tokyo 85: 242, f. 1. 1972; Stone in Sald. & Nicols., Fl. Hassan Distr. 778. 1976; Manilal & Sivar., Fl. Calicut 301. 1982; Manilal & Suresh, New Botanist 11: 123. 1984 [PANDANACEAE].

Perin-kaida-taddi Rheede, Hort. Malab. 2: 5, t. 7. 1679.

The name Kaida (Malayalam script on t. 7) is still used for *Pandanus* in general. Perin means large, a reference to the size of the plant. This is, in fact, the largest species of *Pandanus* in Malabar. Today it is usually called Thazhakaida; thazha refers to the split and dried leaves used in making mats and baskets and sold in markets. The species is common along river banks throughout Malabar.



Kaida Tsjerria

FIG. 8.



Is yet another species of *Kaida* growing in mountainous regions. Fruits of this (in which it differs from the prior species) are not dissimilar with the fruits of *Tsjaka*, oblong-round and more narrow in shape, provided with small round swelling or bulging out and oblong eyes; protected with black in the rigid spikes at the top of the swelling, with green rind and of strong and pleasing smell.

Its Powers

Is of the same powers as the others.

Kaida-Tsjeria lat.

കൈട്സേരിയ Mal.

Bondaka

बोडकवारु bram.

كايڤا راج Arab.

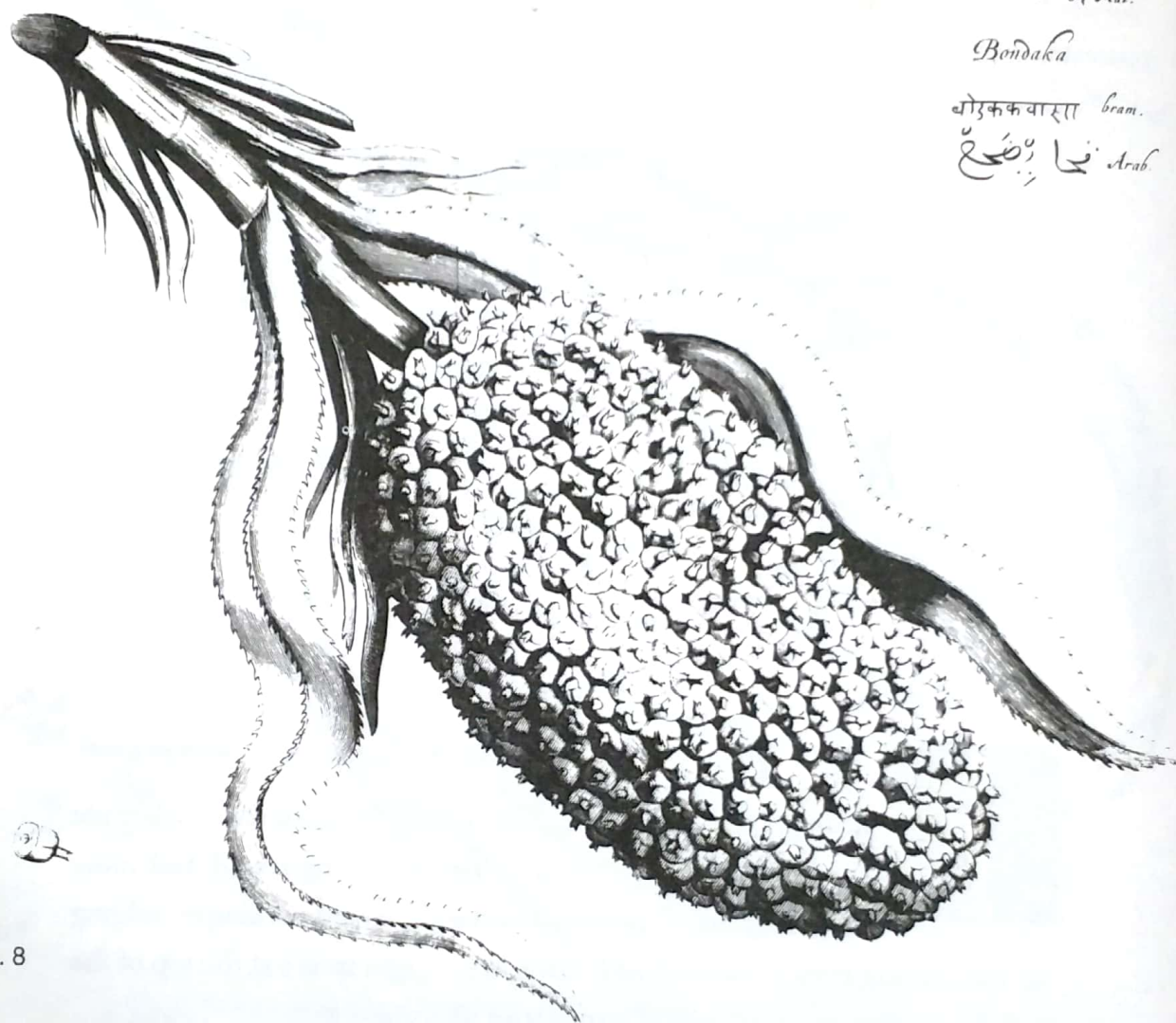


Fig. 8

Pandanus furcatus Roxb., Hort. Beng. 71. 1814 nom. nud.; Roxb., Fl. Ind. 3: 744. 1832; St. John, Bot. Mag. Tokyo 85: 248. 1972; Stone in Dassan., Rev. Handb. Fl. Ceylon 3: 304. 1981. -*Pandanus spinifructus* Dennst., Schlüssel 11, 23, 27. 1818, nom. illeg. (based on same type as *P. furcatus* Roxb. 1814) [PANDANACEAE].

Kaida-tsjeria Rheede, Hort. Malab. 2: 7, t. 8. 1679.

The name Kaida (Malayalam script on t. 8) is still used for *Pandanus* in general. The adjective cheriya ("tsjeria") means small and was incorrectly placed after Kaida. In Malayalam it is called Tsjeria kaida.



Panel

FIG. 9.



PANEL is of two species, one of the same name, the other *Narum-Panel*.

Panel, in the language of the Brahmins *Cali-Apocaro*, is a shrub five or six feet in height.

Roots capillary (hairy) with ash grey bark which is of aromatic smell.

Leaves which come out on short thick clear green petioles, are oblong round, more narrow towards the petioles with maximum width towards the anterior or in the middle, with a thick now obtuse now more pointed on both sides furrowed with nerves from the rib standing out on the lower side, and with thick "cancelliform" texture of many nerves running everywhere in equal surface, of dark green colour, of strong woody smell.

Flowers arise on long racemes which arise here and there from the origin of the leaves or of the foliaceous shoots and are white, consisting of five round leaves and anteriorly round cuspidate; of not displeasing smell.

Stamens in them are ten, like narrow whitish leaves, each one of which is provided with a small, yellow tip; the style in the middle is thick and sub-green, having at the tip a yellowish white knob (head) and is the beginning and germ of fruit.



Fig. 9

Buds of the flowers are round and somewhat oblong, white and light yellow.

The flowers having fallen away the fruits succeed which are plain round berries, having at the top a small spike or nodule which was forming the head of this style of its origin, are of aromatic smell emulating the smell of

Pepper called *Capo-Molago*, and of green *Ginger* when they are immature are of green whitish colour with a rind which is rather thick round or less yellow because of small bud like green swellings jutting out here and there, on maturity they first become wide then when it is completely mature are with ivory white verging on persic colour, and with glabrous shining and somewhat transparent rind, with slight sweet succulent flesh; and these are edible.

Inside is contained one plain round and rather big seed which with a very thin green covering also when mature and of white pulp, of aromatic smell and light acrid taste.

This shrub bears flowers all the year.

Its Powers

Vapour of the whole plant crushed and boiled when received on the affected part sedates arthritic pains. The root crushed and used in lotion with water in which rice has been macerated, is good for exiting fluids, the same crushed and taken in water sharpens the appetite, given in decoction disperses gas. Leaves are good for sufferings of head so also in its pain and chiefly in the frenzy of the sick. Vapour of the boiled leaves drawn in the mouth mitigates tooth-ache. The juice of the leaves boiled with oil and put into the ears, sedates their pain.

Glycosmis pentaphylla (Retz.) DC., Prodr. 1: 538. 1824; Tanaka, Bot. Not. 1928: 159. 1928; Stone in Dassan., Rev. Handb. Fl. Ceylon 5: 449. 1985; Sasidh. & Sivar., Fl. Thrissur 82. 1996; Sivar. & Philip, Fl. Nilambur 123. 1997 [RUTACEAE].

Panel Rheede, Hort. Malab. 2: 9-10, t. 9. 1679.

The name Panel is still used as the local Malayalam name for *G. pentaphylla*. The term is now used in a general sense for flexible (as opposed to brittle) shrubs. It is quite common and widely distributed in Malabar.





Narum Panel

FIG. 10.



ARUM-PANEL, other name *Baala-Paleti*, in the language of the Brahmins *Calo-Apocaro*, which is another species of *Panel*, is a shrub five or six feet in height and according to the trees which it embraces climbing upto two or three men's height.

Root fixes itself in the soil with thick long fibres, is with black bark, which turns red below the outer scale, is with aromatic smell stronger than the bark of the root of *Panel*.

Stem and branches are also with blackish bark. Leaves which arise on short thick and interiorly furrowed petioles are more oblong narrow than those of the first species, with acute tip, furrowed with partly standing out veins and of the same glabrous texture on the surface: the greenness of the leaves is more dark and with glitter especially on the upper part, smell of the leaves is aromatic not dissimilar to the leaves of cinnamon.

Flowers which arise here and there on short petioles consist of generally six leaves rarely seven which are with round margin contracted into a thick and rigid and from the middle unfolded into plain and rigid with spikes arranged

Uvaria narum (Dunal) Wall. ex Wight & Arn., Prodr. 9. 1834; King, Ann. Roy. Bot. Gard. Calcutta 4: 27, t. 21. 1893; Manilal & Sivar., Fl. Calicut 26. 1982; Huber in Dassan., Rev. Handb. Fl. Ceylon 5: 18. 1985; Sasidh. & Sivar., Fl. Thrissur 34. 1996; Sivar. & Philip, Fl. Nilambur 42. 1997. - *Unona narum* Dunal, Monogr. Anon. 99. 1817. *Uvaria hookeri* King, Ann. Roy. Bot. Gard. Calcutta 4: 28, t. 22. 1893 [ANNONACEAE].

Narum-panel Rheede, Hort. Malab. 2: 11-12, t. 10. 1679.

The name Narumpanel is not used. Narum means "fragrance" or also "pure", but the flowers do not have any smell and Panel refers to flexible (as opposed to brittle) shrubs. Today, in Cochin, it is usually called Vallipanel; valli means climbing or straggling. The young branches are sometimes used as whips. The species is widely distributed and common in Malabar.

Cara-Nosi

FIG. 11.



ARA-NOSI whose another species called *Bem-Nosi*, in the language of the Brahmins *Negunda* is a shrub more or less one and a half men in height, grows in sandy soil.

The root fibrous white and darkening with an outer scale, with a thin light bitter bark which when chewed longer is light acrid.

Stems many of which arise from the root, and the shoots are nodulated, older ones ash-coloured and green underneath the ash-grey scale, new ones green and verging on date red.

Leaves in petioles which arise two by two from the nodes of the shoot are seen now one in number rarely also two and at times also three together and then in the middle which is greater at the top; and are oblong round and anteriorly cuspidate with similar margin with soft texture of mediocre thickness, with smooth surface on the upper part with dark and shining darkness in the lower with light and dark greenness, of bitter and biting taste.

From the middle rib smaller ribs standing out on the lower side and on the upper side run in conspicuous, oblique angular tracts and near the margin they are carried mutually in a subtle manner. The leaves have pleasing and of "garden" smell, emulating the smell of the leaves of Lavender.



Fig. 11

Flowers arise at the tip of the foliaceous shoots which arise from the nodes above the origin of the small leaves two by two in a decussate order and to these many are attached collectively on short peduncles, the flowers are however purple blue and of the same smell as that of the leaves but more strong as the flowers of Lavender and consists of five dissimilar leaves and towards the interior with a bell-shaped neck one of the leaves is erect and

more broad and interiorly of spoon shaped cavity and hairy as also the neck of the flowers which is part of its leaf, inside is hairy, four remaining leaves are almost spread in width and are more similar among themselves except that those which are near to the erect leaf are less broad and round, two remaining ones are narrow towards the anterior side.

Stamens in flowers are four slender erect purple blue, stand out with black and bent apices and among them a slender purple blue style and bent towards the erect leaf with a bifid tip which arise from the rudiment of the fruit which is inside the calyx.

Calyx that clasp lightly on the lower collar of the flower are five, short, pale green, cuspidate, foliaceous and thinly longitudinally striate.

Fruit- berries rounded or nearly oblong, having smell similar to flowers, occupying most part of the calyx and within the calyx light green coloured, which are initially reddish and shining. Upper part, thereafter on drying becomes dark-blackish. In the middle is oblong-rotund hard fleshy, greenish bone-like projection. Mature fruit is not heavy, involute, stone-whitish, tasteless.

Its Powers

Roots used for soothing body pain, gout in feet and decoction prepared with hot water is applied thoroughly. Water boiled with its leaves in it is used for drinking in case of fever due to cold; vapour by boiling of leaves relieves stomach pain.

Vitex trifolia L., Sp. Pl. 638. 1753 ("*trifoliis*"); Mold. in Dassan., Rev. Handb. Fl. Ceylon 4: 378. 1983 [VERBENACEAE].

Cara-nosi Rheede, Hort. Malab. 2: 13-14, t. 11. 1679.

The name Kari nochi (Malayalam script on t. 11) is used; kari means black (dark) as opposed to *Ven* or white nochi, depicted under Fig. 12 and nochi is the general term for *Vitex* with fragrant leaves. In Malayalam Nochu (modified from nochi) also means "light" or "minute", probably denoting its fruits which are light (not heavy). It is common along the coastal plains of Malabar.



Bem-Nosi

FIG. 12.



EM-NOSI, the second species of *Nosi*, in the language of Brahmins, are shrubs mostly agreeing with *Cara-Nosi* but the leaves of these are three on petioles and here and there really congregate, oblongly narrow and apically narrowly contracted cuspidate, rounded towards petiole and broadest towards anterior part, finely and minutely crenate, less dark-green coloured, clearly erect.

Flowers and fruits same (as above).

Bem-Nosi, called white *Nosi* has paler (colour) leaves in comparison to *Cara-Nosi*.

Its Powers

Root decoction is given to remove swelling of body, leaves are chewed to remove difficulty in breathing, in the same way ulcers are cured by smearing leaves and roots crushed in rice water. Tender leaves and *Pepper* crushed and made in globular forms with rice water are given twice or thrice during initial stages of paroxysmic fever. Juice of leaves applied thoroughly on head for increased growth of hair.



Fig. 12

Vitex negundo L., Sp. Pl. 638. 1753; Manilal & Sivar., Fl. Calicut 228. 1982; Mold. in Dassan., Rev. Handb. Fl. Ceylon 4: 373. 1983; Sasidh. & Sivar., Fl. Thrissur 355. 1996; Sivar. & Philip, Fl. Nilambur 540. 1997 [VERBENACEAE].

Bem-nosi Rheede, Hort. Malab. 2: 15, t. 12. 1679.

The name Ven nochi (Malayalam script on t. 12) is sometimes used, ven (from velutha) means white [in comparison with dark "Kari" nochi] and nochi is a general term for *Vitex* with fragrant leaves. This species is usually only called nochi. It grows in waste places and in hedges in Malabar.



Schetti

FIG. 13.



HERE are three species of *Schetti*, one of the name, another *Bem-Schetti*, third *Nedum-Schetti* or *Pua-Schetti*.

Schetti, in the language of Brahmins, *Pada-Cali*, is a shrub, from the kind of brush-wood, of man's height, growing in sandy and rocky soils.

The root sends itself down deeply in the soil, is with a bark, red-obscure on the outside and reddish inside.

The bark of the stems and branches is red-obscure on the outside, whitish inside; however (the bark) of the branches above is ash-grey on the outside, inside white and that of tender ones is chestnut coloured, dark-red.

Leaves which are placed two by two around branches sideways, and shoots in the manner of wings with the tips turned in on themselves mutually, are oblong-round, with round margin towards the petiole a bit acuminate at the tip somewhat thick and of dense texture, smooth, glabrous very shining and of dark green colour on the upper surface, on lower light green and dark

colour, which arise in more luxuriant shoots are bigger than the other, the taste of leaves (is) biting and bitter.

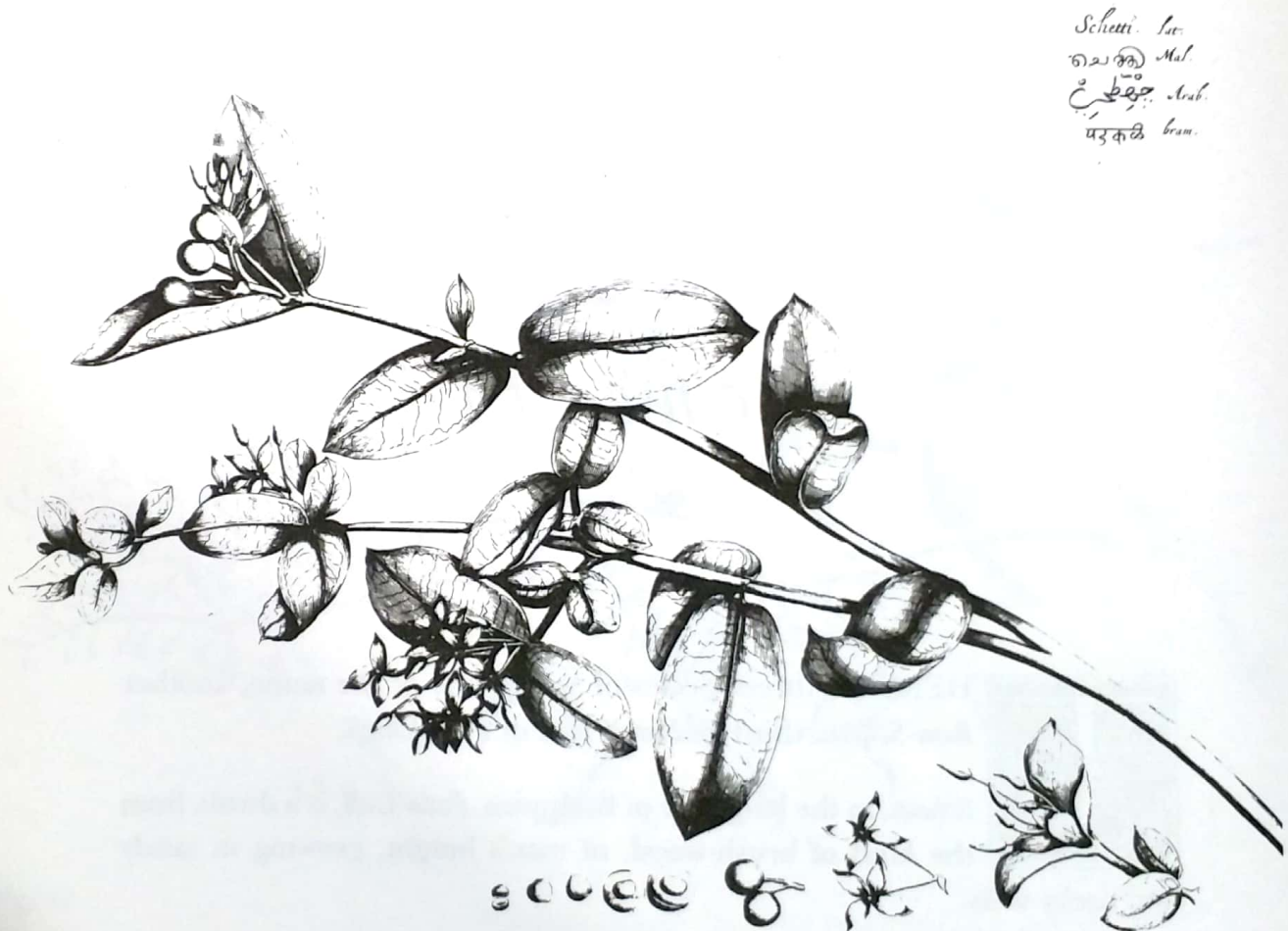


Fig. 13

From the mid-rib which terminates in the tip in an inward direction and stands out also on the upper side, nerves somewhat standing out (projecting) also on the upper surface, come out in straight and parallel lines, which run together in an arched manner near the margin, leaving a fringe, and cover both the part of the leaf with transverse, projecting veins.

Flowers which arise collectively in the tip of shoots above the origin of leaves, one (here and there), at times four leaves, rarely of five oblong narrow leaves, which are restricted with smooth margin towards the petiole and are like

lattice, flesh coloured on all sides, of more intense (colour) internally, and later when they turn yellow, of more dilute and yellowish colour, and they are attached to a slender, long pedicel, with erect deeply flesh-coloured coralline red and shining, small calyx, which is of four minute tips; of no smell.

From the middle of the flowers with the upper, bifid knob, dark red and shining, emerges a small (short) style which having passed through the foot, comes out from a green globule, situated in the calyx, which is the rudiment of the fruit and in the orifice of the pedicel among the claws of ten leaves are inserted four small red tongues on small stamens, which catch the claws of leaves in intermediary angles.

Flower buds are oblong-round and towards the upper part more narrow and acuminate first with dark green colour, turning red on the outside in the margins of leaves, internally turning somewhat red from light green then flesh red.

Fruits which arise after the flowers have fallen down, are berries tightly attached to the calyx, with a glabrous calyx, which are while immature and more, hard, round-oblong and with somewhat green colour, later when they have reached maturity, are of more round shape and with dark red colour, later deep dark and shining and are with whitish and little humid flesh.

In these berries which are sweet and edible, lie two, three or four small stones in certain ones only one, in others however two, which stones on the side by which they mutually touch smooth and of two sides, in the other side round and with less hard stoney nut consisting of pulp, green inside.

The gentiles offer the flowers of this shrub to the God Ixora in sacrificial offerings.

Bears flowers and fruits all the year.

Its Powers

The root crushed and drunk in cold water, serves for hot fever and burning of hands, and is good for those who spit blood; the same used with cold water mitigates headache, the same drunk in cow's milk helps to extinguish burning of kidneys, so also in stopping the flow of women or in gonorrhea, is useful when used in smearing the affected parts of the body in small-pox

and used in the same way with the milk of coconut, serves for drying pustules and other skin diseases, it is also said that part of the root which turn towards the south is good for habitual (or chronic) fever and which is originated from cold. Juice is extracted from the bark, leaves and flowers which, mixed with the oil of *Sirgelim*, is taken inside for reducing the abundance of blood.

Ixora coccinea L., Sp. Pl. 110. 1753; Manilal & Sivar., Fl. Calicut 147. 1982; Sivar. & Philip, Fl. Nilambur 330. 1997 [RUBIACEAE].

Schetti Rheede, Hort. Malab. 2: 17-18, t. 13. 1679.

The name Chethi (Malayalam script on t. 13) is still used as a general term for *Ixora*. Chethi, modified from Chekki denoted "Chuvanna" (red) colour of its flowers. God *Ixora* in the text means "Ishwara", Malayalam for God. Red flowers of Schetti or Chethi is used in the worship of the Sakthi (power) aspect of God by the Hindus. The plant is sometimes called Thetchi. This species is both wild (on laterite) and also cultivated in Malabar.



Bem-Schetti

FIG. 14.



EM-SCHETTI, in the language of Brahmins, *Dav Padacali*, is also a shrub from the genus of brushwood, and is the second species of *Schetti*, with which it greatly agrees; but its leaves (are) more oblong, anteriorly more cuspidate and somewhat narrow towards the petiole and less thick, flowers whitish and light yellow, with the foot by which it is attached to the calyx, also somewhat reddish, and there is a style bifid on the top, projecting high from the orifice and four slender, long stamens provided with light yellow tips; fruits more oblong and with colour first green, then light green and yellow; with the flesh inside succulent and white, and with white stones, and are edible and of light sweet and powdery taste.

This shrub bears flowers rarely in the year.

Its Powers

Crushed with *Cumin* and boiled, is given for pustules originated in the navel; the juice extracted from flowers and put in the nostrils relieves head-ache.

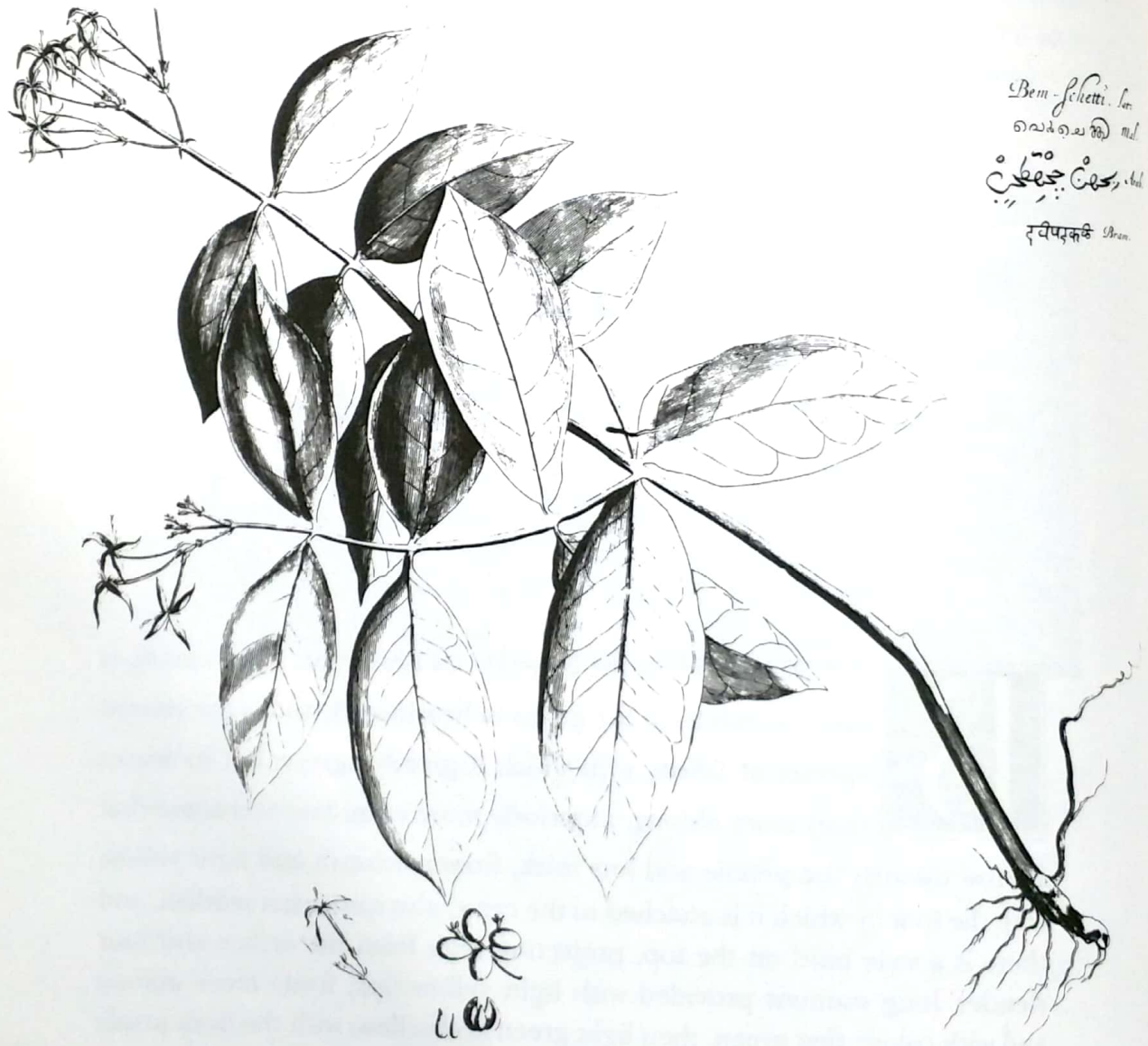


Fig. 14

Ixora alba L., Sp. Pl. 110. 1753; Ridsdale in Manilal, Bot. Hist. Hort. Malab. 133. 1980. - *Ixora lanceolata* Lam., Encycl. 3: 343. 1789 (incl. lectotype of *Ixora alba* L. 1753). *Ixora barbata* Roxb., Hort. Beng. 10. 1814 (based solely on "H.M. 2 t. 13" [sic, recte t. 14, lectotype of *Ixora alba* L. 1753]). *Chiococca malabarica* Dennst., Schlüssel 12, 19, 37. 1818. *Ixora leucantha* Wall. ex G. Don, Gen. Hist. 3: 572. 1834. *Bensetia paniculata* Raf., Sylva Tellur. 12. 1838, nom. illeg. (incl. type of *Ixora barbata* Roxb. 1814). *Ixora malabarica* (Dennst.) Mabb., Taxon 26: 539. 1977; Manilal & Sivar, Fl. Calicut 146. 1982; Sasidh. & Sivar., Fl. Thrissur 225. 1996; Sivar. & Philip, Fl. Nilambur 331. 1997 [RUBIACEAE].

Bem-schetti Rheede, Hort. Malab. 2: 19, t. 14. 1679.

The name Ven chethi is still used; ven (from velutha) means white and chethi refers to *Ixora*. Today, this white flowered species is simply called Chethi.

Ridsdale (l.c.) also identified Rheede's "Kilckola tsjetti" (10: t. 57) with *Ixora alba*. Fruits illustrated there with a persistent calyx, are quite different from the calyx-less fruits illustrated in Vol. 2: t. 14.





Nedum-Schetti

FIG. 15.



EDUM-SCHETTI or *Pua-Schetti*, in the language of the Brahmins *Puula-padacali*, is the third species of *Schetti* and is a shrub in the genus of brushwood, two men in height, growing in sandy as well as rocky soil, with a bark red outside and white inside.

The stems and new shoots are green and winged, bound up, namely, with four wings.

The leaves also embrace the branches two by two in a winged manner in various positions, some placed sideways, some erect towards the anterior side, others bent downwards and are more long, drawing to a tip with the anterior margin drawn to a point, closing themselves and the interior with maximum width towards the peduncle and drawing together the edges of the sides towards the exterior and are more thick and more dense, shining on both sides, but especially on the upper side, in which they are with dark green colour, of biting and bitter taste.

From the thicker rib, standing out only on the exterior part; nerves which are conspicuous only inside the leaf, come out running together in an arched manner near the margin.

Flowers which are very small on short, straight and slender petioles with which they arise from small cuspidate calyx, are attached to nodes of branches in a verticillate manner above the origin of the leaves, and also they arise here and there from the body of the branches or also of stems, and also arise together with the germs of fruits in their tips consisting of four cuspidate



Fig. 15

leaves with which they emerge from the round hollow calyx, and are as in the petioles with red and bluish purple colour, which is more purple-red in some in some other more purple-blue, in still others more white, and of no smell.

Stamens in the flowers (are) eight, blue or purple red, erect, provided with whitish apices, and with these a style of blue or purple colour, acuminate, rigid, and erect coming out from the centre of the calyx.

Fruits which arise on the very petioles of the flowers, after the flowers having fallen, are small and round berries surrounded at the top with a navel which is the calyx of the flowers, first with green colour, then whitish or light yellow, then turning purple, finally the whole turning black and shining, inside with juicy blue flesh, which is of sweet and somewhat biting taste, and contain in itself round kernel which is with reddish or light date-coloured rind, inside with a green pulp, with light bitter and biting taste.

Bears flowers during the rainy season.

Its Powers

Its decoction with oil is good for itches when smeared on affected parts.

Memecylon sessile Benth. ex Wight & Arn., Prodr. 320. 1834. - *Memecylon amplexicaule* var. *cordatum* Wight ex C. B. Cl. in J. Hook., Fl. Brit. India 2: 559. 1879. *Memecylon subcordatum* Cogn. in DC., Monogr. Phan. 7: 1164. 1891 [MELASTOMATACEAE].

Nedum-schetti Rheede, Hort. Malab. 2: 21-22, t. 15. 1679.

The name Nedum chethi (Malayalam script on t. 15) is still used; nedum means "erect and tall" and chethi generally applies to *lxora* [red flowered]. It commonly occurs in sacred groves (patches of forests near the vicinity of temples, left undisturbed for religious reasons) throughout Malabar.



Scherunam - Cottam

FIG. 16.



HERE are three species of *Cottam*, *Scherunam-Cottam*, *Schageri-Cottam*, and *Cottam*.

Scherunam-Cottam, in the language of the Brahmins, ... is a shrub of two or three men in height, growing in sandy and rocky soils

Root is long, sinking deep down and giving out both from the side and from beneath many, long, slender fibres here and there clothed with hairs; the bark of the root with its fibers is red-obscure, inside however red, of biting, unsafe, sulphur taste.

Stems are covered with a rough ash-grey and inside green bark nevertheless turning reddish or also in the lower part towards the root where they are older, turning red, inside toward wood turning white, which is split up into many slender smooth scales, from which entwined and compactly arranged are formed finely tender (touch-wood) and is compressed, inside they are with white wood and towards the root hollow, otherwise solid, older branches with ash-grey bark, tender ones green and the stems and branches are armed with long, thick, woody spines here and there.

Leaves which arise here and there on the stem on short, round, thick petioles, are oblong round, a little narrow towards the petiole and cuspidate at the round apex, as the upper side smooth, and on the lower side from the mid-rib furrowed with small ribs running obliquely into the margin towards the



Fig. 16

anterior side which are accompanied with projecting transverse nerves and lightly furrowing the upper side with their trails, on the upper side of dark greenness, not shining, on the lower side of clear or less dark greenness, of biting taste

Flowers which arise at the tip of branchlets on their own petioles from the origin of the leaves in fascicles without calyx, are light green, of no smell,

and consist of a double order of leaves, of which five which are outer cuspidate, erect and somewhat bent towards the interior, five which are inside are round and towards the upper part projecting with dots.

From the middle of these, from the centre, an acuminate style arises, a little below the tip, sending in a star like manner five slender stamens, which are provided with whitish and thin yellowish heads.

Petioles of the flowers come out in their origin with acuminate leaflets.

Fruits which hang from shootlets are round and similar to pears with the surface glabrous, first green and shining then with black colour when mature and of light acid taste and contain four white and transparent grains of seeds in their own places.

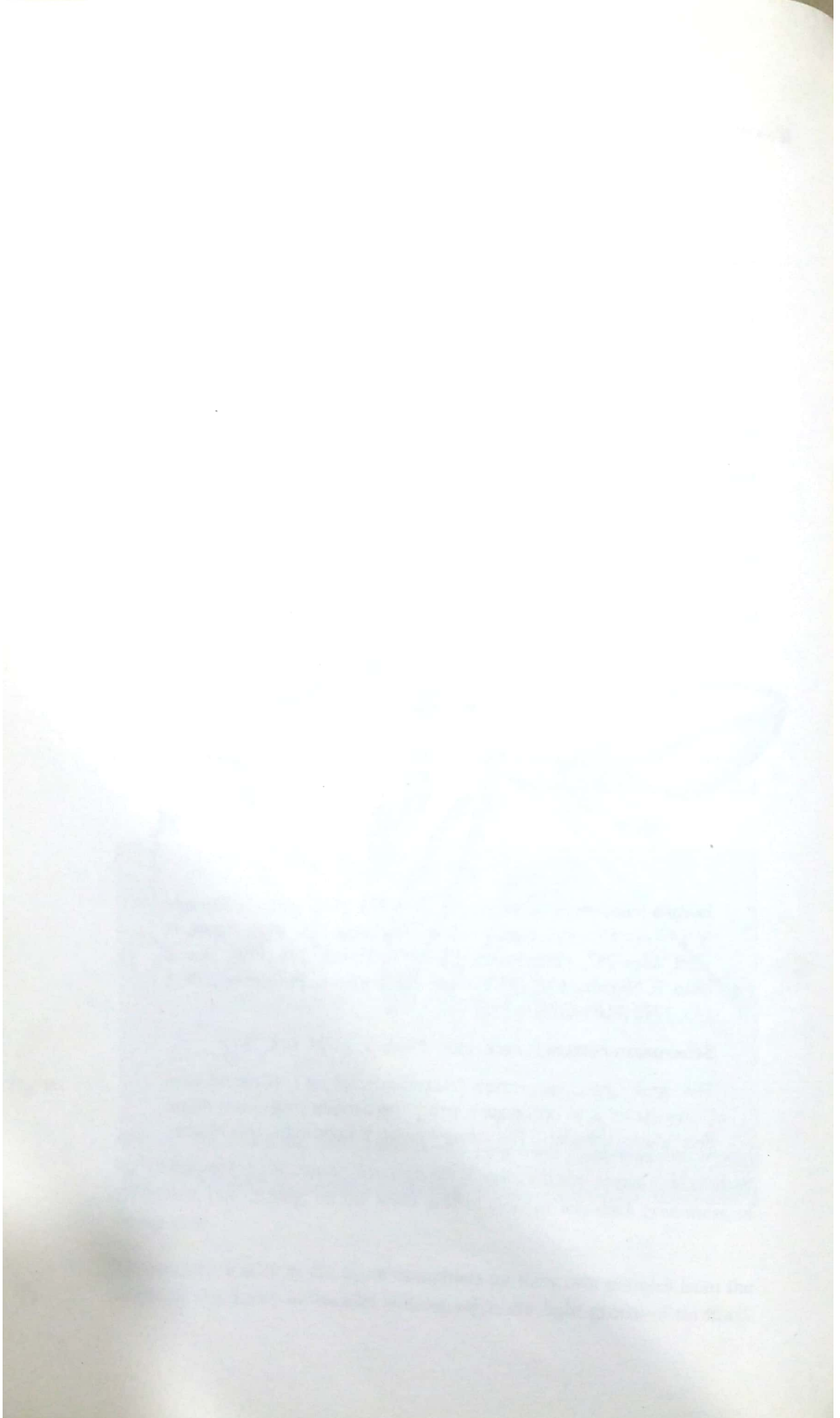
Its Powers

Vapour of the boiled leaves received in the mouth relieves toothache and kills little worms in the teeth.

Bridelia scandens (Roxb.) Willd., Sp. Pl. 4: 979. 1805; Jablonski, Pflanzenr. IV. 147(viii): 55. 1915; Manilal & Sivar., Fl. Calicut 273. 1982; Manilal, Fl. Silent Valley 247. 1988; Sasidh. & Sivar., Fl. Thrissur 397. 1996; Sivar. & Philip, Fl. Nilambur 611. 1997. - *Clusia scandens* Roxb., Pl. Corom. 2: 39, t. 173. 1798 [EUPHORBIACEAE].

Scherunam-cottam Rheede, Hort. Malab. 2: 23-24, t. 16. 1679.

The name Cherumaan kottam (Malayalam script on t. 16) is still used ["Cherunaam" is an orthographic error]; cheru means small, maan means deer (allusion unknown). This scandent species is found throughout Malabar.





Schem Pariti

FIG. 17.



CHEM-PARITI which is the fourth species of *Pariti*, in the language of the Brahmins is a shrub, five or six feet in height. Root is clothed with whitish fibres, of no taste. Stems and branches are with outer bark ash-grey, inner green.

Leaves which arise here and there on round, green petioles of $\frac{1}{12}$ th of an inch, both solitarily or accompanied with leafy buds from the same origin, are oblong, narrowing into a tip towards the anterior part, with broad roundness towards the petiole with equal margin, thence drawn into a tip towards the anterior part and cut up into big teeth in the margin, with texture less thick and much soft, with glabrous surface, of shining greenness especially on the upper part, the tender ones are with more clear greenness, and green, when drooping become yellow, of no taste.

With the mid-rib, from which ribs come out, from the petiole two bigger ribs arise one on each side, which send out their lateral branches or rib-lets towards the margin, and ribs are accompanied with their transverse veins, projecting also on the upper side, but chiefly on the lower.

Flowers which arise at the tip of shoots are roses with deep red and beautiful glittering colour like the roses of Alabandica, formed of oblong round leaves, which are very smooth and soft and somewhat curled arising from each other and placed around a middle style and are inserted with claws.

Schem-pariti. Lat.
 മലബാർ മാ. mal.
 جيا مفر قطير Arab.
 ദേശം bram.



Fig. 17

The middle style is red and thick, white inside, provided with four or five downy purple-red black downy knobs, and from it come out here and there small, slender, red stamens which are provided with yellow knobs.

The calyx of the flowers is with a white and hairy foot of five green and cuspidate leaves and inside surrounded by eight narrow and green, cuspidate leaves.

Has no seed.

Bears flowers the whole year.

Its Powers

Root crushed and drunk with oil, stops the copious flow of menses of women. Crushed tender leaves with the addition of a bit of fresh butter when placed over boils mature them; the same when drunk in water in which the leaves are teased for some time is good for chicken pox, so also is with the addition of a bit of *Sugar* for the burning of liver.

Hibiscus rosa-sinensis L., Sp. Pl. 694. 1753; Borssum Waalkes, Blumea 14: 72. 1966; Rakshit & Kundu, Bull. Bot. Survey India 12: 165. 1972 ("1970"); Manilal & Sivar., Fl. Calicut 48. 1982; Sivar. & Philip, Fl. Nilambur 86. 1997 [MALVACEAE].

Schem-pariti Rheede, Hort. Malab. 2: 25-26, t. 17. 1679.

The name Chempariti (Malayalam script on t. 17) is still used; chem (from chuvanna) means red and Pariti is the general term for *Hibiscus*. The species is commonly and widely cultivated in Malabar. Bates (Baileya 13: 97-130. 1965) discussed cultivated species of *Hibiscus* and mentioned that there are over 1000 cultivars of *H. rosa-sinensis*.



Belilla

FIG. 18.



BELILLA, in the language of the Brahmins *Sravadi*, is a shrub, half a man in height, also climbing on trees with sinuous and knotty branches, and grows in sandy soil.

Root, red sending out hairy fibres.

Stalks woody, knotted and in the upper parts quadrangular, dark, older ones ash coloured, and they send out here and there from the nodes shoots at times in twos which are decussate and are curved inwards towards the anterior side; tender shoots are round, and green and hairy.

Leaves which arise on weak or less long petioles in nodes here and there in twos and also in threes or many together, (if new and tender arising from the nodes are present) are oblong round, of round edges towards the base, with a narrow point at the tip, slender, hairy and like downy, on the upper side of dark green colour, on the lower side clear, and have a mid-rib, somewhat standing out also on the upper side, from which rib-lets come out orderly in oblique annular tracts, chiefly standing out on the lower side and very near to the margin dividing into smaller arches, and are "cancelliform" knots of

veins among the veins inside the leaf, the leaves are with no taste except woody.



Fig. 18

Flowers arise in umbels at the tip of shoots on petioles which arise from above the origin of leaves, and are starlets of five round-cuspidate leaves, which are conspicuous with a white apex at the tip and in the middle with a jutting out wrinkle, contracted inside, and are somewhat curved in at the

edges towards the lower part, have inside beautiful red or scarlet colour, and in the margins having whitish or yellowish colour; so also outside, and are hairy and move out with a hairy and yellow navel in the middle, and are attached to the tip of the tender fruits with an oblong, light green, hairy peduncle, or to the calyx which is oblong round or thick and is of four or five small, narrow and hairy leaves, and are of no smell.

Flower buds are oblong, forming a five-angled head towards the side of the leaves which is first green, then turning yellow and then turning more and more white.

The fruits are oblong-round and are beset with minute hairs, while unripe green, when however mature tending towards yellow, inside with dense green flesh, with biting and light acid taste.

In these there is a heap of minute seeds, which lie in them inside the green flesh, like the semen of fishes and separated into four series by means of intermediary white membranes and are with green colour when they are collected together in the bottom series, each one however viewed separately are light green, white and transparent like sand, when mature are of very black colour.

From the fruits which take hold of the flower attached to an oblong peduncle at its tip, by a calyx of only four cuspidate leaves, in the place of the fifth cuspidate leaf of the calyx, near the centre is an oblong, very white leaf, which is of round margin at the bottom part and anteriorly drawn together, projecting with a small, narrow point, comes out with a somewhat flat, hairy, light green petiole and it is slender to touch, hairy, having five light green nerve-lets running from the petiole to the anterior part, and projecting on the lower side, which also send out their own light green lateral vein-lets of woody smell.

Sravadi, in the language of the Brahmins, is very white, which name is given to this plant because it has very white leaves.

Its Powers

Root given in decoction is good for cooling the liver and for purifying phlegmatic fluids. The same, crushed in water and smeared relieves body pain; applied to eyes it removes the redness of eyes. The same teased and

boiled in oil is profitably drunk by infants for pustules in the mouth, to which also serves a decoction of the bark in oil, taken inside. Fumes or vapour of leaves relieves the pain of external parts when applied to them; juice of leaves and fruits together, removes cloud or also membrane dimming the sight.

Mussaenda belilla Ham., Trans. Linn. Soc. London 14: 203. 1824; Ridsdale in Manilal, Bot. Hist. Hort. Malab. 131. 1980; Sasidh. & Sivar., Fl. Thrissur 228. 1996; Sivar. & Philip, Fl. Nilambur 337. 1997. - *Mussaenda frondosa* var. *laxa* J. Hook., Fl. Brit. India 3: 89. 1880. *Mussaenda laxa* (J. Hook.) Hutch. ex Gamble, Fl. Madras 2: 610(430). 1921; Jayaweera, J. Arnold Arb. 44: 242. 1963 [RUBIACEAE].

Belilla Rheede, Hort. Malab. 2: 27-28, t. 18. 1679.

The name Vellila (Malayalam script on t. 18) is still used; velli (from velutha) means white or silver and ila means leaf, a reference to the showy, white leaf-like calycine bract (also called flag). It is common around Cochin in Malabar



Moderà - Canni

FIG. 19.



S a shrub from the genus of brushwood, two men in height, growing in sandy soil.

Root is thick, with a yellow or red bark on the outside, which is covered with a whitish powder or lime, inside with dark red wood and of pleasing and aromatic smell.

Branches are with ash coloured bark to which are attached lateral woody spines of $\frac{1}{12}^{\text{th}}$ of an inch here and there.

Leaves in short shoots which at a distance of almost $\frac{1}{12}^{\text{th}}$ of inch on both sides with woody, spirally curved in hairs, arise and in their upper part which is above the hairs, and also below, are attached towards their origin in short peduncles, and are oblong round and anteriorly obtusely cuspidate, somewhat narrow towards the petiole, on both sides with common or clear greenness, on the upper side a little glittering and have from the mid-rib which stands out somewhat also on the upper side, and mostly on the lower side, slender rib-lets going out in an oblique annular tract, which lose themselves among the slender nerve-lets woven in a cancelliform near the margin, and are accompanied at the base with two cuspidate narrow leaves like ears.

Flowers arise at the tip of foliaceous shoots on pedicels not even half of one twelfth of an inch in length, two or three collectively, placed in a green yellow calyx of five cuspidate leaves, and are with yellow colour, shining very little, consisting of five, slender, oblong-round leaves and with vein-lets very slightly furrowed in length, which are inserted to the calyx with white claws.



Fig. 19

In the middle are seen ten light yellow, rather long stamens which are provided with yellow red knobs, white towards the base, mutually united in the calyx, surround a central white head, and with these five small, light yellow stamens with green knobs or apices, which arise from the tip of the white round head.

Buds of flowers are first enveloped in its calyx and soon bursting forth from the calyx, are with more strong yellow colour at its apex.

Fruits are round berries, placed deep in the bottom part of the tight calyx, which is of five cuspidate leaves, and are first green glabrous and shining, then yellow, light red and underneath the outer rind formed of very red, dense, humid flesh, which is of no taste. In the middle is a small, white, hard stone, grooved in length with veins, containing very little kernel.

Its Powers

Used in lotion of the body evokes (exites) fluids. Root crushed and applied helps to relieve inflammation of limbs and in loosening tumors (boils), the same is an instantaneous remedy for the virulent biting of cobra, is also used in fever, especially of infants, in the colic grip of intestines, in colic pain and in killing worms and is sudorific (causing sweat) and exciting (moving) urine, and corroborating limits. From the bark of the root is formed an antidote against poison.

Hugonia mystax L., Sp. Pl. 675. 1753 ("*myxstrax*"); Manilal & Sivar., Fl. Calicut 54. 1982 [LINACEAE].

Modira-canni Rheede, Hort. Malab. 2: 29-30, t. 19. 1679.

The name Modira kanni is still used; modira (from modiram) means ring, as worn on the finger (sometimes the "hooks" curl into a ring) and kanni means joint, i.e., the name means ring(s) that occur at nodes in this species. It occurs on lateritic soils in Malabar and is not uncommon.

Carim - Curini

FIG. 20.



URINI is of two species, *Carim-Curini* and *Bem-Curini*. *Carim-Curini*, *Pocsoo* in the language of the Brahmins, is a shrub, growing in sandy soil.

Root fibrous and white, and turning dark, of slightly bitter taste in the bark.

Stalks and shoots are dark green, jointed swelling above each joint.

Leaves which arise on mediocre, dark green, weak, petioles, which are flat inside, in twos in decussate order, and oblong-round, narrow towards the petiole, anteriorly drawn to a point, less thick in texture, soft, smooth on the surface, on the upper side of somewhat shining, dark greenness, on the lower side of clear greenness, of no taste, of garden smell.

From the intermediary ribs, rib-lets go out towards the anterior part in an annular tract, subtracting themselves from the sight (disappearing) near the margin, and projecting (pronounced) also on the upper part, although mostly on the lower side, among these are clearly conspicuous veins hardly pronounced on the lower side.

Flowers arise from the origin of small, round cuspidate leaves which erectly surround the twos and in a dense and decussate order, and are green-blue, helmeted (covered with a helmet), consisting of three greenish blue leaves which are stretched out to one side from the helmet, and with a white



Fig. 20

peduncle, somewhat twisted inward and knobbed at the top and rather long, by which they are attached to the calyx of five very narrow, green, cuspidate, and slightly hairy and grooved leaves, and have in the node of the peduncle to which the helmet is secured with leaves laterally, two horned, pronounced

from green sub-blue, and a slender, green, slight blue flap hanging towards the posterior part of the helmet, and are flowers of no smell, leaves in the middle are two, internally grooved, narrow and little cuspidate, the middle one also oblong and broad, and with round edge anteriorly. The style, which arise from the bud of the capsule containing seeds, is passed through the whitish peduncle.

Flowers having fallen down seminal capsules arise from the calyx, which are flat-round and cuspidate and are spear-like, on oblong, four sided, digital pedicel, consisting of a green bark, inside woody and grooved in length in the middle, so also in the margin with one groove which runs on both sides through the middle of the surface of the base.

In each capsule, two seeds are placed, one on each side, separated by means of a middle septum, which runs from the edges of the capsule where it is grooved, like a broad fringe; and are seeds very compressed in the shape, round cuspidate like a heart, with its point directed to the tip of the capsule, with first green-white colour, then more white, later when dry light yellow or light red and pallid, with the surface rough because of pronounced points especially when dry, of no taste.

Its Powers

Root boiled and taken serves for arthritic pains, boiled with oil and butter augments strength, the same crushed and given with oil of *Sirgelim* helps in relieving pains of gout; decoction from fruit and leaves drunk dissolves stones; leaves crushed simply bound over the belly also are of the same power. Juice extracted from the leaves is good for stones. Leaves given in decoction are profitable in dysuria [difficulty or pain in passing urine]; the same drunk in hot water are conducive in cough and pains of stone, which power also they have if they are employed with hot water for smearing the stomach.

Ecbolium viride (Forssk.) Alston in Trimen, Fl. Ceylon 6: 229. 1931; Wood et al., Kew Bull. 38: 446. 1983; Manilal, Fl. Silent Valley 203. 1988. -*Justicia ecbolium* L., Sp. Pl. 15. 1753. *Justicia viridis* Forssk., Fl. Aegypt.-Arab. 5. 1775. *Ecbolium linneanum* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 40: 75. 1871. *Ecbolium viride* var. *laetevirens* (Vahl) Raizada, Indian Forest Rec. 5: 16. 1958. -*Justicia laetevirens* Vahl, Enum. 1: 118. 1804. *Ecbolium linneanum* var. *laetevirens* (Vahl) C. B. Cl. in J. Hook., Fl. Brit. Ind. 4: 545. 1885 [ACANTHACEAE].

Carim-curini Rheede, Hort. Malab. 2: 31-32, t. 20. 1679.

The name Karim kurinji (Malayalam script on t. 20) is still used; karim means black and kurinji is a general term for *Barleria*, *Justicia* and *Strobilanthes* sensu lato. This variety is not very common in Malabar but sometimes found in moist, shady places.



Bem - Curini

FIG. 21.



EM-CURINI, the language of the Brahmins *Davo-Pocso*, does not differ from *Carim-Curini* except in flowers and in seed-bearing capsules.

Flowers of these arise at the tip of shoots from nodes above from small whitish cuspidate leaves which in each node are four in number and three are more connected to the origin of the flowers and these leaves are slender and somewhat transparent and grooved with green ribs which proceed two by two from the mid-rib and are dispersed near the margin in an arched manner, and lead from each node one small flower comes out; the flowers are white of no smell, attached by means of a less long neck to a calyx which is of five green cuspidate leaves and attached to the nodes of shoots with the calyx consisting of four slender leaves with one leaf standing erect from the neck of the base, which is the most broad and inside spoon shaped and contracted into a point, very slender and transparent on the outer part with a middle thicker rib with one small rib on both sides which is twisted inwards towards the tip. Grooved from the neck with three cuspidate leaves expanded from the neck, transversely towards one side of which the one on

the middle is more broad and variegated with light red rays and waves in white colour, and the neck of the flowers are grooved with three nerves which run to the three lateral leaves.



Bem-curini. *Lat.*
 വെളുത്തു *Mal.*
 بوم كورني *Arab.*
 पाकरो *brah.*

Fig. 21

Stamens in these flowers are too white lying near erect leaf from behind the tract of lateral ribs and with light green apices which send them short filaments like appendages somewhat curved in mutually arched manner, and with these is seen the style of white filament of mid rib of the erect leaf lying down tightly, which comes out from an oblong green globule which is in the calyx.

The flowers having fallen down the calyx closes itself, constituting oblong seminal buds.

Its Powers

Root given in decoction serves (as a remedy) for fevers and bad afflictions of head and body. Leaves fried in oil and then ground are applied for healing ulcers.

Justicia betonica L., Sp. Pl. 15. 1753; Santapau, Bot. Mem. Univ. Bombay 2: 85. 1952; Manilal & Sivar., Fl. Calicut 218. 1982; Manilal, Fl. Silent Valley 205. 1988; Sasidh. & Sivar., Fl. Thrissur 341. 1996; Sivar. & Philip, Fl. Nilambur 506. 1997. -*Adhatoda betonica* (L.) Nees in Wall., Pl. As. Rar. 3: 103. 1832 [ACANTHACEAE].

Bem-curini Rheede, Hort. Malab. 2: 33-34, t. 21. 1679.

The name Ven kurinji (Malayalam script on t. 21) is still used; ven (from velutha) means white, a reference to the white bracts, and kurinji is a general term for *Barleria*, *Justicia* and *Strobilanthes* sensu lato. The species is common and widely distributed in Malabar, usually found along forest margins and in waste places.





Caretti

FIG. 22.



CARETTI, in the language of the Brahmins *Tiringoesi*, is a shrub the lower part of the stalks (of which) creeping over the ground and rising to the height of a man.

The root is fibrous with blackish and slender bark, inside with white wood, of no smell.

Stems green armed with dense pointed spikes all over, inside with white "fungoso" core.

Leaves in foliaceous shoots which are round slender green which proceed from the side of a common branch in twos, and swell towards the origin, arise in twos and in two dense series on very short petioles accompanied at the base by two spines which are red or turning red and curved towards the base, and are of short oblong round shape anteriorly and round cuspidate towards the petiole, somewhat closed or curved towards the inside, solid in texture with mediocre thickness, with the surface flat, glabrous and smooth, on the upper side of darker greenness, on the lower of common greenness, of bitter slightly biting taste with no smell except woody.

From the mid rib which is pronounced only on the lower side and stands out anteriorly with the apex, very thin veins run out and are accompanied by veins criss-crossing in a lattice fashion on the lower side in which they are greatly conspicuous.

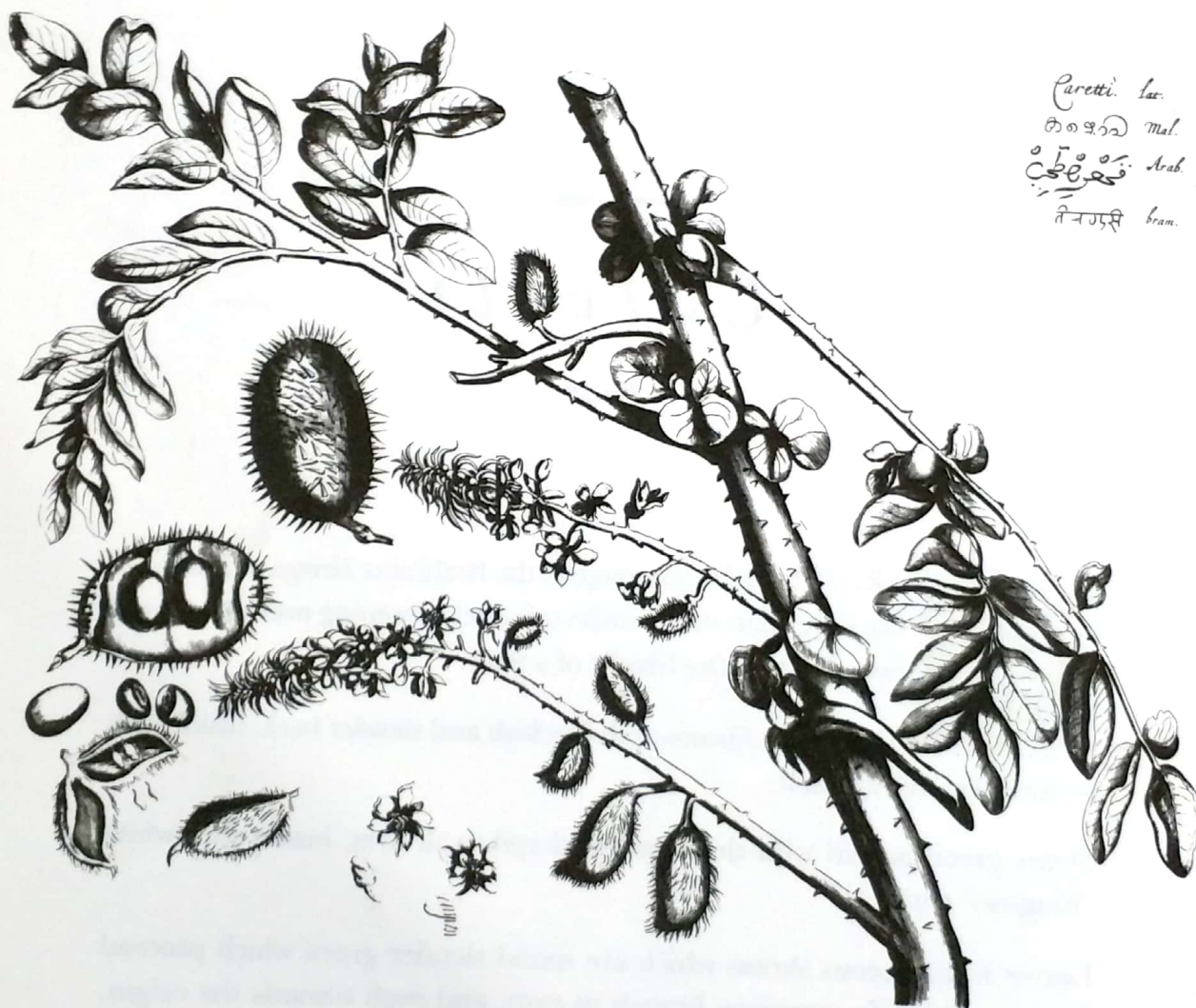


Fig. 22

Flowers arise in spikes at the tip of their own petioles which arise either singly or in twos and threes above the origin of the flowery shoots and almost two spans long, curved pointed, beset with loose hairs towards the base, grooved like green and at the tip of the spikes are clothed with numerous narrow cuspidate leaves: the flowers however are yellow of five oblong-round

and narrow leaves and somewhat mutually standing apart, which are grooved in length by veins obliquely towards the anterior part, one leaf which is small and broad and somewhat curved towards the inside or of a spoon shaped cavity is variegated with red transverse lines.

In the middle ten stamens standing erect white and like green and are hairy, bearing each one at its tip a yellow dark apex.

The calyx is of five oblong round leaves which are somewhat incised with small teeth, which are curved towards the interior with green, light yellow-dark colours.

Flower buds are oblong-round, somewhat drawn out towards the tip, and are green-light yellow-dark.

Fruits which come out from the calyx when the flowers fall away are large, green, oblong round achenes, very flat (smooth) on the outside, on both sides beset with numerous spines or prickles which are long, pointed, rigid and erect, first green, then ash grey -black, and hard with spines or prickles more hard, inside towards the rind covered with thick, green flesh, which is watered with many drops exuding from here and there, and with a broad cavity in the middle.

Beans are contained in achenes two, three or four and also solitary, attached to the back of the achenes by means of slender and white umbilical cords, and are oblong-round, first green especially towards the umbilical cord when mature and dry, with hard, white ash-grey rind, and grooved with black, wavy veins, inside very white.

Its Powers

Root and bark crushed and given in decoction are conducive for tumor from hernia, for which also serve leaves crushed drunk in butter milk or also if crushed along with coconut and moved over fire are placed on parts affected with hernia (partibus herniosis). The beans crushed and mixed with the milk of coconut are also good for hernia (herniosis) when applied to the interior of the stomach; the same, reduced to powder and drunk in wine are profitable in hernia, and more over removes gas, relieves colic pain, and strengthens weak stomach, lest roasted into powder and given in wine, helps to provoke

menses in women. The marrow of the fruits is also good in stones when reduced to powder and given in wine, in endemic fevers, employed in the same way.

Caesalpinia bonduc (L.) Roxb., Fl. Ind. 2: 362. 1832; Dandy & Exell, J. Bot. 76: 179. 1938; Hattink, Reinwardtia 9: 17. 1974; Sasidh. & Sivar., Fl. Thrissur 161. 1996; Sivar. & Philip, Fl. Nilambur 229. 1997. - *Guilandina bonduc* L., Sp. Pl. 381. 1753. *Guilandina bonducella* L., Sp. Pl. ed. 2, 545. 1762. *Caesalpinia bonducella* (L.) Fleming, Asiat. Res. 11: 159. 1810 [FABACEAE].

Caretti Rheede, Hort. Malab. 2: 35-36, t. 22. 1679.

The name Kazhetti (Malayalam script on t. 22), also called Kazhenchi, is still used. Seeds can be purchased under this name (also kazhenji) in Ayurvedic raw medicine shops. It seems to be scarce in Malabar but has been collected near Mayyazhi (Mahé).



Cupi

FIG. 23.



UPI, in the language of the Brahmins *Cita-Mataki*, is a shrub one man in height, growing in sandy soil.

Root white and darkening, fibrous, with a slightly bitter bark.

Stems and branches ash-grey, round, noded, with white wood, and inside with a yellow core, and shoots and branches coming out from here and there in twos a little above the nodes.

Leaves which arise in twos on short, thick, round, dark-green and grooved petioles which are $\frac{1}{2}$ an inch in length and inside flat, and they mutually oppose each other in order, are oblong-round and narrow, with round margin anteriorly slightly drawn together, and of dense texture, with surface flat, on the upper side dark-green and shining, on the lower clear green, of slightly biting and bitter taste, with pleasing smell.

From the intermediary rib, ribs pronounced only on the lower side come out orderly two by two in transverse a little oblique annular and parallel tract, furrowing the leaf on the upper side, interwoven with only slender veins and with no pronounced nerves.

Flowers which come out in umbels on petioles, which arise two by two in the upper part of the shoots here and there, are white, with old age turning yellow, with fragrant and pleasing smell, consisting of five or also six, oblong-round and round-cuspidate and narrow and thick leaves, expanded in the form of a stone and curved towards the inside and with a thick, short base or



Fig. 23

neck, sitting inside on a hollow calyx of five narrow and cuspidate leaves, the leaves are however hardly grooved and in the middle interiorly beset in length with hairs, in the claws also internally hairy and inborn with a circular orifice of the neck.

From the middle of the circular orifice, emerges a white style which arises from the bottom of the calyx, is passed through the neck or base of the flowers, with an oblong, white, and light yellow head at the tip, and towards the claws of the leaves, between the angles they leave among themselves, small slender and light yellow stamens, five or six in number, according to the number of leaves, come out with rather long, thick whitish-to light yellow apices, which in older flowers are grooved with a yellowish-red line.

Calyx is of five or six cuspidate, green leaves.

Flower buds are cylindrical in shape.

Fruits come out in umbels in neck of the calyx, and are small and hard, round like the pears of our laurel trees, with colour first green then turning dark, except the calyx, but at the apex surrounded by a navel of five tips and mature ones are of slight sweet taste and are edible.

In these fruits are more or less seven or eight seeds, which are separated into two series in the middle by a septum which cuts the fruit in length, and some placed in the upper and some others in the lower part of the fruit, and are of triangular shape, circumscribed with two sides and one round side, first with green colour, then dark red and later black.

This shrub gives flowers twice a year, in the rainy season and summer season.

Its Powers

Leaves and fruits crushed together and mixed with woman's milk is used for smearing parts affected by pustules caused in the joints of feet and digits.

Tarenna asiatica (L.) Kuntze ex K. Schum., Bot. Tidsskr. 24: 332. 1902; Ridsdale in Manilal, Bot. Hist. Hort. Malab. 132. 1980. -*Rondeletia asiatica* L., Sp. Pl. 172. 1753. *Webera corymbosa* Willd., Sp. Pl. 1: 1224. 1798, nom. illeg. (incl. type of *Rondeletia asiatica* L. 1753). *Cupia corymbosa* DC., Prodr. 4: 394. 1830, nom. illeg. (incl. type of *Rondeletia asiatica* L. 1753). *Chomelia asiatica* (L.) Kuntze, Rev. Gen. Pl. 1: 278. 1891 [RUBIACEAE].

Cupi Rheede, Hort. Malab. 2: 37-38, t. 23. 1679.

The name Kuppi (Malayalam script on t. 23) is not used for this now; kuppi in Malayalam now means a glass vial or glass bottle and the word is sometimes used for plants of *Peperomia* that have translucent leaves and stems. No Malayalam name is known for this plant now. It is common in forested areas throughout Malabar.

Cattu-Schiragam

FIG. 24.



ATTU-SCHIRAGAM, in the language of Brahmins *Calageri*, is a shrub rising up to the height of one man and growing in sandy soil.

Root, short straight into the soil, is clothed with a band of white and glandular fibres, which are entwined among themselves with thick hairs, with light bitter taste.

Stem which arise from the root singly, is round, almost a finger thick, erect giving out its branches more from the upper part, with light green bark, with wood under the bark light red, in the middle with a core, hollow or pithy and white, and with wood which is very near the core, soft, humid, light green.

Leaves which surround the stem and its shoots, immediately beneath accompanied by small leaves which arise from their origin, are oblong-narrow in shape, with narrow (contracted) sides in the lower part, in the upper part (anteriorly) delimiting into a sharp point, in the margin incised with acuminate teeth, except the one which is anterior towards the tip and in the lower part where they are with very narrow sides, however fine in texture,

weak, beset with loose slender hairs, and on both sides light rough to touch, on the upper side with dark greenness, on the lower with clear greenness, and with distinctly bitter taste.



Fig. 24

From the mid-rib, which stands out somewhat also on the upper side, and is flat in it ribs come out obliquely and in an arched tract, somewhat pronounced also on the upper side, and with their branch-lets running into themselves near the margin and into the apices of the teeth, and are accompanied with small nerves which cover lower surface of the leaf in a lattice fashion.

Flowers are small, arising many together with light green peduncles from the upper part of foliaceous heads, and are light purple-red, cut into five

cuspidate leaves which are tightly closed around the light green-yellow middle, from which stands out a slender filament like a sheath, (which) is white, bifurcated at the top, and the flowers are of no smell.

Seeds, which are numerous, contained in foliaceous heads, (are) oblong round narrow, grooved in length, at the bottom drawn into a tip, and inserted into the base of the head with the tip, and each one surrounded at the top in circle by a tuft of long, white, light yellow hairs, from the middle of which a tiny flower with its light green peduncle emerges; seeds, however are first white, then light red and when dry, of red colour.

This shrub bears flowers once a year, during the rainy season.

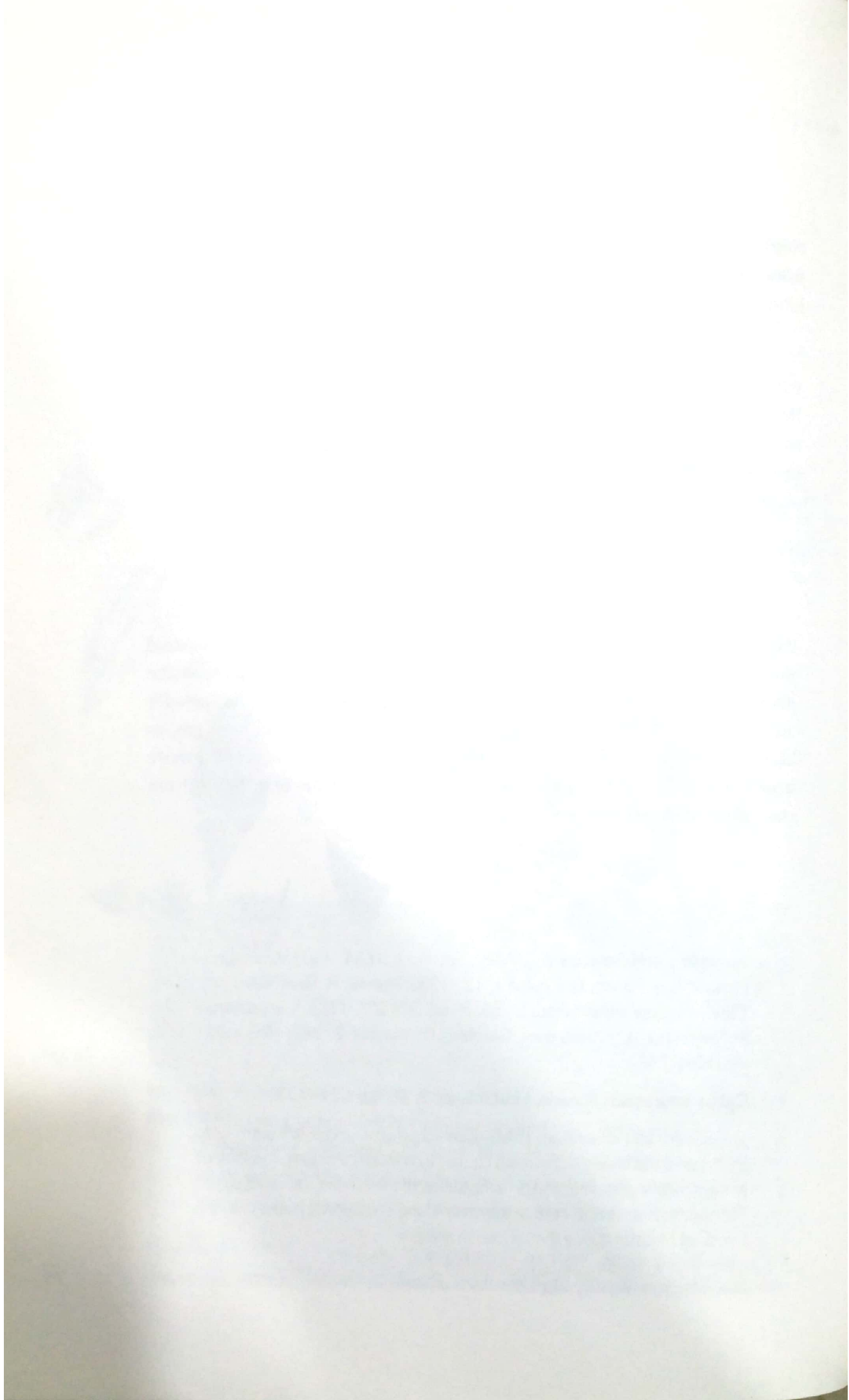
Its Powers

(Is good) for blisters of the body if crushed and cooked with oil and smeared with its decoction; in fever caused by cholera, steeping the head with the juice which is pressed from it after crushing, is good. Seeds reduced to powder and drunk with hot water, are given for cough, and serve to remove gas, so also for killing worms in infants, and drive away stomach ache, and more urine, and are good for parts affected by gout for pains originating from cold, when smeared with it with hot water.

Vernonia anthelmintica (L.) Willd., Sp. Pl. 3: 1634. 1803; Grierson in Dassan., Rev. Handb. Fl. Ceylon 1: 121. 1980; Manilal, Fl. Silent Valley 160. 1988. - *Conyza anthelmintica* L., Sp. Pl. ed. 2, 1207. 1763. *Centratherum anthelmintica* (L.) Kuntze ex Gamble, Fl. Madras 2: 667(469). 1921 [ASTERACEAE].

Cattu-schiragam Rheede, Hort. Malab. 2: 39-40, t. 24. 1679.

The name Kattu cheerakam (Malayalam script on t. 24) is still used; kattu means wild and cheerakam means cumin (*Cuminum cyminum*), a reference to the similar shape, size, and ornamentation of the achene, i.e., *wild cumin*. The species is an annual herb, commonly found in disturbed places or in the forests of Malabar during the monsoon season.





Peragu

FIG. 25.



ERAGU, in the language of the Brahmins, *Saikilo*, is a shrub, three men in height, growing in sandy soil.

Root is fibrous, with yellow or red colour, of no smell and taste.

Stems and shoots round, quadrangular at the tip, in each side grooved with one furrow, older ones ash-grey, green underneath the ash-grey bark, more tender ones from green-date coloured and soft.

Leaves arise two by two on round, light green, internally grooved, finely hairy or fluffy petioles on shoots, the upper ones of which are obliquely decussate to the immediately lower ones in order; they are however like human heart in shape, and are anteriorly cuspidate, thick, with the surface covered with hairy down and smooth like velvet, with common, more dilute greenness on the lower side, with slight bitter taste.

From the rib near the petiole, two ribs come out on both sides and above from here and there many others standing out conspicuously on the lower and upper sides, giving out many lateral nerves which projecting on the lower side make it unequal and have the marks of their tracts on the upper side.

Flowers arise two by two on rigid, obliquely erect petioles in the upper part of shoot here and there from the base of small leaves, mutually opposing in turn, which indeed agree with the larger ones in shape, but remain much smaller and are smaller as they are nearer to the apex of the shoot.

Peragu. Lat.
പെറാഗു mal.
پراگو Arab.
പാറകു bram.



Fig. 25

The flowers are white consisting of five, oblong-narrow leaves, placed more to one side, which are marked with one vein in the middle, (and) with some others conspicuous (veins), and sit on a white, light yellow pedicel with large, loose calyx of five cuspidate leaves which are anteriorly marked in the middle with small nerves.

From the middle of the flowers four slender, white, long stamens with back, hanging, semicircular apices, lying near to that part to which less leaves are placed and somewhat bent towards the leaves and with them is a slender, white style, green and bifid at the tip arising from the primordial of the fruit, which comes out from the orifice of the calyx. Flowers are of heavy, unpleasant, bad smell.

The calyx (is) of five, oblong cuspidate leaves, is green outside and white inside.

Flower buds are red, first light yellow, then white.

The flowers having fallen down follow berries each one first wholly enclosed in the loose calyx, emerging from the calyx expanded in the form of a star and curved towards the exterior, and are first green then turning bluish from dark green, then when quite mature black and shining, with a thin rind inside a little succulent and when eaten somewhat burning.

Seeds which fill the fruits wholly and in each two, three or only one in number consisting of one side round and the other flat or two sides flat, in the round side marked (grooved) with nerve-lets pronounced fashion, and when dry with colour black from red.

Its Powers

Root is good for lenteria (a form of diarrhoea, with liquid evacuation of undigested food) and gripe of intestines and for colic pain, (when) given in butter milk or also in wine. The same reduced into powder helps in the drying of pustules. The juice of flowers drunk, kills *lumbricos* (worms) in the stomach.

Clerodendrum infortunatum L. Sp. Pl. 637. 1753 (as "infortunata"), non L. 1771; Wight, Ic. Pl. Ind. Or. 4 (3): 12. t. 441. 1849; C.B. Clarke in J. Hook. Fl. Brit. India 4: 594. 1885, p.p. quoad ref. Rheede & Burm.; Gamble Fl. Madras 1100. 1924-p.p.; Rajendran & Daniel, Ind. Verbenaceae 118. 2002. *C. viscosum* auct. non. Vent., 1804; Manilal & Sivar., Fl. Calicut 232. 1982; Mold. in Dassan., Rev. Handb. Fl. Ceylon 4: 473. 1983; Manilal, Fl. Silent Valley 214. 1988; Sasidh. & Sivar., Fl. Thrissur 351. 1996; Sivar. & Philip, Fl. Nilambur 531. 1997 [VERBENACEAE].

Peragu Rheede, Hort. Malab. 2: 41-42, t. 25. 1679.

The name Peraku (Malayalam script on t. 25) is still used, also called Watta (rounded). It is widely distributed in Malabar, particularly in disturbed places, waste lands and along forest margins. It grows as a small tree in forested areas and is more shrubby elsewhere. Although the leaves are usually entire, young plants typically have serrate leaves.



Nalugu

FIG. 26.



ALUGU, in the language of the Brahmins *Dino*, is a shrub rising to the height of two men and growing in sandy soil.

Root fibrous, with red and dark bark which is white inside, with a light red core in the middle.

Branches and shoots knotty, upper ones angular, green, with little wood especially towards the bark, and splitting into filaments with a soft core inside.

Leaves arise two by two on short, round, thick and internally grooved petioles, in shoots which are swollen at the base, and to these are attached here and there five, also three and seven, of which one is always at the tip, and these foliaceous shoots are sprinkled with small spots, so also petioles of leaves and in its origin at the nodes of branches with green and reddish tubercle, turgid and interiorly extenuated to an angle, from the beginning of the leaves grooved with an equal furrow; leaves are however oblong-round in shape; anteriorly a little narrow and jutting with a short, narrow tip, at the margin incised with round teeth and crisp with the sides contracted towards the interior part, thick in texture, hard; on the upper side of dark and shining greenness, on the lower, of clean greenness, of biting and woody taste.

From the rib which stands out on the lower part and somewhat on the upper side, (other) ribs, greatly pronounced on the lower surface, but less on the upper surface, come out almost two by two in an oblique parallel and annular tract, very near to the margin and turning back run into themselves mutually,



Fig. 26

and interwoven with thick lateral veinlets which are conspicuous on both surfaces, those leaves that are near to the origin of shoots are less long than others, and the leaf that is at the tip of the shoots is the biggest of all, and of round edge anteriorly.

Flowers arise in umbels on even petioles which are grooved in the middle and are sprinkled with spots, and emerge from the nodes of stalks, the flowers

however are small and of five acuminate leaves which are twisted towards the inside, of white and light green colour, from the middle of the flower stands out a white head (knob) which is conspicuous with ten short teeth holding in itself a short style which comes out from a light green globule.

Calyx of flowers is small, consisting of five cuspidate light green leaves, with which it holds the flower tightly.

Fruits which are in umbels are even-round in shape, first green, then when mature blue-black, with the flesh inside succulent, the juice of which is blue and some what sticky; when eaten burn and sting the mouth.

Seeds which are contained eight, nine, inside, are placed circularly in one simple order, and separated from each other by means of the flesh of the fruit, and are of three sides, of which two are flat and one round, of red colour.

This shrub bears flowers twice a year, during the rainy and summer seasons.

Its Powers

Root given in decoction checks stomach-ache. So also colic pain and gripe of intestines. Decoction from wood drunk, quenches thirst in the sick. Leaves crushed and roasted on fire, removes giddiness and debility of head when applied: vapour of boiled flowers when received is good for arthritic pain. Juice pressed out from tender leaves and drunk, helps the digestion of stomach. From the tender leaves crushed with rice and roasted, a food in the form of small cakes is prepared which is given to infants in simple motion.

Leea asiatica (L.) Ridsdale in Manilal, Bot. Hist. Hort. Malab. 189. 1980; Manilal, Fl. Silent Valley 61. 1988; Sasidh. & Sivar., Fl. Thrissur 114. 1996; Sivar. & Philip, Fl. Nilambur 156. 1997. - *Phytolacca asiatica* L., Sp. Pl. 441. 1753. *Leea crispa* Royen ex L., Syst. Nat. ed. 12,2: 627. 1767; L., Mant. 1: 124. 1767; Ridsdale, Blumea 22: 88. 1974. *Gastonia nalagu* Lam., Encycl. 2: 611. 1788, nom. illeg. (incl. type of *Phytolacca asiatica* L. 1753). *Gilibertia nalagu* DC., Prodr. 4: 256. 1830, nom. illeg. (incl. type of *Phytolacca asiatica* L. 1753) [LEEACEAE].

Nalagu Rheede, Hort. Malab. 2: 43-44, t. 26. 1679.

The name Nazhuku (Malayalam script on t. 26) is no longer used for *Leea asiatica* (until recently called *Leea crispa*), but is used for *Leea indica* now. *L. asiatica* is confined to secondary forests and can no longer be found in the Cochin area, whereas *L. indica* is common. No Malayalam name is known for *L. asiatica*. However, it is possible that during the days of Rheede, it was *L. asiatica* that was known as Nazhuku in the local language.



Niruri

FIG. 27.



IRURI, in the language of the Brahmins, *Pane-poi*, is a shrub, seven or eight feet in height, growing in sandy soil.

Root, divided into arms (branches), and clothed with hairy fibres with hard wood and tight bark, which underneath the crust (scale) is red.

Stems and branches (are) with red bark, which is of light sweet and biting taste, from the branches arise here and there shoots or foliaceous petioles, very slender and green and finely hairy, from which leaves hang on very short petioles here and there alternately from the lower side; the leaves are however small, oblong-round, slender, flat, glabrous, on the upper part with dark green colour, on the lower, with clear green colour, of no taste, except that chewed longer slightly pungent.

From the mid-rib, slender ribs come out and from there, fine vein-lets accompanied by vein-lets interwoven inside the leaf in lattice fashion, and the leaves, the more they recede from the origin of the common petiole, the more they are large.

Flowers arise in foliaceous shoots above, from the origin of leaves on short and very slender petioles, and are small consisting of five round leaves, red on the lower side, white in the anterior margin.



Fig. 27

In the middle is the green style, the rudiment of fruit with two thick small styles opposite to each other and surrounded by five, yellow knobs at the orifice of the flowers.

Flower buds red and white above.

Fruits, even-round in shape, first green, then bluish-black, with light sweet and slightly biting taste, when mature filled with an aqueous blue juice inside.

In these are contained small seeds which are narrow, which are angular and indeed triangular circumscribed with two sides flat and one round, first green, when mature are black, with succulent, blue flesh inside.

Its Powers

Root is good for swelling of stomach or also for the inflammation of some part, when crushed and applied in the manner of placenta; leaves serve to mature (ripen) boils when crushed and applied to them with butter-milk, to which also is good lotion of leaves and bark crushed together with hot water.

Breynia vitis-idaea (N. Burm.) Fischer, Bull. Misc. Inform. Kew 1932: 65. 1932; Airy Shaw, Kew Bull. 26: 227. 1971; l.c. 36: 272. 1981; Manilal & Sivar., Fl. Calicut 271. 1982; Sasidh. & Sivar., Fl. Thrissur 396. 1996; Sivar. & Philip, Fl. Nilambur 609. 1997. -*Rhamnus vitis-idaea* N. Burm., Fl. Ind. 61. 1768. *Phyllanthus rhamnoides* Retz., Obs. 5: 30. 1791, nom. illeg. (incl. type of *Rhamnus vitis-idaea* N. Burm. 1768); Willd., Sp. Pl. 4: 580. 1805. *Phyllanthus scandens* Roxb. ex Dillwyn, Rev. Hort. Malab. 7. 1839. *Breynia rhamnoides* Müll.-Arg. in DC., Prodr. 15(2): 440. 1866, nom. illeg. (incl. type of *Rhamnus vitis-idaea* N. Burm. 1768) [EUPHORBIACEAE].

Niruri Rheede, Hort. Malab. 2: 45-46, t. 27. 1679.

The name Niruri is not used for this species now. Nir (or Neer) is water (also swelling by the accumulation of watery fluids) and oori [or uri] is "that which removes", denoting the medicinal power of this plant to remove the excessive accumulation of fluids causing swelling of stomach or inflammation of some other parts of the body. However, for reasons unknown [perhaps due to ignorance], the name Niruri is not used for *B. vitis-idaea* now, but used for several herbaceous species of *Phyllanthus*, i.e., *P. urinaria*, *P. simplex* and *P. rheedei*. No Malayalam name is known to be used now for this shrubby species, occurring throughout Malabar.

H u m m a t u

FIG. 28.



HERE are three species of *Hummattu*, one of the same name, another *Nila-Himmatu*, and third *Mudela-Nila-Himmatu*.

Himmatu, in the language of Brahmins *Dotiro*, is a shrub of five or six feet in height, growing in sandy soil.

Root fibrous and with white, hairy bark; of no taste, with a green, aqueous core inside, more woody near the bark.

Stems green and somewhat reddish, inside also a little woody and with a green and aqueous core.

Leaves which arise from nodes on shoots on long, round, thick, light green petioles, (which) turn slightly red on the interior part, are large, anteriorly standing out with a rather long tip, on the margin curved into point or angles, with greater breadth towards the petiole, thence slowly narrow, with one side extended from the lower part of the petiole, smooth to touch and easy to break.

From the rib which is rather thick and is pronounced somewhat on the upper surface, however greatly on the lower surface, ribs come out here and there

some what pronounced also on the upper side and running into the tips, and among there ribs, vein-lets slightly pronounced on the lower side are distributed transversely, which groove the upper part with their tract and the leaves are on the upper side with dark and faint greenness, on the lower side with more clear and slightly shining greenness, in the ribs with more clear greenness, with unpleasant and bad smell.



Fig. 28

Flowers which arise from above the origin of leaves on $\frac{1}{12}$ inch long, thick and light green petioles are large, bell-shaped, of one leaf, totally white, with oblong neck, with lips round and folded into five angles, and have a

narrow tip standing out from each angle and in the middle lip situated in between two angles, they bend by one fold, with weak not displeasing smell, which is a rival of the smell of lily, and are with rather thick leaf and of dense texture towards the calyx, circumscribed with five sides in the neck, in each of which on the outside are longitudinally grooved with three ribs.

Inside, from the neck of the bell come out five white and straight stamens which bear flat, broad and erect apices, the stamens however are round and free on the upper part towards the apices, on the lower part angular and grooved, and closely fixed to the angles of the sides of the neck, with the stamens come out a white, round and free style from the tip of the white head, which is the beginning of the fruit, and bursting forth situated in the orifice of the calyx.

The oblong, green calyx loosely surrounds the neck of the flowers, above notched into five cuspidate leaves and five ribs, which run into the tips of the leaves grooved longitudinally

Fruits are round and wholly beset with long and rigid spines, with green colour even when mature, with white pulp inside, and are surrounded by a round and loose calyx curved towards the outside.

Seeds are closely compressed (crammed together) in the fruits in four oblong capsules, which arranged in their series, are mutually separated by means of septa running from the middle style to the rind and enclosed with fine pulp; the seeds are however flat and rough on one side where they are somewhat thicker, are round, the other side with more straight margin with yellow or light red colour, with hard rind, white pulp which is with slight sweet taste.

This plant bears flowers all the year, especially during the rainy season.

Its Powers

Crushed and mixed with the oil of *Sirgelim* is placed upon organs swollen with fluids. Juice of the leaves pressed out and mixed with sugar called *Jagra de cana* in Portuguese (cane sugar) is good for "sacred disease" when the affected part is smeared with it: seeds taken up to three in number is conducive in cold fever, the same crushed and mixed with water in which rice was macerated is usefully placed on inflamed members.

Datura stramonium L., Sp. Pl. 179. 1753; Safford, J. Washington Acad. Sci. 11: 175.1931 [SOLANACEAE].

Hummatu Rheede, Hort. Malab. 2: 47-48, t. 28. 1679.

The name Ummathu (Malayalam script on t. 28) is used as a general term for *Datura*, including the green-stemmed aspect of *Datura metel*.



Nila-Hummatu

FIG. 29.



ILA-HUMMATU, which is the second species of *Hummatu*, in the language of the Brahmins *Calo-Dotiro*, is a shrub of one man in height, growing in sandy soil.

Root is also fibrous, white and hairy.

Stems, with bark on the outside purple-blue or purple red and black.

Leaves which are smaller than the leaves of the first species are attached to internally purple red petioles, and are oblong-round, and anteriorly cuspidate, with one side on the lower part of the petiole protracted, with equal margin, with maximum breadth (width) almost towards the middle, smooth to touch and easily torn, on the lower surface grooved with ribs which come out from the mid-rib in oblique and annular tract and also send out transverse (lateral) vein-lets, also with unpleasant smell, in very tender leaves the lower part, totally turning black from red, green inside.

Flowers of the same shape, but with colour on the whole from bluish-purple-red-dark, which is more dark in the calyx, while they are in buds, the interior part of the bell is white and the exterior also is totally purple-red.

Fruits (are) oblong-round, some glabrous, some here and there bent with rigid, very shining and purple red eyes (buds), first with green colour, which darken into purple-red.

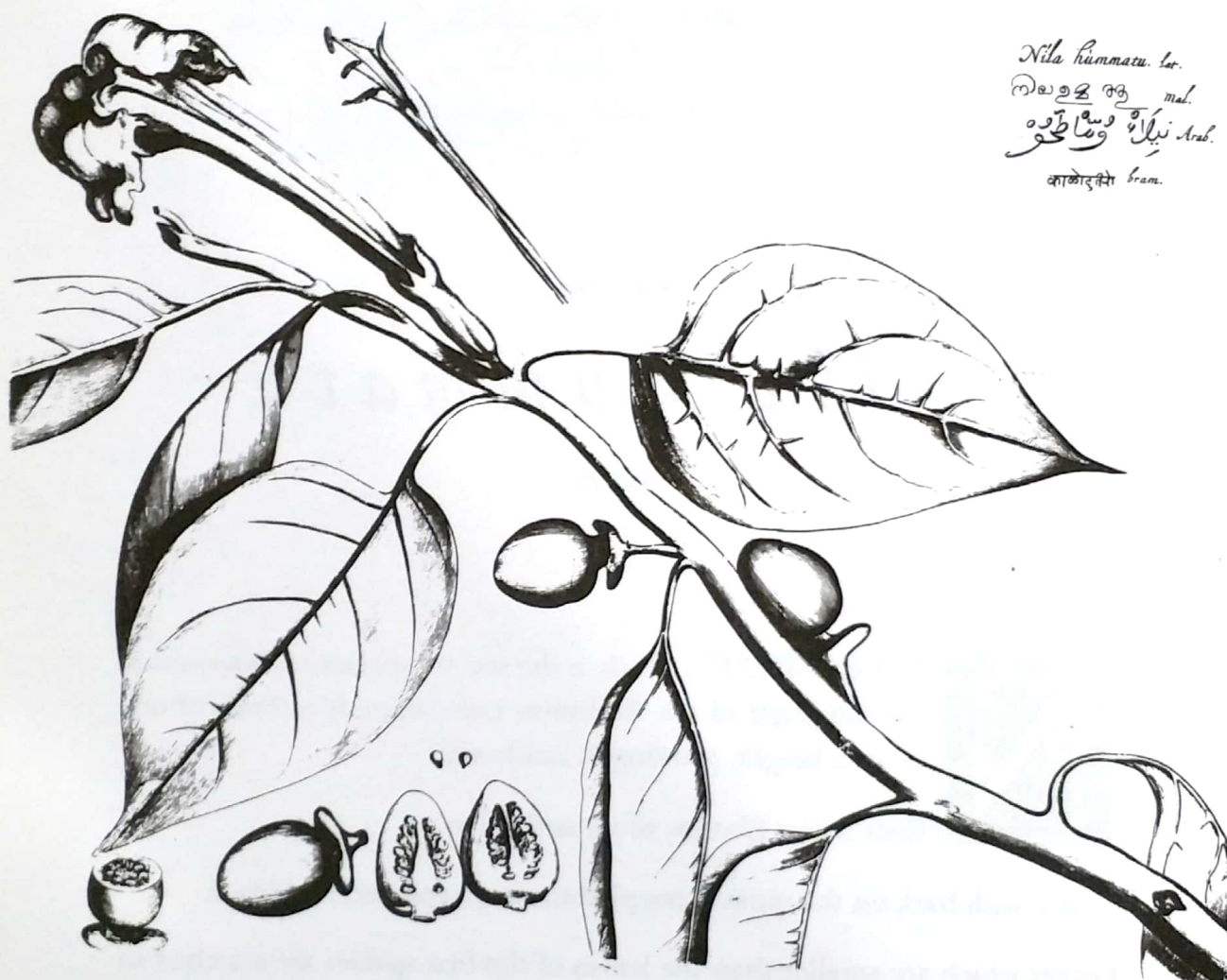


Fig. 29

Calyx is also round, but smaller and standing less near to the fruit.

Seeds of the same shape and colour.

Bears flower all the year and especially during the rainy season.

It's Powers

Decoction is good for pains of the body or for their hardening (when used) in washing the body; so also for cold fever, if the body is smeared with its decoction in oil; to which also serves root employed in the same way. Leaves

crushed with lime and smeared are good for itches of the body. Decoction of leaves and fruits with oil relieves pains of the body when employed in the same way. Fruits, crushed and made safe removing seeds, very well heals apostemata (boils) and caruncles when placed over them. Seeds taken in large quantities induce sleep, and their use is dangerous bringing death; this plant is more excellent than the first in its powers (in quality).

Datura metel L., Sp. Pl. 179. 1753; Safford, J. Wash. Acad. Sci. 11: 178-179. 1921; Safford, Ann. Rep. Smiths. Inst. 1920: 541-548. 1922; Santapau, J. Bombay Nat. Hist. Soc. 47: 657. 1948; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 404. 1988 ("1987"); Manilal & Sivar., Fl. Calicut 188. 1982; Sivar. & Philip, Fl. Nilambur 461. 1997. - *Datura fastuosa* L., Syst. Nat. ed. 10, 2: 932. 1759; Sp. Pl. ed. 2, 1: 256. 1763. *Datura muricata* Bernh., [Cat. Sem. Hort. Erfurt 1818, presumed nom. nud.] N. Allg. Garten-Mag. ser. 2, 4: 159. 1827, non Link 1821. *Datura hummatu* Bernh., Tromms N. J. Pharm. 26: 153. 1833 (cf. Linnaea 8(Litt.-ber.): 14. 1833), nom. illeg. (incl. type of *D. fastuosa* L. 1759). *Datura alba* Rumph. ex Nees, Trans. Linn. Soc. London 17(1): 73. 1834. *Datura nilahummatu* Dunal in DC., Prodr. 13(1): 542. 1852 [SOLANACEAE].

Nila-hummatu Rheede, Hort. Malab. 2: 49-50, t. 29. 1679.

The name Neela ummathu (Malayalam script on t. 29, except beginning with "nila") is still used; neela means blue and ummathu means *Datura*, a reference to its bluish purple flowers. It is also called Kariummathu, i.e., black (kari) *Datura*. It is common in waste places but is often destroyed because of the danger of children eating the poisonous fruits.

The following key will help to identify three confused species of *Datura* known to occur in South India:

1. Plants softly hairy; calyx unevenly lobed; corolla 10-toothed; fruits nodding, long-spiny, 2-locular, irregularly dehiscent.....

Datura innoxia Mill.

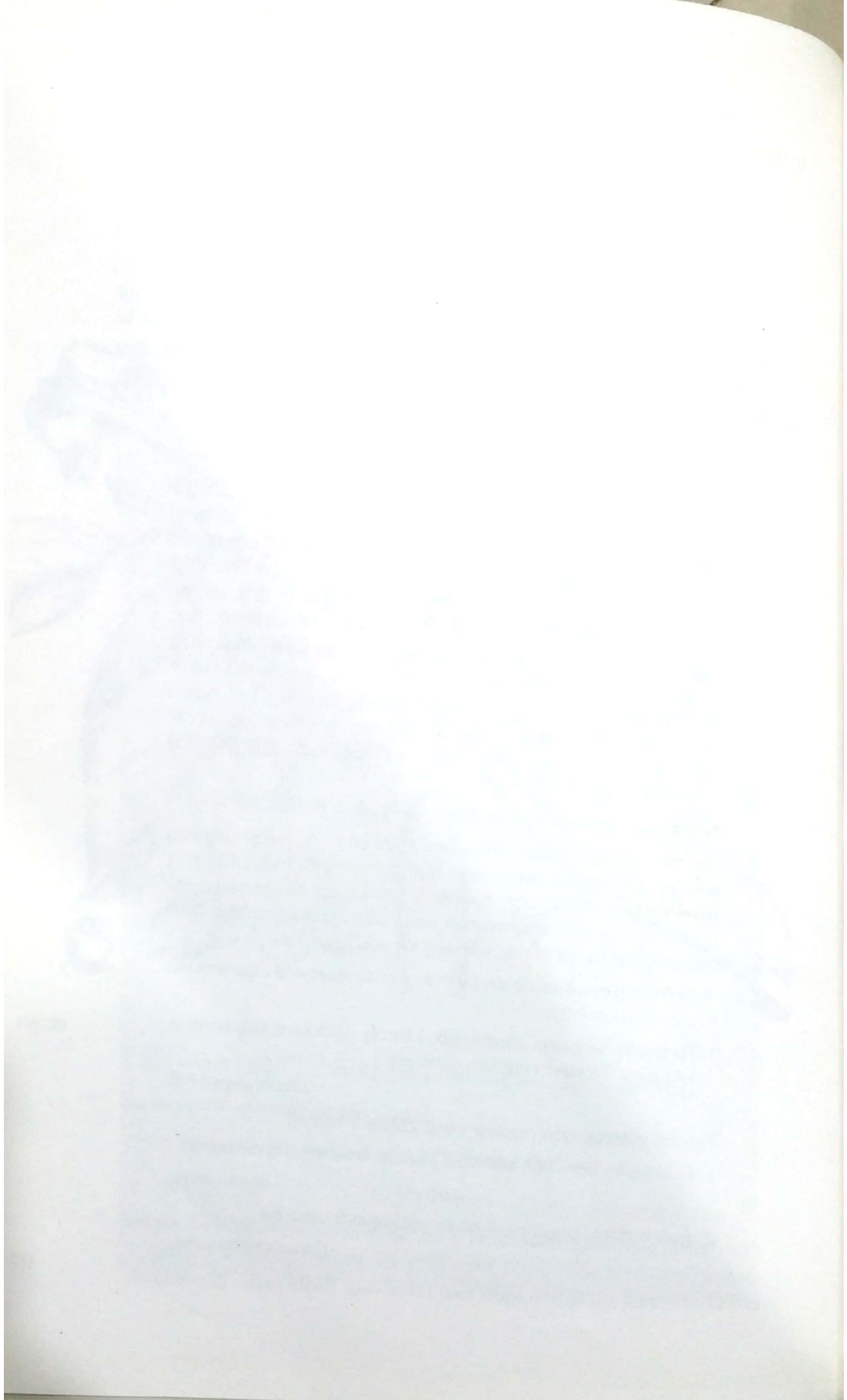
1. Plants glabrous; calyx regularly lobed; corolla 5-toothed2

2. Fruits slightly bent, with tubercles, 2-locular and irregularly dehiscent

Datura metel L.

2. Fruits nodding, long-spiny, 4-locular and regularly dehiscent

Datura stramonium L.





Mudela-Nila-Hummatu

FIG. 30.



UDELA-NILA-HUMMATU, which is the third species of *Hummatu*, in the language of the Brahmins *Vallo-Dotiro*, differs from *Nila-Hummatu* only in flowers, for the flowers of this are duplicated or triplicated bells (two fold or three fold bells) of which the interior springs forth from the exterior which is with a wider orifice, and the second from the first which is outside by almost two digits (fingers) transversely, the third from the second, (outside) by almost three digits, each bell however proceeds below from a loose, oblong, round calyx with less wide orifice than the simple bell shaped flowers of *Nila-Hummatu*, projecting with five oblong tips in the orifice and in the middle space between two tips wrinkled with one fold; of them two outer ones are marked (grooved) in length with three parallel, slightly pronounced nerves from the calyx to each tip, the interior however (grooved) with one pronounced nerve and two parallel veins (from the calyx) to each tip, in colour also they are outwardly like *Nila-Hummatu*, red, dark purple, inwardly however when tender thick white, and in the lower part which is inside the calyx from white-light yellow, when they are older inside also somewhat purplish, but not so fully as *Nila-Hummatu*.

connected and joined to the neck of the bell, and with there from the mouth of calyx comes out the style totally purple, thicker above emerging from the oblong, black purple head which is the rudiment of the fruit.

The calyx also in conspicuous with five tips and grooved in length towards each tip with one pronounced nerve, and is of red black-purple colour.

Not in use among these physicians.

Datura metel L., Sp. Pl. 179. 1753; Safford, J. Wash. Acad. Sci. 11: 178-179. 1921; Safford, Ann. Rep. Smiths. Inst. 1920: 541-548. 1922; Santapau, J. Bombay Nat. Hist. Soc. 47: 657. 1948; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 404. 1988 ("1987"); Manilal & Sivar., Fl. Calicut 188. 1982; Sivar. & Philip, Fl. Nilambur 461. 1997. -*Datura fastuosa* L., Syst. Nat. ed. 10, 2: 932. 1759; Sp. Pl. ed. 2, 1: 256. 1763. *Datura muricata* Bernh., [Cat. Sem. Hort. Erfurt 1818, presumed nom. nud.] N. Allg. Garten-Mag. ser. 2, 4: 159. 1827, non Link 1821. *Datura hummatu* Bernh., Tromms N. J. Pharm. 26: 153. 1833 (cf. Linnaea 8(Litt.-ber.): 14. 1833), nom. illeg. (incl. type of *D. fastuosa* L. 1759). *Datura alba* Rumph. ex Nees, Trans. Linn. Soc. London 17(1): 73. 1834. *Datura nilahummatu* Dunal in DC., Prodr. 13(1): 542. 1852 [SOLANACEAE].

Mudela-nila-hummatu Rheede, Hort. Malab. 2: 51-52, t. 30. 1679.

The name *Mudela nila ummathu* (Malayalam script on t. 30), which is a modified version of 'Moonnu nila ummathu', is not used now but is quite descriptive: moonnu means three, nila means story, and ummathu means *Datura*, i.e., three-tiered-flowered *Datura*, a reference to the 3-storied flowers illustrated and described. "Mudela" is Malayalam for crocodile and inappropriate for this. *Mudela* here is used as a short form of moonnu-nila. The triple-flowered aspect of *Datura* does not occur now in Malabar.



Ericu

FIG. 31.



ERICU is of two species, one of the same name, the other *Bel-Ericu*.

Ericu, in the language of the Brahmins *Roey* is a shrub, wholly milky, five or six feet in height, growing in sandy soil.

Root fibrous and light red, and consist of a milky bark, inside white.

Stems less woody, milky and green and sprinkled with white powder (flour).

Leaves come out two by two on short, thick light green peduncles, on one side round, on the inside flat, those that are above in order are decussate to the immediately lower ones, the shoots when they grow up more, are stripped of their leaves on the lower parts, others arising from the upper or more tender parts.

The leaves however are oblong-round, narrow towards the petiole, anteriorly with round edge or also cuspidate, round-flat, smooth, milky like in pedicels, thick, easily broken (torn) and when chewed burn the mouth, of common greenness, on the lower surface sprinkled with a white powder, with unpleasant smell.

From the intermediary rib on the lower side, thick and very much pronounced ribs proceed towards the anterior part in an oblique, almost parallel arched tract, and turning back from the margin are mutually curved into themselves, spreading (giving out) their lateral veins inside the leaf.

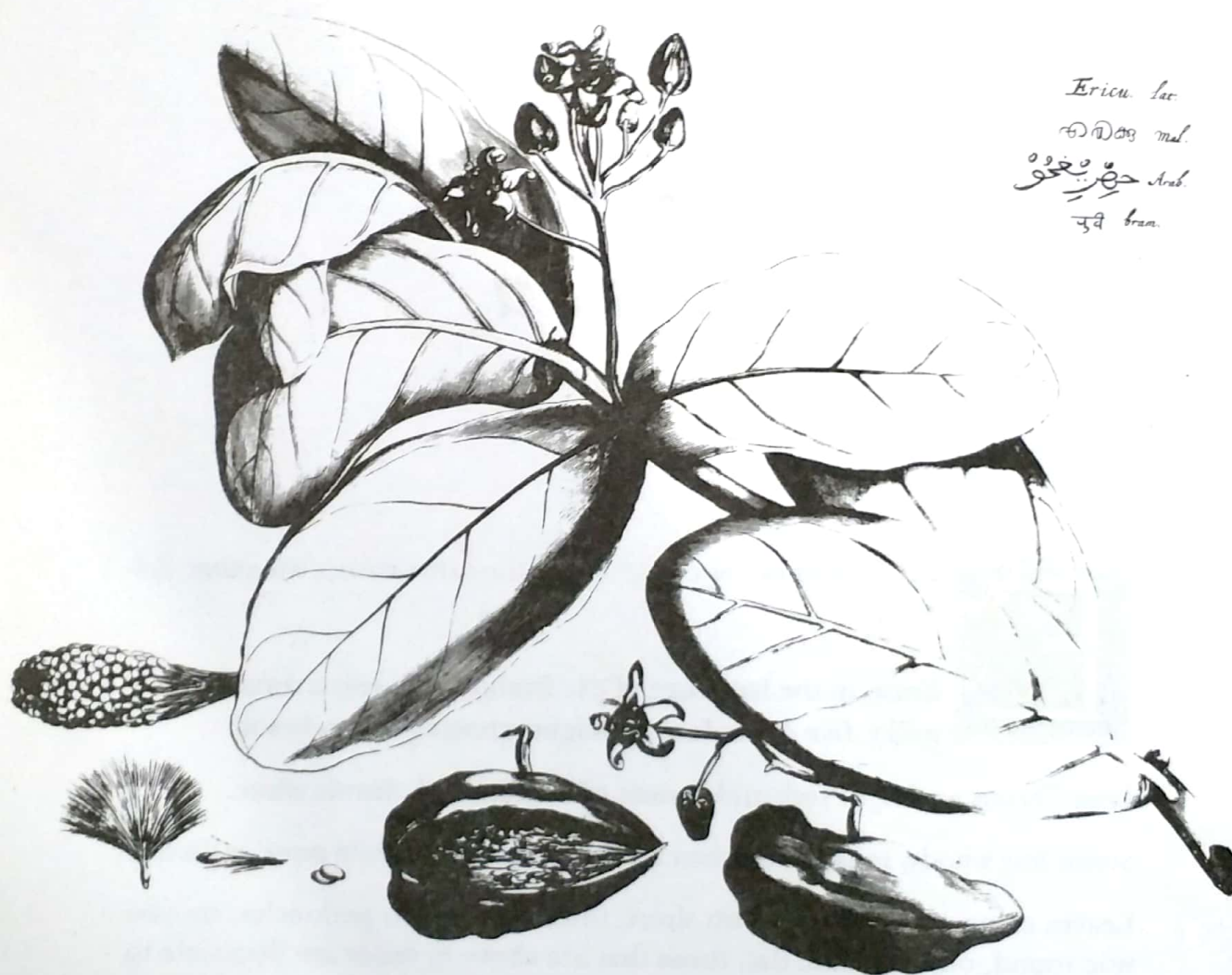


Fig. 31

Flowers which arise on long, thick, round, green, rigid and erect stalks in umbels or collectively at the tip of the shoots, are stars from white turning purple, formed of five cuspidate leaves of weak not unpleasant smell, rivaling the smell of lilies, and the leaves are thick and like doubled and rigid, very near to the tip grooved internally with a short furrow which externally is

swollen, and when older, curved towards the outside with its edges and the tip; the colour in these and the tips internally from white to purple-red, more white and less red towards the calyx, outside beneath the edges more pale and more white.

In the middle of the flower stands out a round, light purple style with five peduncles which surround and are connected to the middle style from the opposite of the angles of the leaves; the peduncles are however flat and from the middle style laterally running, above turned inwards with round edges and bulging out at the apex with two horns and below consisting of doubled (conduplicate) membranes turned inwards in a spiral shape, more thick towards the edges and purple-blue, in one side where they are spirally twisted inwards with maximum thickness and pale purple, very slender and white towards the middle style: at the top the style is crowned with a star-like and light green disc which is of five points, and with each point stands out right in the middle of the peduncles.

In the central style, towards its origin are placed two globules, green glabrous, and somewhat flat in the part by which they lie near each other mutually, which are rudiments of the fruit; from these globules come out white filaments, one from each, which are passed through the style like sheath to a star-like disc and are joined at the upper part.

Calyx to which are attached stars, is of five round, acuminate and thick leaves with white colour, and the flowers are milky chiefly in the style and in the petioles.

Buds of flowers are somewhat cuspidate and of five sides, which towards the interior are flat and towards the tip are contracted into five bulging out angles.

Fruits are attached to thick very rigid, and inwardly twisted petioles often joined in twos, and are oblong- round and cuspidate and on one side bulging out with a round back, in which are grooved in length by a suture from the petiole to the tip, on the opposite side more flat and of unequal surface full of hollows, and are with a green rind which inside is milky; inside is the oblong seminal capsule, which is loosely surrounded by an outer rind (and which) consists of a rigid, hard, thick green rind, which is outwardly interwoven with light green, filaments entangled among themselves and is loosely connected to the outer rind.

Seeds which lie underneath the interior rind, are very flat, round, placed among themselves like scales or in the manner of small shields and somewhat twisted inwardly towards the interior, first light green and with a white or light green fringe in the edges, then becoming more yellow, and have, on the part by which they look to the tip of the fruit, an eye in the margin, to which is attached a tuft of fine, silvery filaments, which when the fruit is immature are enclosed in oblong, open, membranaceous capsules, which are placed in the length of the fruit and mutually parallel to each other and placed around a middle light green and pithy core, from which later they come out when the fruit becomes larger.

This shrub brings forth flowers thrice a year.

Its Powers

It's decoction with oil smearing on the affected part helps in gout. Root given in decoction is good in cold fever, the same also helps in the swellings which women have after delivery, the same employed with water helps in washing the part bitten by snake called *Cobra capella*, is good for tooth-ache when simply chewed. Juice of the leaves extracted and boiled with oil, is conducive to parts affected by arthritic pains, to which also serves if leaves smeared with oil and heated on fire are placed.

Calotropis gigantea (L.) W. T. Aiton, Hort. Kew. ed. 2, 2: 78. 1811; Huber in Abeyw., Rev. Handb. Fl. Ceylon 1(1): 35. 1973; Manilal & Sivar., Fl. Calicut 170. 1982; Huber in Dassan., Rev. Handb. Fl. Ceylon 4: 78. 1983; Manilal, Fl. Silent Valley 176. 1988; Sasidh. & Sivar., Fl. Thrissur 285. 1996; Sivar. & Philip, Fl. Nilambur 423. 1997. -*Asclepias gigantea* L., Sp. Pl. 214. 1753 [ASCLEPIADACEAE].

Ericu Rheede, Hort. Malab. 2: 53-55, t. 31. 1679.

The name Erikku (Malayalam script on t. 32) is still used for this species, a common weed in Malabar.

"Bel-ericu" was made a separate Chapter (p. 56) by Rheede (but not illustrated) for a white-flowered form of "Ericu". Vellerikku is still used for this aspect; vella meaning white (see below). Introduced centuries back, both the white and purplish-flowered forms now grow wild in Malabar.



Bel-Ericu



EL-ERICU, which is the other species of *Ericu*, in the language of the Brahmins *Davi-Roey*, does not differ from the first except in that flowers are wholly white and candid and in the tip of the style, crowned with a green, star like disc.

Bel-Ericu is *White Ericu*, so also in the language of the Brahmins, *Davi-Roey*.

Bel-Ericu, so also called by Malabaris because (it) has white flowers, for *Bel* for them is *White*.

Its Powers

Crushed and boiled with oil of *Vepu*, is useful in gout in the smearing of affected part. Root and leaves crushed and given in milk, are good for the poisonous sting of door-mouse. Has the same powers as with *Ericu*.

Calotropis gigantea (L.) W. T. Aiton, Hort. Kew. ed. 2, 2: 78. 1811; Huber in Abeyw., Rev. Handb. Fl. Ceylon 1(1): 35. 1973; Manilal & Sivar., Fl. Calicut 170. 1982; Huber in Dassan., Rev. Handb. Fl. Ceylon 4: 78. 1983; Manilal, Fl. Silent Valley 176. 1988; Sasidh. & Sivar., Fl. Thrissur 285. 1996; Sivar. & Philip, Fl. Nilambur 423. 1997. -*Asclepias gigantea* L., Sp. Pl. 214. 1753 [ASCLEPIADACEAE].

Bel-ericu Rheede, Hort. Malab. 2: 56, t. 31. 1679.

Erikku (Malayalam script on t. 32) is still used for this species, a common weed in Kerala.

"Bel-ericu" was made a separate chapter (p. 56) by Rheede (but not illustrated) for the white-flowered form of "Ericu". Vellerikku is still used for this aspect; vella meaning white. Introduced centuries back, both the white and purplish-flowered forms now grow wild in Malabar. White Ericu is more popular and effective as a medicinal plant.

—♦—

Avanacoe
or
Citavanacu

FIG. 32



HERE are four species of *Avanacoe*, *Avanacu* or *Citavanaco*, *Pandi-Avanacu*, *Cadel-Avanocu*, *Cody-Avanacu*.

Avanacu or *Citavanacu*, in the language of the Brahmins *Erando* is a shrub growing in sandy soil, nine or ten feet in height, of which there are two species, one with common green bark another with red bark.

Root fibrous and white.

Stems which arise from the root, jointed, hollow and inside covered with pithy, white, light yellow, soft and dry core, in the joints closed with pithy, white, soft septum with little wood, so also the shoot, which they send out from the joints, with a bitter bark and greatly pungent and stinging the tongue.

Leaves which sit on (are attached to) long stalks, are star shaped with seven or also eight tips (lobes) which run longer towards the anterior part, at the margin incised with acute teeth, fine in texture, smooth soft to touch, with dark green colour on the upper surface, on the lower however light-green.

Ribs in these according to the number of lobes go out from the tip of the stalk like spokes from their centre, each one of which runs into a lobe, and greatly stand out on the lower side, but less on the upper side, and are thick and light green, spreading slender lateral nerves here and there, of which

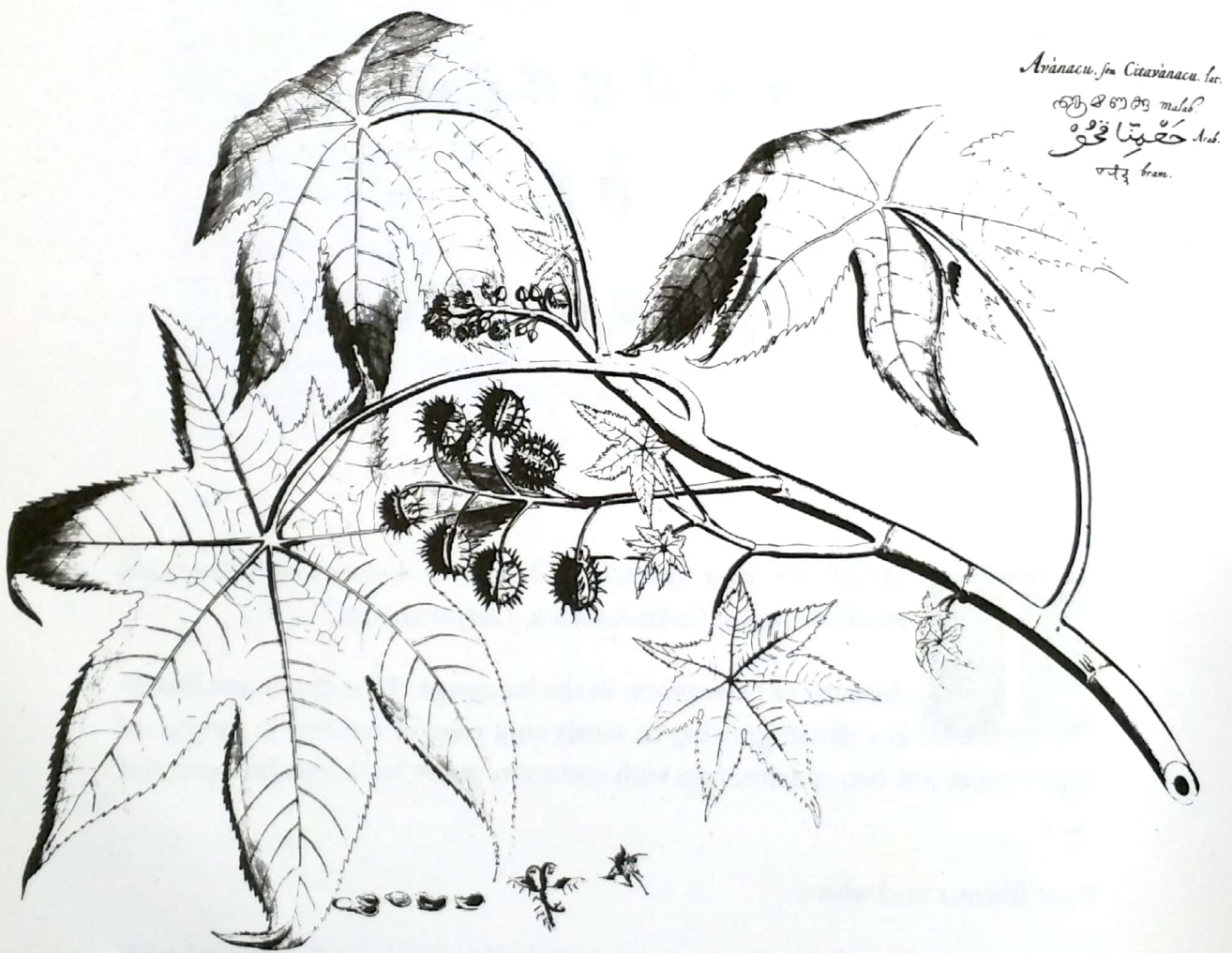


Fig. 32

those that are very near to the centre, around it seem like a spider web in its texture, those however which come out from the upper part of the rib run in an oblique annular tract (line) towards the anterior part into the apices of the lobes with which the leaf stands out in margin, undulating itself.

However the stalks of leaves with the ribs, which come out from these are bright clear green in the plant which is with common or green bark, in that which is with red bark, also reddish. The leaves have bitter, light biting and light acrid taste.

Flowers arise many together also in long, thick, green and grooved stalks on short peduncles, and are green, flat-round, cuspidate buds, from the middle of which numerous, light green stamens arise, which are provided with small, green-yellow buds or apices, and which unfold themselves and open into three or four at the most six cuspidate and light green leaves.

Fruits which many together are attached to petioles $1/16^{\text{th}}$ of an inch and somewhat curved, are round heads, a little oblong and with three oblong-round sides, each one of which is grooved in the middle in length by a suture, and on both sides from the sides of the suture, beset with an almost double line of pointed leaves in length, outside of green colour and sprinkled with bluish powder, and consisting of a green, woody or horny bark under the outer rind; fruits however while still tender are foliaceous heads more green then very narrow, somewhat straight and green leaves, which themselves are the stamens of the flower, and soon they grow stiff, almost like prickles or spines and have at the top a red navel consisting of three leaves which soon darkens and falls down, and are of bitter taste.

In the fruits are contained three seeds within each side, just as in its own capsule (case) on in number separated from others by means of woody or horny membranes which are secured to the middle style and to the corner of the sides. The seeds however are round oblong somewhat flat in shape, having at the apex a thick head or white navel and in the interior part by which they lie near to the middle style are covered with a very fine white membrane, and in the middle where they are more tender are grooved with a bulging out angle (corner) and a white suture, and are first of white colour then becoming red, when mature of dark-date and shining colour, and variegated with ash-grey waves, also of bitter and somewhat pungent taste.

This shrub bears flowers and fruits twice or thrice a year, many in rainy season, also the whole year round if in wet and irrigated places, which is found in summer are not totally dried up rarely.

Its Powers

Root given in decoction relieves pains originated in the bowels from gas, and if (on the condition that) taken for some days, removes the swelling of feet, so also the pain of loins and stomach, not less helps its decoction in disease of ear drum and asthma, and holy fire. So also in gout. Leaves crushed and placed on the head, relieves its pain; the same roasted on fire helps in gout when applied to affected part, but indeed the vapour of the boiled leaves received in affected parts is good; if bathed with its decoction, promotes the movement of urine. Fruits are laxative if they are fried and powdered and given with *sugar*. Seeds relieve the pain of loins if crushed and placed on the affected part. The oil pressed out from the seeds is laxative, which also taken in with sweet milk serves as a laxative and helps in stopping stomach ache; the smearing of the oil helps also in the pain of the body.

Ricinus communis L., Sp. Pl. 1007. 1753; Airy Shaw, Kew Bull. Add. Ser. 4: 191. 1975; Manilal & Sivar., Fl. Calicut 258. 1982; Manilal, Fl. Silent Valley 254. 1988; Sivar. & Philip, Fl. Nilambur 641. 1997 [EUPHORBIACEAE].

Avanacoe or **Citavanacu** Rheede, Hort. Malab. 2: 57-59, t. 32. 1679.

The name Avanakku (Malayalam script as Aamanakku on t.32) is used even today. Cit, (from "Chit") means smaller, from "younger" e.g., Chittappan, meaning younger brother of appan (appan is father).

Pandi-Avanacu



ANDI-AVANACU, which is the second species of *Avanacu*, in the language of the Brahmins *Vollo-Erando*, differs from the first species this much that it grows taller and that it is with stems and branches very red or red-lead and shining. With leaves, flowers and fruits a little bigger. The seeds also the same, but bigger and a bit more flat and within date-red and shining colour, interspersed with scattered waves of ash. This shrub is seen more rarely than *Avanacu*, in those parts.

Vollo-Erando, in the language of the Brahmins, is bigger *Erando*.

Its Powers

Checks vomiting if its bark is suspended from the neck.

Ricinus communis L., Sp. Pl. 1007. 1753; Airy Shaw, Kew Bull. Add. Ser. 4: 191. 1975; Manilal & Sivar., Fl. Calicut 258. 1982; Manilal, Fl. Silent Valley 254. 1988; Sivar. & Philip, Fl. Nilambur 641. 1997 [EUPHORBIACEAE].

Pandi-avanacu Rheede, Hort. Malab. 2: 60, t. 32. 1679.

The name Pandi Avanakku is not usually used now, but it is called simply as Avanakku. The name Avanakku is the general term for all *Ricinus*, and the epithet "Pandi" denotes that it is originally from the Pandyan Land, i.e., the present Tamil Nadu. It is sometimes called Kadalavanakku; kadal means ocean and indicates introduction from elsewhere, generally overseas (Ref:- Fig. 33 also).

Cadel-Avanacu

FIG. 33



ADEL-AVANACU, which is the third species of *Avanacu*, in the language of the Brahmins *Japalu*, is also a shrub growing in sandy soil.

Stems and shoots solid.

Leaves which arise in slender peduncles four fingers long, totally differ from the first in shape, and are oblong-round, anteriorly narrowed to a point, with a broad curvature towards the petiole with round edges, fine and distant teeth in the margin, with the maximum width towards the petiole, with the surface flat, smooth and of fine and slender texture.

From the rib standing out on the lower part, nerves go out towards the anterior part, running into each other in an arched manner and in slight tracts, colour of the leaf on the lower side is clear-green.

Flowers of white colour arise at the tip of the shoots.

Fruits which are attached collectively to short, round and slender peduncles at the tip of shoots, are oblong in shape and three sided, consisting of three

flat-round sides and in the middle of each side grooved (marked) in length with a fine suture, more narrow towards the petiole, on the surface not beset with non foliaceous prickles, but dug (hold) with hollow, spots, when tender,



Fig. 33

at the tip also provided with a navel (rudiment) of three red leaves, which later fall down with an outer light green bark, the inner also woody and horny, held to the petiole by a small calyx which is of green cuspidate leaves.

Three seeds also are contained in fruits, one in each side just as in its own proper locule, and are mutually separated with woody or horny septa which are connected to the corners of the sides and to the middle style, oblong in shape in the interior part which lies near to the middle style of the fruit, covered with a very fine, white membrane and in the middle, where, while more tender, bulge out with a pronounced angle, grooved with a yellow suture, and are when dry with the interior part more flat, in the other more round and more bulging, of black and little shining colour on the whole, are with no white navel at the tip, as indeed the seeds of the former species.

This shrub bears fruits and seed twice a year; (bears) flowers almost in January and July.

Its Powers

The leaves crushed and drunk with water are a purgative; helps for the sting of serpent called *Cobra Capella* if (the leaves) crushed into powder are put into the wound, the same with leaves of *Pandi-Avanacu* and flowers of *Schem-Pariti* mixed in honey are good in pustules of head, when smeared; one seed of the fruit, if drunk crushed in water has the use as purgative.

Croton tiglium L., Sp. Pl. 1004. 1753; Airy Shaw, Kew Bull. 26: 250. 1972; Manilal, Fl. Silent Valley 247. 1988; Sivar. & Philip, Fl. Nilambur 616. 1997 [EUPHORBIACEAE].

Cadel-avanacu Rheede, Hort. Malab. 2: 61-62, t. 33. 1679.

The name Kadel avanakku (Malayalam script on t. 33) is not used for this species, but is sometimes used for *Ricinus communis*. Kadel means ocean, indicating introduction from elsewhere. The seeds have some similarity with *Ricinus* (Avanakku). The name is no longer used for this plant and today this (and a number of other plants) is called "Nanchu", i.e., poison. It is cultivated in hilly places and the seeds are used as fish poison.



Codi Avanacu

FIG. 34.



ODI-AVANACU which is the Fourth species of *Avanacu*, in the language of the Brahmins, *Boin-Erando*, is a sub-shrub, growing in sandy soil as well as rocky soil, of three or four feet in height, with the branches spread laterally.

Root slender, and giving out slender fibres from the side and from below, and light red.

Stems which proceed from the root, as also shoots are clear-green, slender and a little hard and solid, inside with a slender, green cone. Leaves, which arise on very short petioles in shoots here and there, are very small, and narrow oblong-in shape, even to the touch (not rough) smooth, soft, in the margin incised with very minute, dense and light green teeth or dents and have a rib, standing out on the lower side, which is conspicuous also on the upper side.

Flowers arise on short petioles, which originate above from the origin of leaves, and the buds from green to light yellow are placed around petioles.

Fruits, which arise on slender peduncles at the origin of the leaves here and

there far and wide one in number only, also similar to the fruits of *Avanacu* in shape, in as much as they are delimited by three oblong-round sides, in the middle of the sides and on both sides from the furrows protected with one simple line of prickles or minute spines, but they are small and minute.

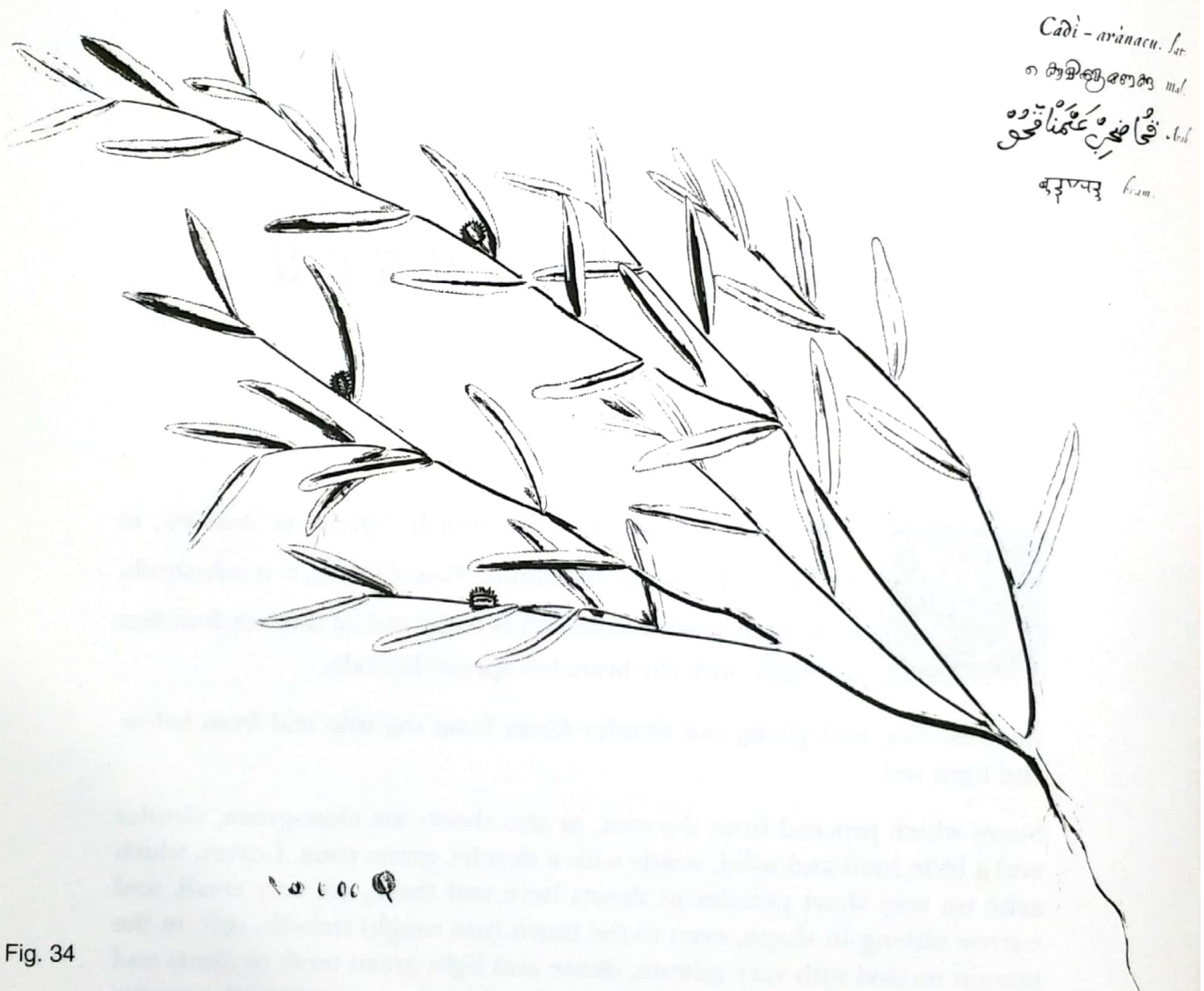


Fig. 34

Three seeds also are contained in the fruits, one within each side in its proper case; and are cylindrical in shape and more ash coloured and shining less from date-red, of dark colour.

This shrub bears flowers and fruits all the year round, but in greater number during the rainy season.

Cody-Avanacu, is thus called by the Malabaris because it grows with erect stem, *Boi-Erando*, in the language of the Brahmins is humble *Avanacu*.

Its Powers

Juice of the whole plant drunk with wine is good for stopping flowing (motion), the same cooked with oil is drunk profitably to restore weak forces (powers), the oil which is prepared from the whole plant is useful for washing the head for removing its giddiness and strengthening the brain.

A SHORT NOTE AFTER WRITING ABOUT THE FLOWERS OF AVANACU

In the first volume, in the description of the species of the flowers of *Avanacu*, mention is made of one species, soon however flowers of both the two structures and two characters have been found; and they are either only flowery or fruitifying, the former serve for decoration and the latter for use.

Those of the first genus grow on lateral stems, attached to a five leaved calyx, the flowery apex of which bears a stem of seminal spots (buds) as if awkward (inelegant), but if you sharpen your sight well, you may observe distinct light yellow corollas placed over it step by step, their stalks are surrounded by a multi yoked fascicle of such flowers.

But those of the second genus, always come out from the tip of fruit-bearing stalk, ordinarily arranged in a three-together order, of which the middle one is greater than the others. These, when they produce fruits, embrace (clasp) at the base its primordium with two leaves, soon falling down.

The apex of the fruits is crowned with a tricuspidate tip until they are green, each leaf of which is two furrowed.

Sebastiania chamaelea (L.) Müll.-Arg. in DC., Prodr. 15(2): 1175. 1866; Airy Shaw, Kew Bull. 26: 339. 1972; Sasidh. & Sivar., Fl. Thrissur 414. 1996; Sivar. & Philip, Fl. Nilambur 643. 1997. - *Tragia chamaelea* L., Sp. Pl. 981. 1753 [EUPHORBIACEAE].

Codi-avanacu Rheede, Hort. Malab. 2: 63, t. 34. 1679.

The name Kodi Avanakku (Malayalam script as Kodi Aamanakku on t. 34) is still used; kodi here means "banner", referring to its erect stem; and Avanakku means *Ricinus* (or similar plant). This species has a prickly fruit, somewhat like Avanakku (*Ricinus*).

Ana-Chunda

FIG. 35.



HUNDA are of three species, *Chunda*, *Ana-Chunda*, *Cheru-Chunda*, all of which are spinous shrubs.

Ana-Chunda, in the language of the Brahmins *Sada-Vaingani*, is a spinous shrub, armed with dense, long, white, pointed spines, and more spinous than the others, growing in sandy soil, of four feet in height.

Root fibrous and hairy, first white, then turning yellow or red.

Stem is more thick, of four or five digits (fingers) as the utmost thickness, spinous, hairy and green, with a light green, soft core in the middle.

Branches tortuous and spinous, thickly armed with lateral, pointed, long white spines, and beset with hairy down, with light green colour, internally also from red-purple and shining.

Leaves which arise on long, thick, round, hairy or downy and spinous and light green petioles on the stem from branches, are very large, larger than other species, (incised) into more or less six, seven flaps, among which also

smaller ones emerge, on both sides undulating and cuspidate at the tip, thick in texture, beset with thick (dense) hairy down, and on both sides smooth like velvet.

Ana-schunda. lat.
 ചിത്രശാസ്ത്രം *mal.*
 عَنَعُ جَبَّارِي *Arab.*
 सद्वाङ्मणि *brah.*



Fig. 35

From the somewhat thick and hairy rib, more or less six major ribs go out on both sides, (ending) running into the lobes of the flaps, and with the mid-rib on both sides of the leaf provided with spines, and on the lower side accompanied by very much pronounced small nerves, interwoven in a lattice fashion, and the leaves are on the upper side of dark greenness, on the lower of clear greenness, of more light colour in petiole and the ribs, tender ones however purple-red-dark in petioles and ribs interiorly, on the lower side of very light colour.

Flowers which arise many collectively, about the origin of the leaves and also from here and there on the branches and on the very petioles, are stars, totally white, of five rarely six oblong-cuspidate leaves of no smell, and the leaves are thick, internally glabrous, externally hairy and downy, grooved in length by a white and shining vein.

In the middle the core is yellow and drawn together into a pyramid, formed of five or six yellow, erect, thick and somewhat cuspidate and externally grooved stamens, according to the number of leaves, which (stamens) are placed around a central slender, longer and light green style: and the style is central coming forth from a green hairy globule which is in the calyx, and (is) the beginning (rudiment) of the fruit.

Calyx of the flowers (is) of five cuspidate leaves, with light green colour especially outside, and grooved with one vein in each leaf, and hairy and situated within the leaves of the flowers with its cuspidate leaves.

Buds of flowers are pyramidal in shape and of five sides and hairy.

Fruits which arise collectively or in fascicles, are round, surrounded on all sides by thick, long, erect, and somewhat hirsute (covered with hairs) from white to yellow hairs, and slightly rough, first green, then yellow, tightly clasped below by their calyx, in these, within the succulent pulp, which is first green then yellow, numerous seeds are contained, arranged in five distinct series within the intermediary membranous wall; the seeds however are flat, with round edges, towards one side with more straight edge, which (are) first white, then when mature are from yellow to red.

This is common to all species of *Chunda* that they have spines.

Agrees with *Chunda* in powers.

Solanum lasiocarpum Dunal, Hist. Solanum 223. 1813; Whalen et al., Gentes Herb. 12: 100. 1981; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 371. 1988 ("1987"); Manilal, Fl. Silent Valley 193. 1988; Sivar. & Philip, Fl. Nilambur 465. 1997. -*Solanum indicum* L., Sp. Pl. 187. 1753, nom. rej. *Solanum stramonifolium* sensu auct., non Jacq. 1781; Dunal, Hist. Solanum 222. 1813; Gandhi in Sald. & Nicols., Fl. Hassan Distr. 462. 1976. *Solanum ferox* sensu auct., non L. 1753, nomen dubium: Nees, Trans. Linn. Soc. London 17(1): 52. 1834; Gamble, Fl. Madras 937(658). 1923 [SOLANACEAE].

Ana-schunda Rheede, Hort. Malab. 2: 65-66, t. 35. 1679.

The name Aana Chunda [Malayalam script on t. 35] is still used; Aana means elephant and Chunda is the general name for prickly *Solanum*. In this context "ana" can be understood as meaning very large, a reference to its very large leaves (and large fruits). The species is common in forests of Malabar in undergrowth.



Cheru - Chunda

FIG. 36.



HERU-CHUNDA is the second species of *Chunda*, in the language of the Brahmins *Sinsarati*, is a shrub smaller than the others, of one and a half or two feet in height, with branches spread laterally, its stalks do not turn red.

Root fibrous and white.

Stems with shoots beset with slender hairs and green, inside with soft core.

The leaves agree with the leaves of other species, but much smaller than others, hairy and somewhat rough, sinuate with fewer and less cuspidate flaps.

Flowers smaller than all, and are stars of five or six lobes of light blue and light purple, in each lobe in the middle grooved with a white, shining and up to the base of the calyx, green vein.

The little core which in the middle is yellow or red, consists of erect, thick stamens which is of the same thickness towards the upper and the lower part.

Calyx also of five or six cuspidate leaves.

Buds of flowers are first green, then white, soon with purple and blue colour, and are oblong-round in shape and somewhat approaching the shape of a cone.



Schœru-schunda. Lat.
 ചെറുചെറു മല.
 جھرو جھرو. Arab.
 ചീചാലി. Pers.

Fig. 36

Fruits of all the species are very small, round, glabrous, without hairs and shining, tightly enclosed by their calyces below, with green colour while immature, but when mature with yellow or coral-red colour.

Its Powers

Root given in decoction helps in warm fever, its decoction taken in with honey is useful for catarrh or in severe cold, and serves in painful discharge of urine, used in the same way with the addition of a bit of cardamom is conducive to stop gas troubles and in relieving gripe of intestines. Juice of the root and leaves boiled and drunk, promotes digestion: and indeed it's juice given with *Sugar* so also its decoction with honey, serves for removing excess phlegm, the harshness of the chest. Decoction of fruits and leaves with the addition of a bit of sugar and lime serves for itches of the body in smearing the affected part.

Solanum violaceum Ortega, Nov. Pl. Descr. Dec. 56. 1798; Gandhi in Said. & Nicols., Fl. Hassan Distr. 462. 1976; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 378. 1988 ("1987"); Manilal & Sivar., Fl. Calicut 190. 1982. - *Solanum anguivi* sensu Matthew & Rani in Matthew, Fl. Tamilnadu Carn. 3(1): 1058. 1983, non Lam., Tabl. Encycl. 2: 23. 1794. *Solanum indicum* sensu auct., non L. 1753: J. Hook., Fl. Brit. India 4: 234. 1883; Gamble, Fl. Madras 2: 938(658). 1923 [SOLANACEAE].

Scheru-schunda Rheede, Hort. Malab. 2: 67-68, t. 36. 1679.

The name Cheru Chunda [Malayalam script on t. 36] is still used; cheru (from cheriya) means small and Chunda means prickly *Solanum*, a much smaller herb than Anachunda (*S. lasiocarpum*) with smaller leaves and fruits. It is common on lateritic soils in Malabar.



Chunda

FIG. 37.



HUNDA is the third species, in the language of the Brahmins called *Dolari*, is a shrub bigger than *Cheru-Chunda*, and smaller than the other, of three feet in height.

Stem as well as branches green, beset with very fine and loose hairs, inside with a soft core.

Leaves, like that of the second species, are sinuate and almost similar and a bit bigger, but smaller than those of the other species, on the surface also little rough, beset with minute hairs, also red in petioles and ribs, of woody taste.

Flowers also starlets of five or six lobes of light blue and darker purple colour than those of *Cheru-Chunda*, in size a bit surpassing the first species, and are with less elongated lobes and smaller than those of the other species.

Buds also from bluish to purple.

Stamens of the core also yellow, and above and below almost uniform in thickness.

Fruits which tightly sit on the calyx also are round, glabrous, without hairs, mediocre in size, almost equal to the fruits of *Ana-Chunda*, or a bit smaller, when immature, are on one side with green colour, above with white or ivory colour, when mature are wholly with light yellow colour and with green succulent pulp which burns and pricks on tongue.



Fig. 37

Its Powers

Boiled in honey and drunk helps digestion and decoction serves also for cough and in the heaviness of chest, its decoction (taken) simply (alone) is good for fevers originated from phlegm, for which also serves decoction of root; this crushed and given in wine is good for stopping vomiting; and taken in the quantity of two ounce is a purgative, evacuating phlegmatic fluids through the inferior.

Solanum melongena L., Sp. Pl. 186. 1753; C. B. Cl. in J. Hook., Fl. Brit. India 4: 235. 1883; Symon, J. Adelaide Bot. Gard. 4: 262. 1981; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 373. 1988 ("1987"); Manilal & Sivar., Fl. Calicut 190. 1982; Sasidh. & Sivar., Fl. Thrissur 317. 1996; Sivar. & Philip, Fl. Nilambur 466. 1997. - *Solanum undatum* Poir. in Lam., Encycl. 4: 301. 1797. *Solanum insanum* L., Mant. 46. 1767. *Solanum melongena* var. *insanum* (L.) Prain, Bengal Pl. 746(555). 1903 [SOLANACEAE].

Schunda Rheede, Hort. Malab. 2: 69-70, t. 37. 1679.

This armed aspect is still known by the name Chunda [Malayalam script on t. 37] and its yellow fruit is called Chundanga ["nga" from "kaya" fruit], used as a vegetable. It is common in disturbed places in the lowlands of Malabar.

Cattu - Gasturi

FIG. 38.



ATTU-GASTRI, in the language of the Brahmins *Bonda-Calo*, is a shrub rising at the most to the height of one man, growing in sandy soil.

Root woody, fibrous, white, inside with a viscous white liquid; of no taste and smell.

Stem and shoots round, beset with dense, hirsute and long hair, externally on one side with red-dark colour, on the other side green.

Leaves which arise on long and tender petioles, incised into three or five cuspidate flaps, some into more wide and some others into more cuspidate, then those which follow it in order, serrate in margin, slender and beset with rough, erect hirsute and long hairs, on both sides, on the upper surface dark-green, on the lower, clear-green.

From the petiole with the mid-rib, which internally goes out into the longer lobe of the leaf and sends out ribs here and there obliquely towards the anterior part, two ribs come out on both sides, sending out their nerves here and there, all of which stand out also on the upper part of the leaf although

more on the lower part, the upper of which with its branches runs into the tip of the flap which is next to the middle one, and are ribs standing out also on the upper surface of the leaf, although more on the lower, and on the upper part also dark-green or also verging on date-red.

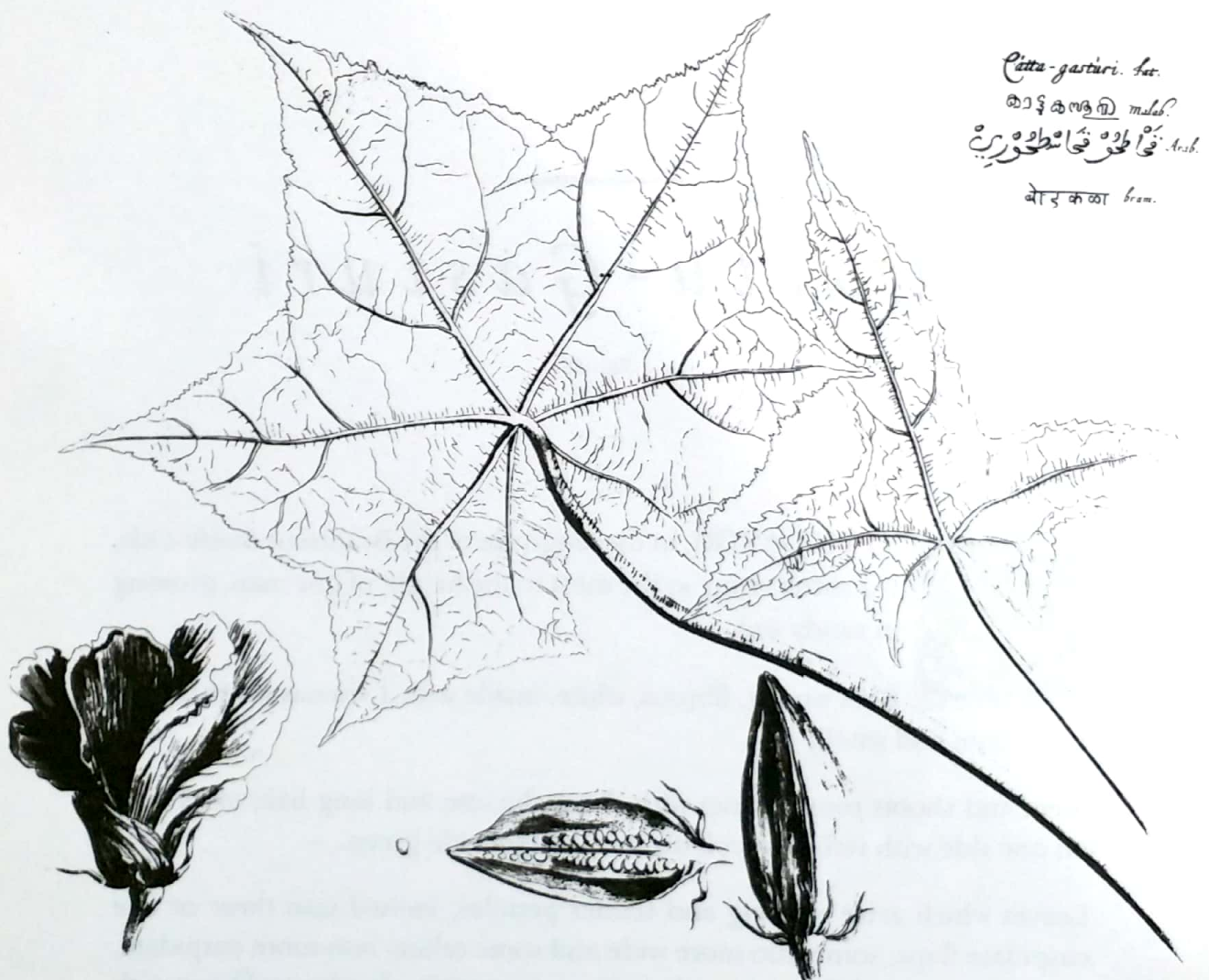


Fig. 38

Flowers which arise here and there on long shoots above from the origin of leaves, are bell shaped in form, of five leaves, which (are) oblong round and are grooved (marked) in length with thick veins pronounced on both sides and with transverse veins interwoven in a net work, of white to yellow colour, marked or noted with a purple-red-obscure rose towards the navel of five

dentate leaves. In the middle stands the thick style, developing somewhat into a cone towards the upper part, surrounded by small white stamens, and provided at the tip with five, thick, very purple-red-knobs.

The flowers having fallen away, follow (succeed) oblong, cuspidate, hairy seminal capsules (cases) attached to thick and rigid petioles and are surrounded below by eight, oblong, cuspidate, green and hairy leaves, and are divided in length into five locules through membranous septa which lead to the middle sides, and are connected to the style or central column.

Seeds are contained in each locule almost in a double line, adhering to the central style by their funicles round and somewhat flat in shape, towards one side where the funicle is, marked with round, parallel furrows, first white, but when mature and dry, with dark and black colour, with *muscat* (a variety of grape) smell, which disappears with time.

Its Powers

Serves for "Roothondt" if the body is smeared with its seed crushed, and mixed with cow dung.

Abelmoschus moschatus Medic., Malvenfam. 46. 1787; Borssum Waalkes, Blumea 14: 91. 1966; Sasidh. & Sivar., Fl. Thrissur 58. 1996; Sivar. & Philip, Fl. Nilambur 77. 1997. -*Hibiscus abelmoschus* L., Sp. Pl. 696. 1753 [MALVACEAE].

Cattu-gasturi Rheede, Hort. Malab. 2: 71-72, t. 38. 1679.

Kattukasturi (Malayalam script on t. 38) is still used; kattu means wild and kasturi means musk. It is cultivated in Malabar as an ornamental. Elsewhere the seeds are processed for use in perfumes.

1. The first part of the paper is devoted to a general discussion of the problem of the existence of a solution of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system has a solution if and only if the condition $\alpha + \beta = 1$ is satisfied.

2. In the second part of the paper, the problem of the uniqueness of the solution of the system of equations (1) is considered. It is shown that the system has a unique solution if and only if the condition $\alpha + \beta = 1$ is satisfied.

3. In the third part of the paper, the problem of the stability of the solution of the system of equations (1) is considered. It is shown that the system has a stable solution if and only if the condition $\alpha + \beta = 1$ is satisfied.

4. In the fourth part of the paper, the problem of the asymptotic stability of the solution of the system of equations (1) is considered. It is shown that the system has an asymptotically stable solution if and only if the condition $\alpha + \beta = 1$ is satisfied.

5. In the fifth part of the paper, the problem of the boundedness of the solution of the system of equations (1) is considered. It is shown that the system has a bounded solution if and only if the condition $\alpha + \beta = 1$ is satisfied.



Schorigenam

FIG. 39.



HERE are four species of *Schorigenam*, one of the same name, another *Valli-Schorigenam*, third *Batti-Schorigenam* and the fourth *Ana-Schorigenam*.

Schorigenam, in the language of the Brahmins *Pitta-Gasurculi*, is a shrub from the genus of nettles, with the height of three feet, growing in sandy soil.

Root is small, slender, hard and white, spreading many, long, hairy fibres both from the side and from below.

Stem slender, round, hairy and burning, with thin, light green bark.

Leaves which arise here and there on the stem, are smaller than the leaves of other species, oblong-round in appearance, with a round curve below and more narrow towards the anterior and mucronate with a tip, serrate in margin except, in the margin which is very near to the petiole, rough on both sides, hairy and burning, with green white colour on the lower side.

With the mid-rib from which here and there smaller ribs proceed in an oblique and annular tract, one rib-let on both sides runs from the petiole towards the

anterior part, with the other rib-lets going into the apices of the teeth, and are ribs standing out also on the upper side but more on the lower.

Flowers which appear both on the upper and lower part of the shrub here and three in spikes on short, very tender, highly hairy petioles are a mass of small buds which are of light green to yellow colour.



Fig. 39

After the flowers have fallen away three sided and very hairy seminal heads appear, formed of three hairy globules joined together, and comprising of six, erect oblong-narrow green leaves which are beset with minute, lateral points (spear-heads), and are first of green colour, then light yellow and somewhat red.

In each globule of the head is contained one round and somewhat oblong seed with a bifid or two-lipped funicle, of first very white colour, then when mature, is of black colour and in the funicle, of dark red colour.

These seeds are bigger than the seeds of all species.

Its Powers

Root is useful in fever originating from phlegm, when placed on toes in the manner of ring; the juice pressed out from it and drunk with *sugar* in cow's milk is good in the fever of bones and serves for itches of the body. Root given in decoction moves suppressed urine. The wood crushed along with fruits is put into wound inflicted by the spinous tail of the fish *Raye*, for its healing.

Tragia involucrata L., Sp. Pl. 980. 1753; Manilal & Sivar., Fl. Calicut 267. 1982; Sasidh. & Sivar., Fl. Thrissur 415. 1996; Sivar. & Philip, Fl. Nilambur 645. 1997. - *Tragia involucrata* var. *rheedeana* Müll.-Arg. in DC., Prodr. 15(2): 943. 1866 ("*rheediana*") [EUPHORBIACEAE].

Schorigenam Rheede, Hort. Malab. 2: 73-74, t. 39. 1679.

The name Chorikanam (Malayalam script on t. 39) is now rarely used for this species (also pronounced Chorinjanam), a name generally applied to stinging nettles (chorichhil means itching). It is also called Kodithoova, which is the most frequently used name. The species is a common and widespread weed in Malabar





Batti-Schorigenam

FIG. 40.



ATTI-SCHORIGENAM, which is the third species of *Schorigenam*, in the language of the Brahmins *Daculi-Gasurculi*, is also a shrub from the genus of nettles, also of three feet in height.

Root fibrous, white.

Stalks grooved and less woody, of dark-red colour.

Leaves which arise on very long, thick, succulent flat and internally grooved petioles, are more broad towards the base and very near to the tip with a short furrow, cuspidate towards the anterior part with a longer tip, are also hairy and burning, the whole margin incised with thick teeth, and have riblets standing out on the lower side and with the mid-rib proceeding from the petiole, one on both sides.

Flowers which arise here and there in small heads which appear in short and branched peduncles, in long tender stalk-lets or petioles which arise from

the origin (base) of leaves, and in one head many collectively, and are small, light green buds and consisting of minute, white and less conspicuous leaves.

The flowers having fallen down there follow (appear) in the head green seminal buds, the seeds however, which are in their green buds and in these, when mature they almost completely stand out, are small, white and more minute than the seeds of other species, round and flat; of white and light yellow colour.

Not in use with these physicians.

Batti-schorigen'am. Tac.
 പട്ടച്ചോറിയെ. *mal.*
 بعظم جباريخا نام *Arab.*
 കാട്ടുചകരി *bram.*



Fig. 40

Laportea interrupta (L.) Chew, Gard. Bull. Singapore 21: 200. 1965; Manilal & Sivar., Fl. Calicut 279. 1982; Sasidh. & Sivar., Fl. Thrissur 420. 1996; Sivar. & Philip, Fl. Nilambur 652. 1997. - *Urtica interrupta* L., Sp. Pl. 985.1753. *Fleurya interrupta* (L.) Gaud. in Freyc., Voy. Uran., Bot. 497. 1830 ("1826") [URTICACEAE].

Batti-schorigenam Rheede, Hort. Malab. 2: 75, t. 40. 1679.

The name Pattachoriyanam (Malayalam script on t. 40) is not used commonly but just called Choriyanam. Patta means (long) band or cord and Chorinjanam refers to stinging nettles. The allusion is to the elongated cord-like stalk of the inflorescence. It is a common weed in the plains all over Malabar, especially during the monsoon.



Ana-Schorigenam

FIG. 41.



NA-SCHORIGENAM, which is the forth species of *Schorigenam*, in the language of the Brahmins *Hasty-Gasurculi*, is also a shrub from the genus of nettles, bigger than the others, rising up to the height of a man.

Root with its fibres, less hard and more tender and white.

The stem more thick and not so hard, towards the upper part, deeply grooved, with dark red colour especially in the bottom part, interspersed with white light green spots wide apart (with distant white spots) variegated like the skin of the serpent called *Cobra Capella*.

Leaves which arise on long, thick, hairy and succulent petioles, which are more even and red and grooved with a furrow on the inner side, and on the outer side round and green-yellow, larger than the others, towards the bottom broad and running with more even and less round margin and cut with bigger lobes in the margin, or into many or few flaps, and have green-white rib-lets with the middle one, one on both sides proceeding from the petiole, which with the other ribs running out transversely from the middle one, enter into the lobes (tips).

Flowers and buds first light green, then green-white, small, round arising on longer petioles which are pointed here and there (which are prickly here and there) are in thick racemes, and divided into four green-white, shining, narrow leaves anteriorly curled into nodes, and twisted.



Fig. 41

Flower having fallen down, seeds appear not enclosed in any case (covering), in spikes towards one side, adhering here and there to petioles and its green branches, and the petioles with branches so densely beset on the other side with rigid and white spike-lets and so closely (tightly) twisted that they hide

the seeds, nor are they visible unless they are unfolded into straight from the twisting.

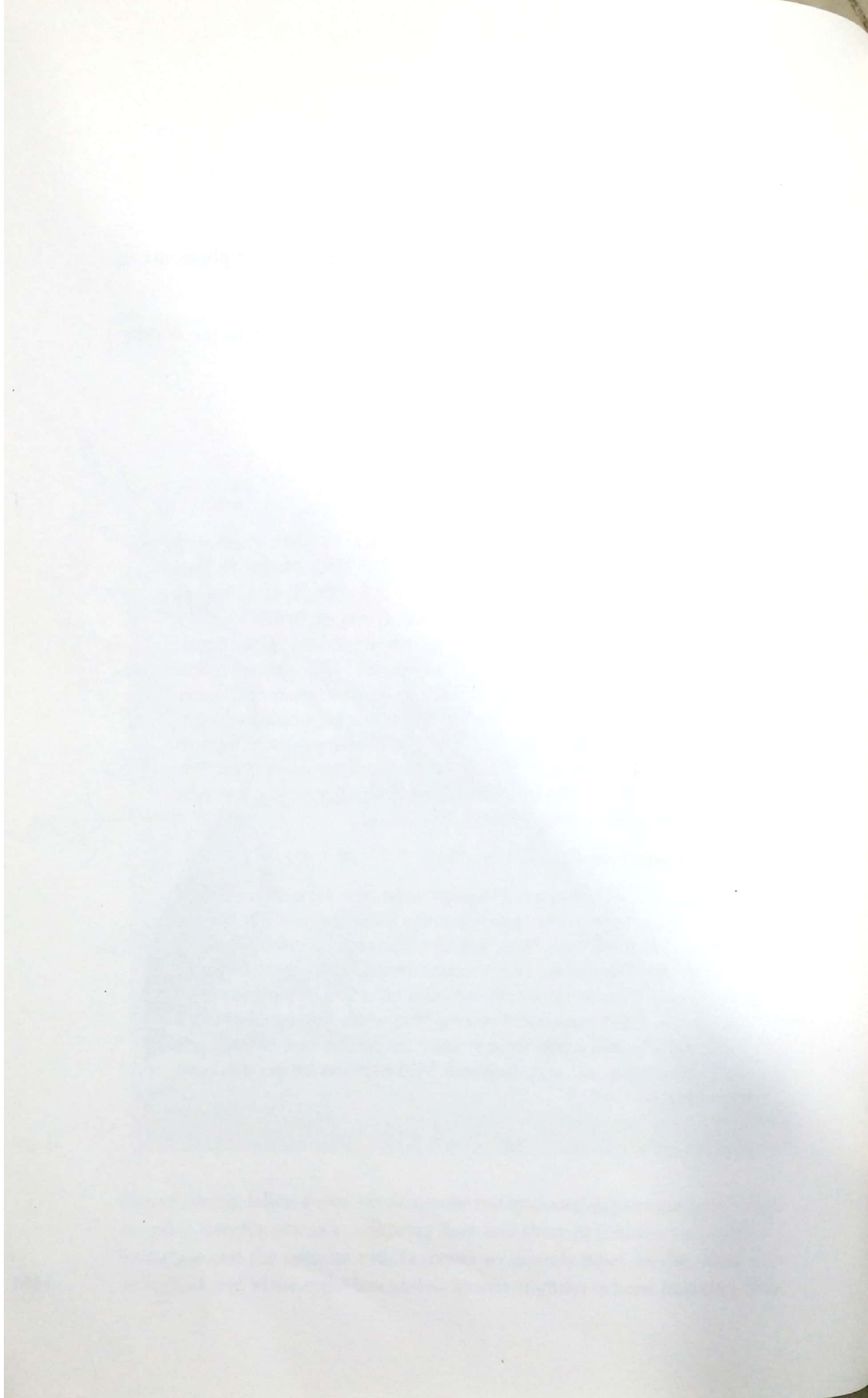
Seeds (are) however flat and round, light yellow or light red, in the middle more thick than in the margins.

Not in use with these physicians.

Girardinia diversifolia (Link) Friis, Kew Bull. 36: 145. 1981; Matthew & Rani in Matthew, Fl. Tamilnadu Cam. 3(2): 1490. 1983; Manilal, Fl. Silent Valley 262. 1988; Sasidh. & Sivar., Fl. Thrissur 419. 1996; Sivar. & Philip, Fl. Nilambur 651. 1997. - *Urtica palmata* Forssk., Fl. Aegypt.-Arab. 159. 1775, non *Girardinia palmata* Bl. 1855. *Urtica heterophylla* Vahl, Symb. Bot. 1: 76. 1790, nom. illeg. (incl. type of *U. palmata* Forssk. 1775). *Urtica diversifolia* Link, Enum. Fl. Hort. Berol. alt. 2: 385. 1822. *Girardinia heterophylla* Decne. in Jacquem., Voy. Inde 4(Bot.): 151. 1844. *Girardinia leschenaultiana* Decne. in Jacquem., Voy. Inde 4(Bot.): 152. 1844. *Girardinia zeylanica* Decne. in Jacquem., Voy. Inde 4(Bot.): 152. 1844. *Girardinia palmata* Bl., Mus. Bot. Lugd.-Bat. 2: 158. 1855 (non *Urtica palmata* Forssk.) nom. illeg. (incl. type of *G. leschenaultiana* Decne. 1844) [URTICACEAE].

Ana-schorigenam Rheede, Hort. Malab. 2: 77- 78, t. 41. 1679.

The name Aana-Choriyanam (Malayalam script on t. 41) is still used; Aana means elephant, here not because of its size (actually rather small) but because its stings bother even elephants, and Chorinjanam or Chorikanam means stinging nettle. This species occurs in upland forests and is dangerous because of its stinging. It should not be confused with another species [not mentioned by Rheede] called Aanavirati, [meaning "that which frightens elephants"-*Laportea crenulata*]) a large shrub in which the petioles have stinging hairs, not the leaf-blades, also very dangerous. Wild elephants are found to avoid both these.



Valli-Schorigenam



ALLI-SCHORIGENAM, in the language of the Brahmins also *Pitta-Gasurculi*, does not differ from the first except that this is a weak stemmed plant.

Its Powers

Root boiled in water and drunk, quenches the burning of liver, and also serves for the swelling of stomach and members (limbs) and accompanying suppression of urine, the same crushed and mixed with milk and given with *sugar* is good for itches of body and members; the juice extracted after crushing it and drunk helps those passing viscous and purulent urine.

Tragia involucrata L., Sp. Pl. 980. 1753; Manilal & Sivar., Fl. Calicut 267. 1982; Sasidh. & Sivar., Fl. Thrissur 415. 1996; Sivar. & Philip, Fl. Nilambur 645. 1997. - *Tragia involucrata* var. *rheedeana* Müll.-Arg. in DC., Prodr. 15(2): 943. 1866 ("*rheediana*") [EUPHORBIACEAE].

Valli-schorigenam Rheede, Hort. Malab. 2: 79 [no plate]. 1679.

It is not a shrub but is a twining herb and the name Vallichorinjanam (valli means climber) is sometimes used even today. No illustration of this is given.

Schadida-Calli

FIG. 42.



ALLI, (has) three species, *Schadida-Calli*, *Ela Calli*, *Tiru Calli*, all of which are shrubs, wholly milky.

Schadida-Calli, in the language of the Brahmins, *Pada-Nivuli*, is a shrub of two men in height, growing in sandy soil.

Root thick sending itself down directly into the soil, and giving out fibres here and there, inside woody, with the bark outside dark, inside white and milky.

Stem which arise from the root, single and simple (singly and simply) (is) divided into different nodes and in between the nodes projecting into three narrow edges, which are restricted by three flat sides, extenuated and in the edges swells at the corners and in between the corners, wavy, and in the corners armed with rigid, sharp, straight, dark and shining spines which come out two by two and with their tips turned away from themselves mutually, with the bark thick outside dark green, also when it is older, underneath the bark, inside covered (clothed) with humid and white pulp, with no wood, from which (pulp) as also from its cut bark exudes copious milk.

Leaves arise in the edges in the protruding (bulging) corners, raised up from above the spines, and indeed very few in each angle one in number in each small, thick, milky marked with no vein, with the edges somewhat curved in towards the spines.



Fig. 42

Flowers arise in the edges especially from the hollow pits (curves) in between the raised (bulging out) or in between the lines of spines, from their deeper part, three together on one small, almost half digit, round, green, milky, thick pedicel, standing out straight from the pits, which sends out two lateral, smaller pedicels transversely towards opposite parts (sides), and the middle flower is attached to the common peduncle, the rest to the two lateral

peduncles. The flowers consist of five short, thick, solid, rigid leaves flat on the upper part, placed around a middle flat round, hairy outside from green to yellow. Core also milky and light green or of green to yellow colour, of no smell, and have in the middle four, five or six, erect, bifurcated, stamens (which are) red on the upper side, which proceed from the core without order, and are also milky.

Buds of flowers, green and yellow (turning yellow).

When the flowers come out, leaves fall down.

Fruits which come out from the core of the flower on a middle, erect, thick, semidigit, round and green peduncle are flat (plain) and formed of three pronounced, round corners, milky and green in colour, then partly turning red, also of biting taste, and contain in each corner as if in its own case are seed, which is round and ash-grey, inside white.

This shrub, which is wholly milky is burning the tongue with the milk, and bears flowers once a year either in rainy season or mostly in January or February.

Its Powers

From the root, with the addition of a little of fetid 'assa', a plaster called *Hinc* is prepared which is usefully placed over the stomach of children for worms. Bark of the root crushed and taken with water is a purgative. Its wood crushed and boiled with water helps in pains of gout if its fumes or vapors are received in the affected part.

Euphorbia antiquorum L., Sp. Pl. 450. 1753 [EUPHORBIACEAE].

Schadida-kalli Rheede, Hort. Malab. 2: 81-82, t. 42. 1679.

The name Chathira-kalli (Malayalam script on t. 42) is still used but as Chathurakkalli. Chathura is shortened form of chathuram, i.e, square or rectangle, here meaning "with edges", as opposed to rounded; Kalli is the general term for succulent plants, especially Euphorbias and Cacti. It is wild and common in dry areas around Palghat region of Malabar. Elsewhere it is sometimes grown as a hedge or ornamental.

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El a - Cal li

FIG. 43.



LA-CALLI, which is the second species of *Calli*, in the language of Brahmins *Nivuli*, is also a shrub exceeding two men in height, growing in sandy soil.

Roots, thick sending itself down directly into the soil, and sending out here and there fibres, inside woody, with the bark outside dark, inside white and milky.

The stem which arises singly from the root, round and filling the embrace of the one arm in circumference, so also the branches which it sends out now straight, now tortuous (knotty), with the bark very milky and on the surface wholly (fully) armed with transverse, hard and sharp spines in twos and placed in order in spiral tracts while tender one with dark green bark and inside with pulp, white, milky, older ones woody with the bark less green and inside woody.

Leaves arise horizontally (transversally) or also erect (straight) on rigid, thick, short, milky petioles, just above the spines, placed in a circle around the stem or branch, and are oblong, tongue-shaped thick, dense, anteriorly round,

or also round-cuspidate, covered by no vein or nerve conspicuous to sight inside very milky, with the surface flat and glabrous, while young with dark green colour, when older on both sides light green, and then turning yellow, they fall down, leaves sprout out always from the tip of the growing branches



Fig. 43

and shoots, which are green, the lower ones having fallen away and leaving white and pronounced marks in which this shrub does not become green again, so much that leaves are seen always at the tip of the branches.

Its Powers

The bark of the root crushed and drunk in water in which rice is cooked and washed, serves for dropsy, and is a very mild drug, its milk given with butter in which it has been cooked, smoothly and gently purges the stomach. Leaves heated on fire rouses (excites) urine, the fumes or vapors of the same cooked (boiled) when received help to relieve and remove the pain of the body and members (limbs). Juice pressed out from warmed or a little roasted leaves and put into ears, mitigates their pain, the same put into eyes by drops helps to remove the clouding of eyes, and indeed it is profitable in the lotions of the body for inflamed private parts.

Euphorbia nivulia Ham., Trans. Linn. Soc. London 14: 286. 1825; J. Hook., Fl. Brit. India 5: 255. 1887; Sasidh. & Sivar., Fl. Thrissur 403. 1996 [EUPHORBIACEAE].

Ela-calli Rheede, Hort. Malab. 2: 83-84, t. 43. 1679.

The name Ilakkalli (Malayalam script on t. 44) is still used; ila (or ela means leaf and kalli denotes a succulent, thus the Malayalam name means leafy succulent. It is abundant in dry areas, especially Palghat region of Malabar. It is sometimes grown as a hedge plant.

Tiru - Calli

FIG. 44.



IRU-CALLI, which is the third species of *Calli*, in the language of the Brahmins *Portigalli-Nivuli*, is also a shrub growing in sandy soil.

Root more slender, sending out fibres from the sides. The stems which also arises singly from the root (is) round, in thickness almost of one arm, less woody, wholly milky, with green, thick, milky bark, sending out slender, green and milky stalk-lets from nodes, which are placed at longer distances from each other, from one node six or seven, some transversely, others straight, others downwards, which also spread smaller stalk-lets from the same node transversely (laterally) and then are divided into other slender branch-lets, tender stem and so also branches (are) dark green, older ones light green.

The leaves placed here and there wide apart on stalk-lets especially on the tender ones only one, and at times three or four are attached to stalk-lets, and are small and oblong-narrow, mutually of one digit in length, flat, thick, in the interior part in the middle grooved with a furrow, milky, green in colour, on the lower side, more clear green.

This shrub, which is wholly milky, the milk also burning the tongue.

Flowers come out at the tip of the shoots in thick, short, dark-green branchlets which many together spring out at the tip, and are small, consisting of four or five round, leaves, more closely united as if into one node, plain (flat) above and milky inside, and green.

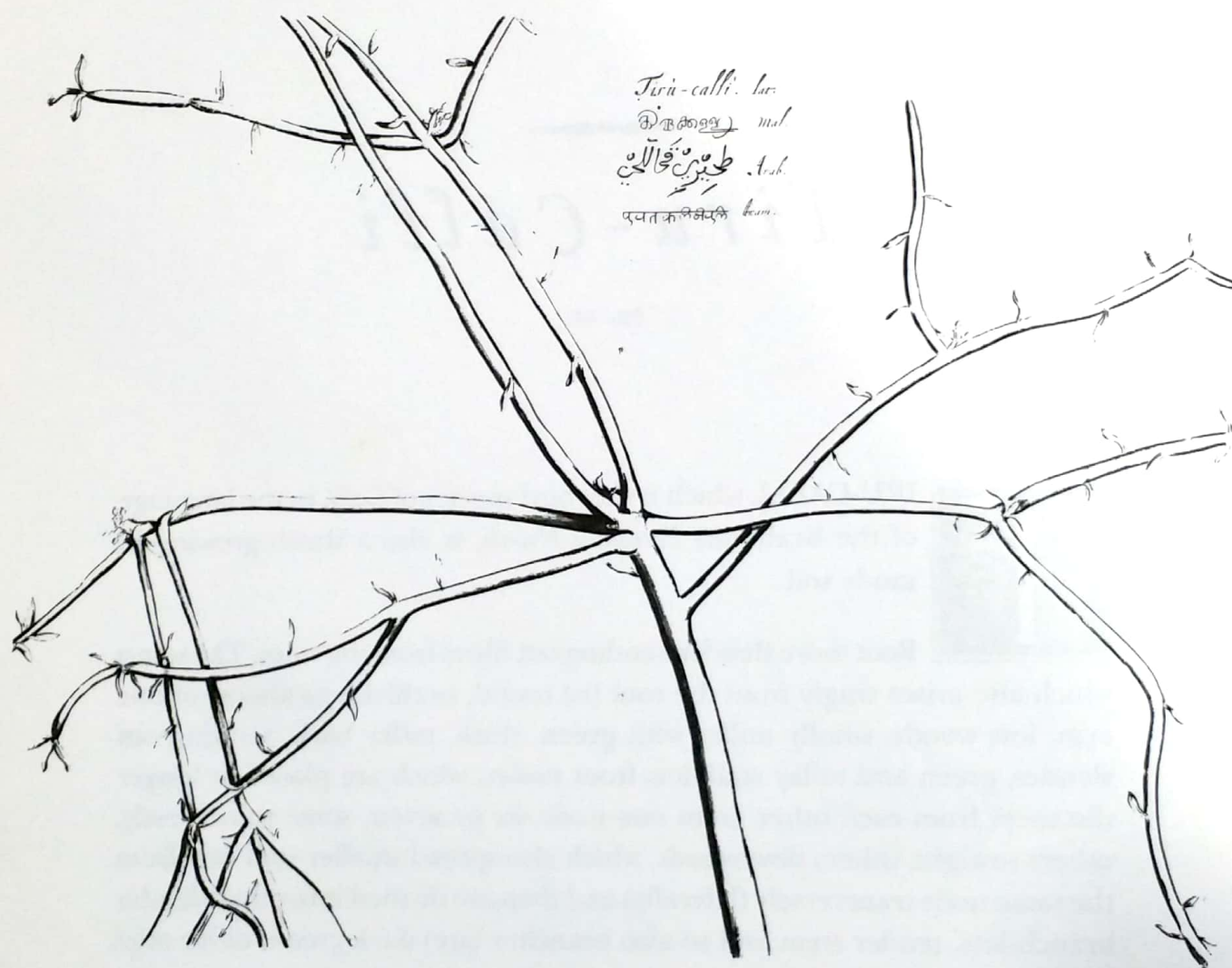


Fig. 44

Fruits which come out from the branchlets after the flowers have fallen away, are oblong-round, similar to the fruits of *Ana-Parua* in colour and shape, inside inclosing three seeds similar to the seeds of our *Nasturtium*.

Its Powers

Root given in decoction serves for stomach ache, its milk boiled with butter is a purgative, in the powers also is the same as those of *Schaddida-Calli*.

Euphorbia tirucalli L., Sp. Pl. 452. 1753; Manilal & Sivar., Fl. Calicut 257. 1982. - *Tirucalia indica* Raf., Fl. Tellur. 4: 112. 1838, nom. illeg. (incl. type of *E. tirucalli* L. 1753) [EUPHORBIACEAE].

Tiru-calli Rheede, Hort. Malab. 2: 85-86, t. 44. 1679.

The name Thiru-kkali (Malayalam script on t. 44) is still used; Thiru is modified form of Thiri, which means thread or wick of a lamp, a reference to the thin, cylindrical stems; and kalli means a succulent. The species now occurs apparently only in cultivation, as an ornamental.

Bahel-Schulli

FIG. 45.



HERE are four species of *Schulli*, *Bahel-Schulli*, *Nir-Schulli*, *Cara-Schulli*, *Paina-Schulli*.

Bahel-Schulli, in the language of the Brahmins *Colasso*, is a spinous shrub growing in marshy soil (watery soil).

Root fibrous, hairy and white.

Stalks jointed, plain above, and on both sides grooved with a furrow, green and also turning red; thickly covered with long and white hairs, inside woody with a watery and green or also white core, giving out here and there from the joints stalk-lets in twos, of which the upper ones are opposite to the immediately lower ones in order and in the joints armed with three transverse species or prickles in two opposite parts which are very long, woody, hard and pointed, and slightly curved downwards and mutually standing apart.

Leaves which (arise) many together towards the spines, surrounded by stalk-lets, are oblong and very narrow, covered on both sides with long, white hairs, a little rough, in the margin contracted by means of curling, tender ones from green to red. The mid-rib is more light-green, standing out on the

lower side and is rather thick, marking the leaf on the upper-side and giving out some fine veins, the tracts of which are conspicuous only on the lower side.

Bahé!-Schulli. L.
 വെളുത്ത ചുറ്റു *mal*
 واهل جولو *Arab*
 കെടോ *brahm*



Fig. 45

Flowers which come out from the joints of shoots, more or less eight, collectively from above the origin of spines, consist of two, light purple, blue leaves, somewhat mutually closed, and with a short white neck by which they break open from the calyx; there is however one leaf which is turned away from the stalk, more broad, in the upper edge deeply split by straight clefts

into three small tongues or leaflets which are twisted towards the outside, and is marked with blue-purple colour chiefly in the leaflets, towards that part in which the leaf is broader is the somewhat plain neck of the flower, (which is) white or also yellow, is transparent because of thinness, are interwoven outside by three almost parallel ribs.

Of these the mid-rib sends out three short, pronounced branches or rib-lets from the upper part to the middle tonguelet or leaflet, and in their tract the leaf is variegated in length by two pronounced, yellow, hairy sutures with a red line in the middle, the other leaf which is erect and narrow also of blue and light purple colour, internally spoon shaped is cut by a straight cleavage into two tonguelets or leaflets which are twisted towards the outside; to the side of this leaf is the round, white, translucent and shining neck of the flowers and also yellow, and on the outside marked in the middle with a rather thick rib which runs to the cutting and from the sides spreads on both sides a smaller rib.

Stamens in the flowers are four, white, thick, lying near the narrow leaf, of which two by two are mutually curved from themselves in an arched manner along with their long erect and blue apices, and with these comes out a long white filament, originating from an oblong, light green globule which is situated towards the basal part of the neck in the calyx and it contains the seeds.

The calyx of the flowers consists of oblong, cuspidate, very hairy and green and also red leaves, the flowers however are with no smell.

The seeds are placed in oblong, woody and somewhat cuspidate capsules which are separated into two sides through furrows and first green, then turning red from drying, covered with the leaves of the calyx which also turn red, in each side just as in their proper locules there are three or four seeds, and are round in shape or also oblong, flat, when dry of dark and date-red colour.

There is yet another species of *Bahel Schulli*; growing in sandy soil which have stalks and leaves light green and not red, but white flowers, somewhat bordering on blue.

Its Powers

Root given is decoction excites urine, and moves suppressed urine. Its decoction reduces the stomach inflamed with dropsy and relieves the members (limbs) swollen with water. The same boiled with the oil of plant called *Ficus inferni* and drunk is useful in dropsy and weaken stones in the bladder. The same crushed and mixed with water and smeared is good for the body affected by fluids. Leaves, boiled and seasoned with vinegar taken in, moves urine. From its leaves is made a powder which drunk with oil pressed out from the flowers of *Ficus inferni* helps in loosening the swelling of male organs.

Hygrophila schulli (Ham.) M. R. & S. M. Almeida, J. Bombay Nat. Hist. Soc. 83 (Suppl.): 221. 1986; Sasidh. & Sivar., Fl. Thrissur 340. 1996; Sivar. & Philip, Fl. Nilambur 502. 1997. - *Barleria longifolia* L. in Torner, Cent. II. Pl. 22. 1756, non *Hygrophila longifolia* Nees 1847. *Bahel schulli* Ham., Trans. Linn. Soc. London 14: 289. 1825. *Barleria auriculata* Schumach. in Schumach. & Thonning, Besk. Guin. Pl. 285. 1827. *Ruellia longifolia* (L.) Roxb., Fl. Ind. 3: 50. 1832. *Asteracantha longifolia* (L.) Nees in Wall., Pl. As. Rar. 3: 90. 1832. *Hygrophila spinosa* T. Anders. in Thwaites, Enum. Pl. Zeyl. 225. 1860. *Hygrophila auriculata* (K. Schum.) Heine, Kew Bull. 16: 172. 1962; Hara in Hara et al., Enum. Fl. Nepal 3: 141. 1982; Manilal & Sivar., Fl. Calicut 224. 1982 [ACANTHACEAE].

Bahel-schulli Rheede, Hort. Malab. 2: 87-88, t. 45. 1679.

Vayalchulli (Malayalam script on t. 45) is still used; *Vaya*/ refers to (paddy] fields and Chulli denotes spiny herbs, thus the name refers to spiny herbs growing around paddy fields or marshy land. It is a common weed in wet areas of Malabar.



Nir-Schulli

FIG. 46.



IR-SCHULLI which is the second species of *Schulli* in the language of the Brahmins *Bula-Vanga*, is also a spinous shrub, growing in wet soil.

Root fibrous, clothed with dense hairs, with white bark, inside woody.

Stalks green, jointed, bulging out at the origin of the members near the joints, woody, with watery and green or white core, sending out stalks here and there from the joints in twos, of which the upper ones in line are opposite to the lower ones; and are four sides (squares) above and in the sides grooved with a furrow.

The leaves which come forth from the joints here and there two by two one weak, inside flat, green white, petioles, are oblong-round, anteriorly with round edges contracted into a tip, narrow towards the petiole, soft to touch, smooth flat, glabrous, with light green colour on the lower side, on the upper side with somewhat dark (colour) in the margin surrounded by a red, acute and sticking fringe.

From the rather big rib standing out on the lower side, nerves go out in oblique, annular, parallel enough (more or less parallel) tract, very little pronounced and on the upper side fairly projecting which takes very near to the margin and somewhat turned back towards the anterior, disappear, giving out from themselves lateral veinlets far apart.



Fig. 46

Flowers which arise many like four, five etc. together at the nodes above the origin of leaves both in one and in two opposite parts of the stalks, are also formed of two leaves and the same in shape, and also of no smell, but smaller and with a more narrow neck and with very weak purple-blue colour and

with the greatest part white and shining; the leaves also less deeply incised in the edges or in the lips; which is more broadly marked in the interior part with red or black points (spots) which give out hairs.

Stamens also with their apices, in the middle, four two by two mutually curved towards each other in an arched manner and among these a slender and white filament coming out of an oblong green globular head which is in the calyx is the rudiment of the seminal capsules.

The calyx however (is) of small cuspidate leaves, which are with glabrous surface.

The seminal capsules, erect, oblong, longer than those of the *Bahel-Schulli* round, woody, hard, prickly above and pricking like spines, grooved in length with six furrows many together here and there conspicuous, for the great part inclosed by the rigid leaves of the calyx, first green, then turning red, and divided in length into two cells or locules in which the seeds are placed, by means of a woody wall, the seeds in each locule indiscriminately six in number, round in shape, flat dark red in colour.

Nir-Schulli, thus called by Malabaris because it grows in water, for *Nir* for them is water.

Its Powers

The leaves remove the swelling of the body and of the male organs, when reduced to powder, which is mixed with the oil of *Ficus inferni* and is taken.

Hygrophila ringens (L.) R. Br. ex Steudel, Nom. 1: 418. 1821; Sivar. & Philip, Fl. Nilambur 502. 1997. -*Ruellia ringens* L., Sp. Pl. 635. 1753. *Ruellia erecta* N. Burm., Fl. Ind. 135, t. 41, f. 3. 1768. *Ruellia salicifolia* Vahl, Symb. 3: 84. 1794. *Hygrophila angustifolia* R. Br., Prodr. 479. 1810; Gamble, Fl. Pres, Madras 1016(713). 1924. *Ruellia obovata* Roxb. ex Hornem. [Hort. Beng. 46. 1814], ex Hornem., Suppl. Hort. Bot. Hafn. 144. 1819; Roxb., Fl. Ind. 3: 51. 1832. *Hygrophila obovata* (Hornem.) Ham., Trans. Linn. Soc. London 14: 292. 1825; Nees in Wall., Pl. As. Rar. 3: 81. 1832. *Hygrophila quadrivalvis* Ham., Trans. Linn. Soc. London 14: 291. 1825; Nees in Wall., Pl. As. Rar. 3: 80. 1832; Rani & Matthew in Matthew, Fl. Tamil Nadu Car. 3(1): 1179. 1983. *Hygrophila salicifolia* (Vahl) Nees in Wall., Pl. As. Rar. 3: 81. 1832; C. B. Cl. in J. Hook., Fl. Brit. India 4: 407. 1884; Manilal & Sivar., Fl. Calicut 224. 1982; Rani & Mathew in Matthew, Fl. Tamilnadu Carn. 3(1): 1180. 1983. *Dyschoriste erecta* (N. Burm.) Kuntze, Rev. Gen. Pl. 485. 1891. *Hygrophila erecta* (N. Burm.) Hochr., Candollea 5: 230. 1934; Backer & Bakh. f., Fl. Java 2: 270. 1965; Raizada, Indian For. 94: 444. 1968; Manilal & Sivar., Fl. Calicut 225. 1982 [ACANTHACEAE].

Nir-schulli Malab. 2: 89-90, t. 46. 1679.

The name Nirchulli (Malayalam script on t. 46) or Neer Chulli, is still used. Nir or neer means water and chulli means spiny (or, in this case, stiff), denoting a stiff plant that grows in or near water. The spininess or stiffness implicated in chulli may refer to the stiff, elongated capsules. The plant is otherwise not spiny. It is common in wet areas of Malabar.

Cara-Schulli

FIG. 47.



ARA-SCHULLI which is the third species of *Schulli*, in the language of the Brahmins, *Rana-Gondu*, is a spinous shrub, growing in sandy soil.

The root is fibrous, hairy and white, then turning red.

Stalks woody, with nodes, hairy, green, in the middle with a white, pithy core, in the nodes armed with long, woody, slender and somewhat downwardly directed spines, which arise in two, and of which the upper ones in the order are turned to other parts than the lower ones.

Leaves, which arise in the nodes at the origin of the spines, are small, thick, round, little oblong, covered with hairy down chiefly on the lower side, with light bitter and light acrid taste, with garden smell; the nerves which come out from the rib standing out on the lower side, are taken (carried) in an oblique, annular and almost parallel line, standing out only on the lower side, leaving the mark of their tracts on the upper side and showing from themselves no visible veins (obvious to sight).

Flowers which arise from the origin of the leaves from the middle of two spines on very short petioles, are of five leaves, with distinctly blue, colour, but not purple, attached to the calyx by a long, white and glittering foot, also

Cara-Schulli. *lar*
 മലബാർ മര
 قحطاء جبالى *lar*
 അകാശ *lar*



Fig. 47

with no smell, the leaves are however oblong-round, slender, obliquely grooved (marked) in length by its veins in the upper surface with strong blue colour, on the lower side with weaker colour or whitish, in the middle of the flowers stand out two white stamens with oblong, erect, dark-blue apices,

which are inserted to the foot towards the middle on the inner side, and with these emerging (coming out) a slender and white filament from the green globule which is the rudiment of the seminal capsule.

The calyx of the flowers consists of four leaves, two larger ones, (which are) oblong, round, hairy and light green and on the outside from the origin (base) grooved (marked) with ribs which are conspicuous at the edges with minute, apices, far apart and with two small, hairy, cuspidate leaves, embracing (clasping) the foot of the flowers, which (leaves) arise towards the side.

Buds of flowers are first fully (wholly) white in colour and downy on the outside, then turning blue.

Seminal capsules oblong, four sided and pressed to the level (thoroughly pressed down) on the flat or broader side of light green, on the narrower sides of dark-green colour, with the rind woody and hard, separated into two small oblong chambers by a middle, woody wall, drawn out from the middle of narrow sides, in which seeds are contained as if in locules.

Seeds which are also placed two at times in their chambers, are flat, round, first white or silvery and downy, soon the downy rind becoming red, with light bitter taste.

Its Powers

Is good for loosening swellings, if it is reduced to powder through fire (by burning) and is used mixed with vinegar for smearing on the body. Crushed into powder and mixed with drink drawn from *Tenga* or Indian palm, called *Surie*, serves for maturing and opening boils. Root given in decoction moves suppressed urine. Its decoction with the addition of a bit of rice is profitably given for tumors of the stomach. Also the decoction of leaves taken inside with a bit of rice is useful for slimming the swollen limbs.

Barleria mysorensis Roth, Nov. Pl. Sp. 313. 1821; Manilal & Sivar., Fl. Calicut 220. 1982. -*Barleria obovata* Ham., Trans. Linn. Soc. London 14: 293. 1825 [ACANTHACEAE].

Cara-schulli Rheede, Hort. Malab. 2: 91-92, t. 47. 1679.

The name Karachulli is still in use; kara means land (as opposed to marshy or aquatic) and chulli indicates spiny herb, thus, Karachulli means the chulli that grows on land, as opposed to near water (neer). The species is common on the dry lowlands and hills of Malabar.



Paina-Schulli

FIG. 48.



AINA-SCHULLI, which is the forth species of *Schulli*, is a spinous shrub, growing in watery soil.

Root fibrous and hairy, white, with a rather thick soft white bark.

Stalks round, green, with nodes, surrounded at the nodes by four hard pointed lateral spines almost mutually opposed to each other.

Leaves which come out laterally from the origin of spines on short, thick petioles in twos, (are) thick, rigid and shining, of dark green colour, or also of yellow-green, at the edges on both sides armed with three projecting spinous or prickly lobes, which are contracted alternatively towards the upper and lower surfaces with one lobe at the tip (apex).

From the mid-rib, standing out on the lower side, nerves or rib-lets, pronounced only on the lower side, come out entering into lobes contracted towards that part and with these five vein-lets on the upper side run out into lobes contracted towards it.

Flowers which arise in twos at the tip of stalks, consist of a large single leaf, more broad than oblong, which is somewhat bent towards the outside with its upper part and edges, and rigid and thick inside covered with white hairs, attached to the calyx by means of a claw, with blue, light purple colour, in the middle in length where they are swollen and are thick and glabrous without

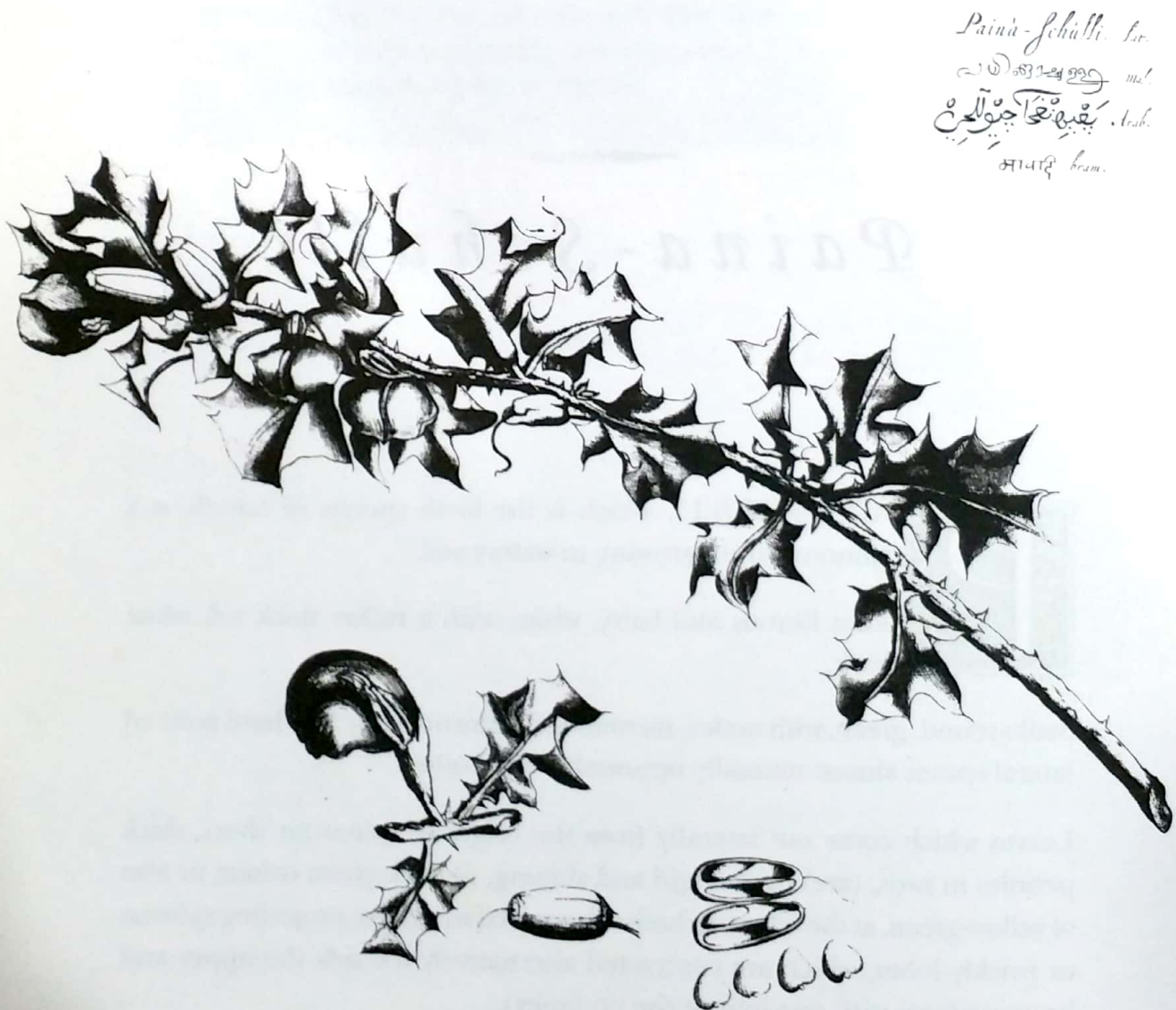


Fig. 48

spines with more intense bluish-purple colour, on the lower side however light blue and white and shining, with no smell.

In the calyx from the claw of the leaf arise four long, thick and white stamens which are bearded above with thick, white or also with spines and lying down mutually on themselves into twos, among which springs forth a slender white filament, tri-fid at the tip, originating from a globule or oblong head situated in the calyx, which is the rudiment of fruit.

The calyx is of round and mutually convolutedly twisted leaves.

The flowers having fallen away, appear the large seminal capsules, (which are) oblong round, at the basal part a bit thicker and somewhat flat in two opposite parts where they are with more round surface with one groove produced in length to the tip and projecting with a black spine at the tip, and consist of a rind first green and hard, glabrous and shining which later turns yellow and red, then becomes black, and are placed in the rather deep, light green calyx which is formed of round, cuspidate, and in unequal leaves and recalling the fruits of *Arequae* in external form and size.

Seeds are placed in two locules into which the fruit is divided by means of a partition wall which starts from the middle of the flat surfaces and connected to the middle style, and in each locule generally two seeds, which with their funicles traverse from the basal part of the fruit and through the middle surface of the woody style, where an opening gapes dividing itself into columns: the seeds are however oblong round, in the part (side) by which they lie towards the rind of the fruit, convex, while immature are white and snowy and with a thick white rind like pith, with a white light green nut inside, of light bitter taste.

Its Powers

For the sting of cobra if the whole plant is crushed and mixed with water is used for washing the part stung.

Acanthus ilicifolius L., Sp. Pl. 639. 1753; Manilal & Sivar., Fl. Calicut 221. 1982. - *Dilivaria ilicifolia* (L.) Pers., Syn. 2(1): 179. 1808 [ACANTHACEAE].

Paina-schulli Rheede, Hort. Malab. 2: 93-94, t. 48. 1679.

The name Painga Chulli (Malayalam script on t. 48) is still used; *Painga* refers to the young *Areca* nut (the similarity of the fruits of this with that) and *chulli* means a spiny herb. The species is common in salty (rarely brackish) tidal marshes of Malabar.



Carambu

FIG. 49.



ARAMBU is of three species, *Carambu*, *Cattu-Carambu*, *Nir-Carambu*.

Carambu, in the language of the Brahmins *Bula-Vanga* is a small shrub of one and a half or two feet in height growing in sandy soil and watery soil.

Root fibrous, very hairy, outside covered with white, pithy, soft, thick and humid bark, so also fibres, inside woody and humid with light green colour.

Stalks which proceed from the root, a little angular, green or also turning red, glabrous, inside humid.

Shoots or smaller stalks soft and very tender, light green and clearly angular.

Leaves come out in stalks and shoots of stalks, without any or adhering to very short petioles and are small, narrow-oblong in shape, anteriorly developing into a tip, narrow also towards the petiole, fine in texture, very soft on the surface, on the upper side of common greenness, on the lower of green-white colour.

From the white mid-rib which somewhat stands out on the upper side, chiefly however on the lower side and somewhat flat, very many slender rib-lets go out here and there in an oblique and annular tract towards the anterior part, which very near to the margin run together in the leaf, somewhat furrowing on the upper part.



Carumbu. lat.
കരയം.ഘന mal.
قَارْمَبُجُو Arab.
കരമം bram.

Fig. 49

Flowers sit on fruits (are attached to fruits) and are very small, completely yellow or muddy in colour, of four leaves, which are oblong-round, standing apart mutually by their claws, very slender, and in the middle somewhat grooved in length.

Stamens in the flowers are erect, short white and yellow which gleam forth with light yellow knobs at the tip; among these (is) the style, thick, light-green, provided with a thicker and green white head.

The calyx of the flowers consists of four or five, according to the number of the leaves of the flowers, leaves (which) are green, oblong, acuminate and spread in the form of a star and forms the principle of the fruit.

Fruits to which flowers are attached are however oblong, equaling (measuring) one transverse digit and a half, of four sides rarely of five, with the corners less clear because of roundness, towards the base swelling with a knob (head) not dissimilar to caryophyllous fruits with the tip in the same way as caryopsis attached to the stalks above the origin of the leaves, first green and shining in colour, later with dark-red colour.

Seeds which are contained in these are small-round, first from green-yellow, then with blood-red colour, then red-black or also black.

This shrub bears flowers during the rainy season.

Its Powers

The plant crushed and drunk in sour-milk (butter milk) stops dysenteric flow. The same crushed and waved over the head, relieves its pain. Its decoction drunk serves to disperse gas, for moving urine, for purging the stomach, and for curing lumbago (rheumatic affection of the muscles or fibrous tissues in the lumbar region). Its juice taken with sweet milk is good for the heat or burning of kidneys. The seeds are useful for cough, if given in powder with honey.

Ludwigia perennis L., Sp. Pl. 119. 1753; Raven in Fl. Males. I, 8: 103. 1977; Manilal & Sivar., Fl. Calicut 117. 1982; Sivar. & Philip, Fl. Nilambur 282. 1997. -*Ludwigia parviflora* Roxb., Fl. Ind. I: 440. 1820 [ONAGRACEAE].

Carambu Rheede, Hort. Malab. 2: 95-96, t. 49. 1679.

Today, the name Kareyambu (Malayalam script on t. 49) denotes the true clove (*Syzygium*) and is used to denote that plant only. Although the fruits of *Ludwigia* resemble a clove, the name is no longer used to denote *Ludwigia*. No Malayalam name has been found for this plant at present. This is one of the several interesting examples of how the local Malayalam plant names of Rheede's times have changed now to denote a plant entirely different from the one meant by Rheede (and the Malabari physicians) of those days. This species (of *Ludwigia*) is common in wet places, especially as a weed in cultivated lands.



Cattu-Carambu

FIG. 50.



ATTU-CARAMBU, which is the second species of *Carambu*, in the language of the Brahmins *Cara-Pulli*, in many things agrees with the former species, but the root of this (is) more thick.

The leaves almost the same except that they are more oblong and more narrow.

Flowers which also are attached to the stalks above the origin of leaves, the same consisting of four round-oblong leaves with their stamens and style in the middle, also of yellow or milky colour, but are bigger.

Fruits to which the flowers are attached, in as much as into which the foot of flowers grow, are like caryophylls of greater measure than those of the first species, almost four times longer and thicker, similar to those in shape and colour.

The seeds that are in these are more numerous according to the size of the fruit, and are round and first of white and then of red colour.

Bears flowers in the rainy season.

Not in use with these physicians.

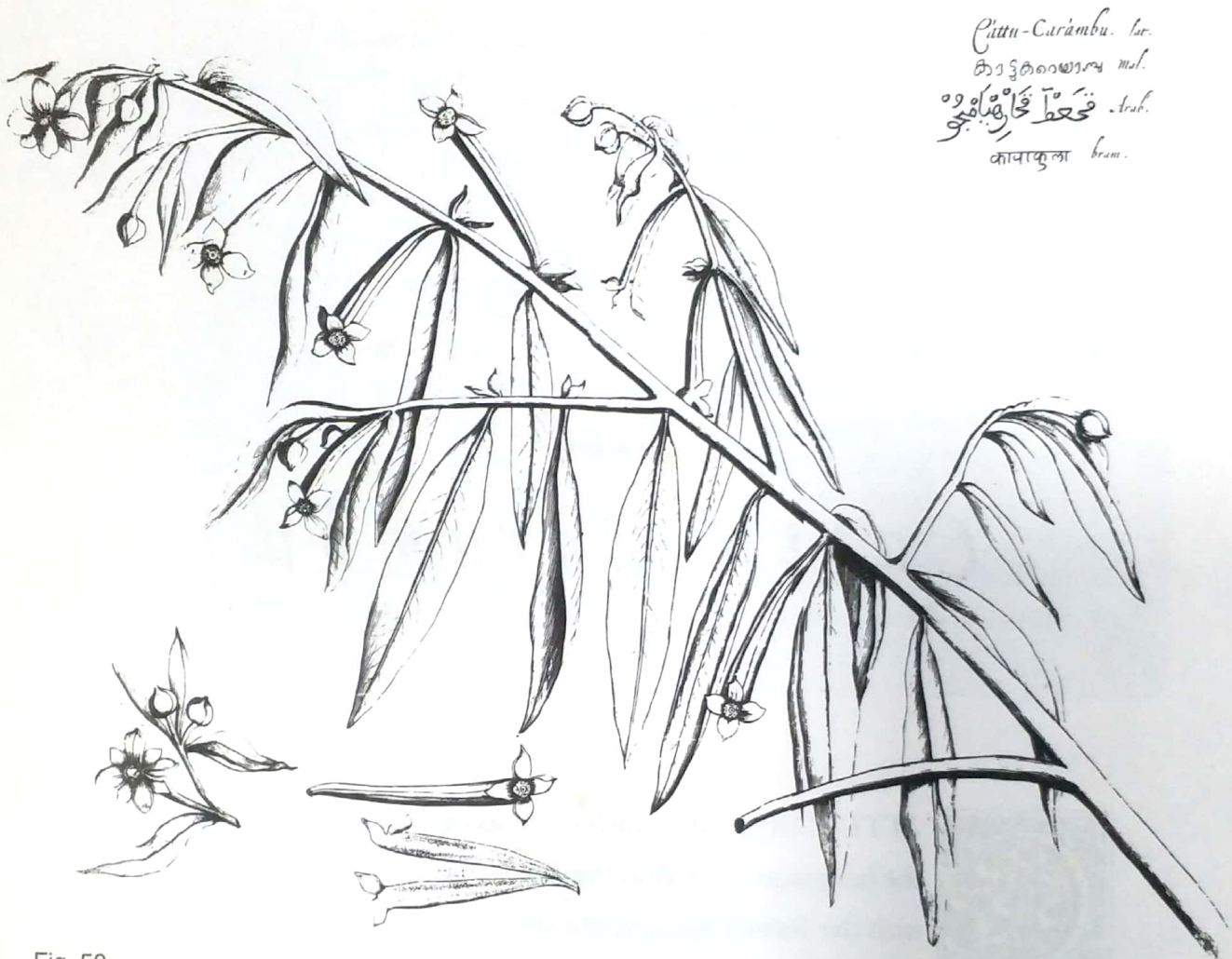


Fig. 50

Ludwigia octovalvis (Jacq.) Raven, Kew Bull. 15: 476. 1962; Sreemadhavan, Bull. Bot. Surv. India 8: 79. 1966; Raven in Fl. Males. 1, 8: 101. 1977; Manilal & Sivar., Fl. Calicut 116. 1982; Manilal, Fl. Silent Valley 114. 1988; Sivar. & Philip, Fl. Nilambur 281. 1997. - *Jussiaea suffruticosa* L., Sp. Pl. 388. 1753, non *Ludwigia suffruticosa* Walt. 1788. *Oenothera octovalvis* Jacq., Enum. Syst. Pl. 19. 1760. *Jussiaea villosa* Lam., Encycl. 3: 331. 1789. *Jussiaea exaltata* Roxb., Hart. Beng. 33. 1814 [ONAGRACEAE].

Cattu-carambu Rheede, Hort. Malab. 2: 97, t. 50. 1679.

This name Kaattu Karayambu [Malayalam script on t. 50] is not in use now and no other Malayalam name is presently known. Kattu means wild and karyambu means clove, thus kattukaryambu means "wild clove". The species occurs on the banks of freshwater ponds in Malabar.



Nir-Carambu

FIG. 51.



IR-CARAMBU, which is the third species of *Carambu*, in the language of the Brahmins *Comody*, is a small plant growing in water and in the banks of waters with stalks creeping over the ground.

Root which arise here and there from the stalk at the origin of small stalks, (are) fibrous, white and red, aqueous and fistular.

Stalks thick, pithy, fistular, round, light, shining, green-white and in the part exposed to sun, turning red.

Leaves which arise here and there in the stalks on short or long, flat, and green-white or red petioles and frequently accompanied with the sprouting of new, tender, foliaceous stalk-lets, oblong-round in shape, anteriorly with round edge, narrow towards the petiole, soft in texture, on both sides of dark and shining greenness.

From the mid-rib which stands out on the lower side, veins pronounced little in that part come out in oblique and parallel tract and very near to the margin

they are taken carried back into themselves, on the upper side conspicuous only by their tract.

Flowers come out here and there in the stalks from above the origin of leaves in petioles approximately one and a half of an ounce (?) long, (and) light green, towards one part turning red, attached to fruits, bigger than the others



a central, light green, white, thick style which is provided at the tip with a knob of light yellow colour and radiating with five grooves.

Calyx (is) of five oblong-cuspidate, slender and green, leaves unfolded in the form of a star; towards the calyx the petiole gets swollen into the fruit which is at first sight like 'Caryophylla'. Fruits on which flowers arise are not attached to stalks, as those of *Carambu* or *Cattu-Carambu*, but adhere to slender peduncles and are more oblong than those of *Carambu*, but smaller than those of *Cattu-Carambu*, with greater thickness, inside hard and covered with woody filaments, among which the seeds are serially placed in length.

The seeds are however somewhat oblong and white and a bit bigger (thicker).

Not in use with these physicians.

Ludwigia adscendens (L.) Hara, J. Jap. Bot. 28: 291. 1953; Raven. in Fl. Males. I, 8: 104. 1977. -*Jussiaea repens* L., Sp. Pl. 388. 1753, non *Ludwigia repens* J. R. Forster 1771. *Jussiaea adscendens* L., Mant. 69. 1767 [ONAGRACEAE].

Nir-carambu Rheede, Hort. Malab. 2: 99-100, t. 51. 1679.

The name Neerkaryambu (Malayalam script on t. 51) is not used; Neer means water and kareyambu means clove, thus meaning "water clove". No Malayalam name is known for the plant today. The species is common in stagnant, fresh water ponds of Malabar.

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—♦—

Ponnam-Tagera
or
Ponna-Virem

FIG. 52.



AGERA is of two species, *Ponnam-Tagera* or *Ponna-Virem* and *Tagera*.

Ponnam-Tagera or *Ponna-Virem*, in the language of the Brahmins *Arpuli*, is a small shrub of one man in height.

The root, settling down near the ground, (is) fixed here and there with fibres, with slight black bark (and) light yellow crust.

Stem and shoots dark ash-coloured.

Leaves which arise in the shoots on short pedicels two by two in a winged manner, placed on both sides in the same order (line), (are) oblong-narrow, with a broad curve towards the petiole and gradually contracted anteriorly towards the tip, slender, soft, smooth, from the mid-rib which prominently stands out on the lower side, marked with fine and slightly prominent nerves, on the upper side with dark-greenness, on the lower side with clear or dilute greenness.

Flowers which arise collectively in small shoots or thick and grooved petioles, are formed of five completely golden yellow leaves, and are oblong round

and with the maximum width towards the anterior part, with the claws very little distant from each other, grooved (marked) with three or four veins, which are pronounced on the lower side and are slightly wavy (corrugated).

There are nine light green stamens in the middle, provided with long, erect and yellow apices, with the rudiment of the pod (siliqua) in the middle, and the flowers are of no smell.



Fig. 52

Calyx green, of five, oblong-round leaves.

The flowers having fallen down, follow the oblong pods, five or six digits long, first flat and compressed, then broad-round, grooved with two opposite sutures, first green in colour, then turning yellow, then when dry, ash coloured.

The seeds which are placed in these numerous and are mutually separated by membraneous, transverse, thin walls and bulge out underneath the rind, are a bit flat, rather round, cuspidate towards one side, of thick white colour and somewhat shining.

Its Powers

Its decoction is profitably given for symptomatic fever originated from gout. The leaves given with *Sugar* and drunk dry (drained) oppose Jaundice.

Cassia sophera L., Sp. Pl. 379. 1753; de Wit, Webbia 11: 265. 1955. - *Senna sophera* (L.) Roxb., Fl. Ind. 2: 347. 1832; Irwin & Barneby, Mem. N.Y. Bot. Gard. 35: 440. 1982 [FABACEAE].

Ponnam-tagera Rheede, Hort. Malab. 2: 101-102, t. 52. 1679.

The name Ponnamtakara (Malayalam script on t. 52) is still used; ponnam is the adjectival form of ponnu (gold) and takera [or tagera] is a general term for weeds, *i.e.*, golden weed, to denote the golden yellow colour of the flower. It is of scattered distribution in Malabar and sometimes locally abundant. It is easily confused with *Cassia occidentalis* L., distinguished as follows by Irwin and Barneby in *Senna* (l.c. p. 408):

1. Peduncles 1-4.5(-7) mm, the whole axis including peduncle not over 1 cm; style only moderately dilated or incurved at tip, the introrsely lateral stigmatic cavity elliptic-oblongate in outline, its margins explanate and barbellate along the sides, minutely porrect at tip; ovules 40-60; pod strongly compressed; seeds 1-seriate

Senna occidentalis

1. Peduncles (5-)6-23 mm, the axis of more vigorous or of all racemes including peduncle over 1 cm; style dilated and strongly recurved at tip, the terminal round stigmatic cavity directed backward toward the floral receptacle; ovules 62-84; pod subterete; seeds 2-seriate

Senna sophera



Tagera

FIG. 53.



AGERA is a small plant of three or four feet in height, growing in sandy soil.

Root fibrous, black and woody.

Stalks round, woody, green.

Leaves arise two by two on short peduncles in two series in stalks which are somewhat swollen at the base, and are oblong round and broad, anteriorly with round margin, grooved (marked) towards the petiole, with thick texture, flat surface, smooth to touch, of dark greenness, from the mid-rib which stands out on the lower side and somewhat on the upper side, go out in an annular tract almost parallel rib-lets which stand out only on the lower surface.

Flowers, the same in shape and colour, but smaller.

Calyx green, of five green, oblong-round leaves.

Flowers having fallen down, appear pods, also straight and oblong but more flat and narrow than those of *Ponnam-Tagera*, of seven digits.

The beans which are contained in these are round, lying with their length in the length of the pods, and are of slight biting taste, first green, then of ash-grey and shining colour.

Tagera. *lac.*
 താമര *mal.*
 طانخار *Arab.*
 താമര *bram.*



Fig. 53

Its Powers

Crushed leaves are used for the biting or sting of bees, by smearing in the affected part. The seeds crushed and used in the same way with saffron are conducive for pustules and ulcers and with the juice of the plant *Veetla-Caitu* serves for the diseases arisen on nails, when applied to them.

Cassia tora L., Sp. Pl. 376. 1753; de Wit, Webbia 11: 276. 1955; Brenan, Kew Bull. 13: 250. 1958; Manilal & Sivar., Fl. Calicut 96. 1982; Sasidh. & Sivar., Fl. Thrissur 164. 1996; Sivar. & Philip, Fl. Nilambur 236. 1997. - *Cassia tagera* L., Sp. Pl. 376. 1753. *Cassia ciliaris* Collad., Hist. Nat. Méd. Casses 98. 1816. *Senna tora* (L.) Roxb., Fl. Ind. 2: 340. 1832. *Tagera filiformis* Raf., Sylva Tellur. 129. 1838 [FABACEAE].

Tagera Rheede, Hort. Malab. 2: 103, t. 53. 1679.

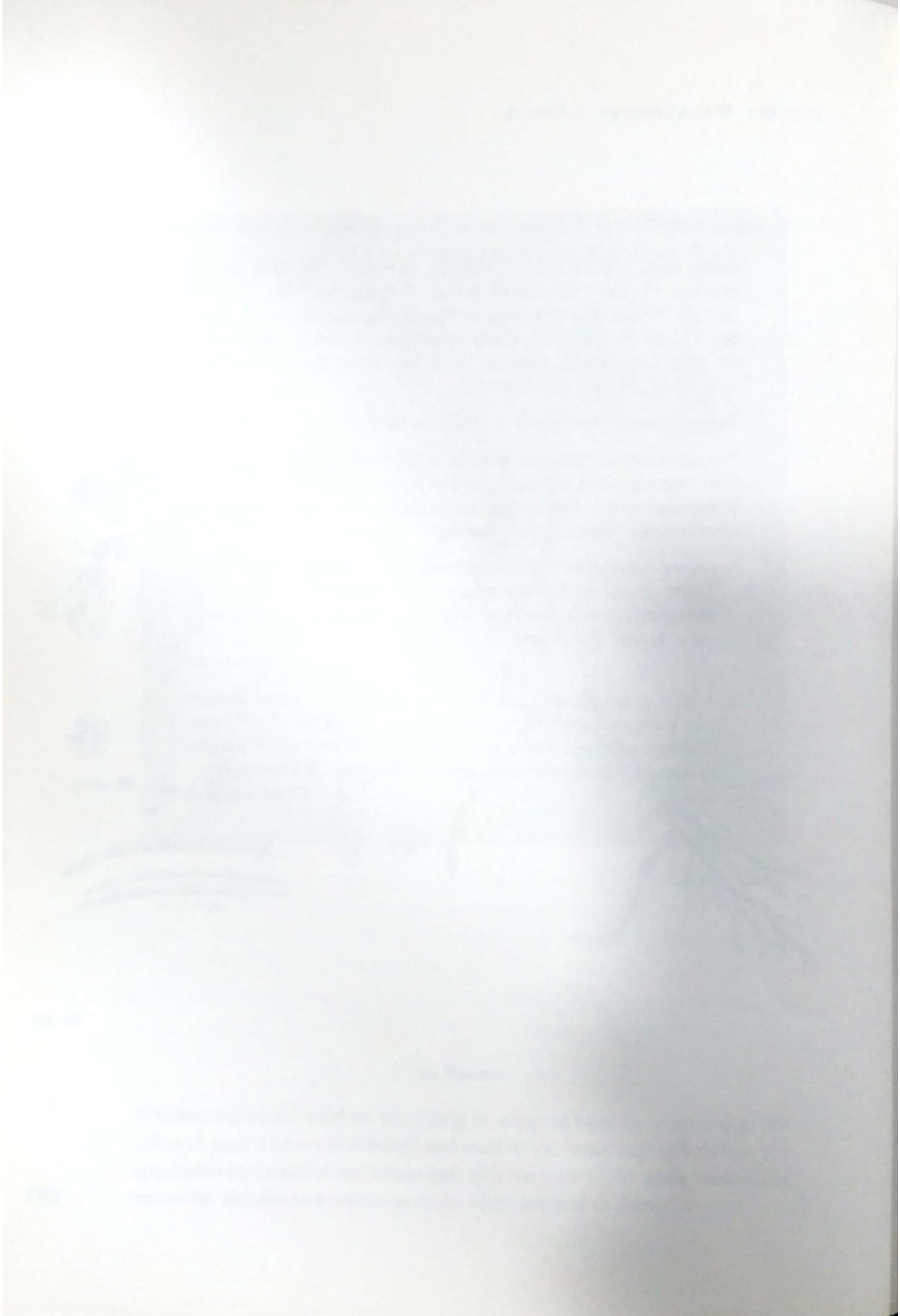
The name Tagera [Malayalam script on t. 53] is still used; this is a general term meaning weed, especially used to denote this species, which is a widespread weed in Malabar. The species can be distinguished from the other common relative by the following:-

1. A gland between each of the two lower pairs of leaflets. Pedicels (fl.) 5-10 mm, (pods) to 1.5 cm. Larger 3 anthers abruptly rounded at apex, not narrowed into neck. Areole on both sides of seeds 1.5-2.0 mm wide, about as wide as seed itself

Cassia tora

1. A gland usually between only the lower pair of leaflets (rarely between both lower pairs). Pedicels (fl.) (5-) 12-35 mm, (pods) 1.5-4.5 cm. Larger 3 anthers narrowed shortly below their apex like the neck of a bottle. Areoles on both sides of seeds narrow, almost linear, 3-5 mm wide:

Cassia obtusifolia





Nandi-Ervatam

FIG. 54.



HERE are two species of *Nandi-Ervatam*, (both) of the same name, one bigger the other smaller (**major** and **minor**).

Nandi-Ervatham major, in the language of the Brahmins *Vallo-Nanditu* is a bushy shrub four feet tall, growing in sandy soil.

Root fibrous, with whitish or light red bark, spreading itself into branches.

Stems arising from the roots, with rough ash-grey bark, jointed with their branches.

Shoots slender and new ones green.

Leaves which arise two by two on short green petioles from the nodes of the shoots, are oblong narrow, round, anteriorly projecting with a short, narrow tip, which is greatly curved towards one side, contracted towards the petiole, some more, some less, milky inside, soft, with smooth surface, on the upper side of dark greenness, on the lower side of clear greenness, and on both sides shining, chiefly on the upper side.

From the rather thick mid-rib, rib-lets go out almost two by two in an annular and parallel tract and turning back from the margin they run into themselves mutually in an arched manner, accompanied by fine vein-lets conspicuous in the leaf, and with the mid-rib standing out also on the upper sides; the leaves (are) of no smell and taste except woody.



Nandi-ervatum major. Lat.
 പതിമുതലായവ. mal.
 نازنجيار والحام Arab.
 नंदीरवत brah.

Fig. 54

Flowers arise many together (collectively) in petioles which originate two, three or many together, from above the origin of leaves, and are roses totally white or snow white, with sweet and pleasing smell, formed of ten oblong leaves, which are anteriorly more broad thick, rigid and are marked with fine veins, and placed in a double line, five of them which are in the outer line

are marked on one side with a straight line and are more thick, on the other side with a more round, slender, crisp, or corrugated margin, on the outside marked with a nerve which originating very near to the straight margin, runs into it in a curved tract, the five which are in the inner line, surrounded by sides on both parts round and not exactly uniform and corrugated every where on the edges, and the flowers are attached to a calyx of five small leaves with a peduncle one and a half (times) which is outside light green and light yellow, on the inside sprinkled with yellow and saffron powder, by which are tinged the claws of the leaves.

The flower-buds conical.

During the time in which the origin of flowers is approaching, all the leaves fall down and new ones along with flowers break forth.

This small shrub is completely milky, bearing flowers twice or thrice a year.

Its Powers

The Juice pressed out from it and mixed with oil relieves sore-eyes when the head is smeared with it. The root chewed and detained (kept) in the mouth relieves tooth-ache, by killing the worms; boiled with oil serves for every indisposition of the head and especially relieves head-ache when smeared with it; the same crushed and drunk in water stops lumbago, removes clouds when crushed with the juice of lemon and put into the eyes.

Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult., Syst. 4: 427. 1819; Merr., Contrib. Arnold Arb. 8: 140. 1934; Manilal & Sivar., Fl. Calicut 166. 1982; Leeuwenberg in Van Beek et al., J. Ethnopharmac. 10: 11. 1984. - *Nerium divaricatum* L., Sp. Pl. 209. 1753. *Nerium coronarium* Jacq., Coll. 1: 138. 1786. *Reichardia grandiflora* Dennst., Schlüssel 10, 24, 32. 1818. *Ervatamia coronaria* (Jacq.) Stapf in Thistleton Dyer, Fl. Trop. Afr. 4: 127. 1902. *Ervatamia divaricata* (L.) Burkill, Rec. Bot. Surv. India 10: 320. 1925; Alston in Trimen, Handb. Fl. Ceylon 6: 191. 1931; Huber in Dassan., Rev. Handb. Fl. Ceylon 4: 27. 1983 [APOCYNACEAE].

Nandi-ervatam major Rheede, Hort. Malab. 2: 105-106, t. 54. 1679.

The Malayalam script on t. 54 reads "Valiya Nandiyarvattam"; valiya means large (major *i.e.* double-flowered), "Major" is the double-flowered aspect and "minor" is the single-flowered aspect of this species, both of which are cultivated in Malabar. Nandiyar is the name of a Hindu caste [allusion not clear]. The Malayalam script on t. 55 reads "Cheriyā Nandiyarvattam"; cheriya meaning small (minor, *i.e.*, single-flowered) and Nandiyarvattam is the name of this species, used as offerings to many Gods, in Hindu temples.



Nandi-Ervatam Minor

FIG. 55.



HERE is also *Nandi-Ervatam minor* called, in the language of Brahmins *Dacula-Nanditu*, differing from the former, only in that it is with somewhat smaller leaves and that the flowers consist of more simple and smaller leaves, say only five, which are similar to the leaves of the flowers of the former species which are placed in the outer position.

Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult., Syst. 4: 427. 1819; Merr., Contrib. Arnold Arb. 8: 140. 1934; Manilal & Sivar., Fl. Calicut 166. 1982; Leeuwenberg in Van Beek et al., J. Ethnopharmac. 10: 11. 1984. -*Nerium divaricatum* L., Sp. Pl. 209. 1753. *Nerium coronarium* Jacq., Coll. 1: 138. 1786. *Reichardia grandiflora* Dennst., Schlüssel 10, 24, 32. 1818. *Ervatamia coronaria* (Jacq.) Stapf in Thistleton Dyer, Fl. Trop. Afr. 4: 127. 1902. *Ervatamia divaricata* (L.) Burkill, Rec. Bot. Surv. India 10: 320. 1925; Alston in Trimen, Handb. Fl. Ceylon 6: 191. 1931; Huber in Dassan., Rev. Handb. Fl. Ceylon 4: 27. 1983 [APOCYNACEAE].



Fig. 55

Nandi-ervatam minor Rheede, Hort. Malab. 2: 107, t. 55. 1679.

The Malayalam script on t. 55 reads "Cheriyā Nandiyarvattam"; cheriyā meaning small (minor, *i.e.*, single-flowered) and Nandiyarvattam is the name of this species, used as offerings to many Gods, in Hindu temples. "Major" is the double-flowered aspect and "minor" is the single-flowered aspect of this species, both of which are cultivated in Malabar.



Capo-Molago

FIG. 56.



APO-MOLAGO, in the language of the Brahmins, is a small shrub of three feet in height, growing in sandy soil.

Root is fibrous inside with white wood, with red bark, which is very biting.

Stalks and branches round, inside with green shining cortex and thinly covered with scattered hairs, with a soft and green core in the white wood.

Leaves which are attached to (hang from) weak, slender petioles are oblong-narrow and cuspidate, narrow towards the petiole and surrounding it like a fringe, fine in texture, soft, smooth in surface, of dark green colour on the upper side, on the lower of clear greenness, marked with transverse ribs which arising from the whitish midrib run into themselves in annular tract and stand out also on the upper side along with the mid-rib, of slight biting and slight bitter taste.

Flowers which arise on slender, short petioles from above the origin of leaves, are stars formed of five oblong, cuspidate leaves which are marked in the middle with a vein, of no smell and have in the middle a core formed of

straight, whitish and dark green stamens beset with fine fringe and in the middle a whitish style standing a bit above the stamens and proceeding from a small globe which is the germ (beginning) of the fruit and is situated in the calyx.



Fig. 56

The calyx of the flowers tightly clasps the flower and is marked with five green-dark ribs.

Fruits which appear when the flowers have fallen down, are oblong-round, first green then, when mature completely golden yellow or saffron coloured, of very biting taste and greatly stinging with intense burning, especially when they are mature.

Seeds which (are) numerous in these and placed compactly and are mutually separated into two lines, are oblong-round, flat and white and when dry, somewhat curly.

Its Powers

Its pepper chewed and retained in the mouth relieves tooth-ache, also usefully placed after being crushed, for opening boils.

Capsicum annum L., Sp. Pl. 188. 1753; Heiser & Pickersgill, Taxon 18: 282. 1969; Hepper in Dassan., Rev. Handb. Fl. Ceylon 6: 395. 1988 ("1987"); Sivar. & Philip, Fl. Nilambur 466. 1997 [SOLANACEAE].

Capo-molago Rheede., Hort. Malab. 2: 109-110, t. 56. 1679.

The name Kappa-Mulaku (Malayalam script on t. 56) is still used; kappa (from kappal) means ship, i.e., introduced from abroad (by Portuguese), and Mulaku is a general term for "hot" chillies. This is more commonly called simply as Mulagu. There are many cultivars of this species, commonly cultivated in Malabar and used in almost every household daily.



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VOL. & FIG. NUMBERS WITH MALAYALAM NAME,
SCIENTIFIC NAME AND FAMILY NAME

Volume / Fig./ Year	Malayalam Name	Scientific Name	Family Name
2: 1-2, t. 1-5. 1679	Kaida	<i>Pandanus kaida</i> Kurz	PANDANACEAE
2: 3, t. 6.1679	Kaida-taddi	<i>Pandanus fascicularis</i> Lam.	PANDANACEAE
2: 5, t. 7.1679	Perin-kaida-taddi	<i>Pandanus unipapillatus</i> Dennst.	PANDANACEAE
2: 7, t. 8.1679	Kaida-tsjeria	<i>Pandanus furcatus</i> Roxb.	PANDANACEAE
2: 9-10, t. 9. 1679	Panel	<i>Glycosmis pentaphylla</i> (Retz.) DC.	RUTACEAE
2: 11-12, t. 10. 1679	Narum-panel	<i>Uvaria narum</i> (Dunal) Wall. ex Wight & Arn.	ANNONACEAE
2: 13-14, t. 11.1679	Cara-nosi	<i>Vitex trifolia</i> L.	VERBENACEAE
2: 15, t.12.1679	Bem-nosi	<i>Vitex negundo</i> L.	VERBENACEAE
2: 17-18, t. 13.1679	Schetti	<i>Ixora coccinea</i> L.	RUBIACEAE
2: 19, t. 14. 1679	Bem-schetti	<i>Ixora alba</i> L.	RUBIACEAE
2: 21-22, t. 15.1679	Nedum-schetti	<i>Memecylon sessile</i> Benth. ex Wight & Arn.	MELASTOMATACEAE
2: 23-24, t.16. 1679	Scherunam-cottam	<i>Bridelia scandens</i> (Roxb.) Willd.	EUPHORBIACEAE
2: 25-26, t. 17.1679	Schem-pariti	<i>Hibiscus rosa-sinensis</i> L.	MALVACEAE
2: 27-28, t. 18. 1679	Belilla	<i>Mussaenda belilla</i> Ham.	RUBIACEAE
2: 29-30, t. 19.1679	Modira-canni	<i>Hugonia mystax</i> L.	LINACEAE
2: 31-32, t. 20.1679	Carim-curini	<i>Ecbolium viride</i> (Forssk.) Alston	ACANTHACEAE
2: 33-34, t. 21. 1679	Bem-curini	<i>Justicia betonica</i> L.	ACANTHACEAE
2: 35-36, t. 22.1679	Caretti	<i>Caesalpinia bonduc</i> (L.) Roxb.	FABACEAE
2: 37-38, t. 23. 1679	Cupi	<i>Tarenna asiatica</i> (L.) Kuntze ex K. Schum.	RUBIACEAE
2: 39-40, t. 24.1679	Cattu-schiragam	<i>Vernonia anthelmintica</i> (L.) Willd.	ASTERACEAE
2: 41-42, t. 25. 1679	Peragu	<i>Clerodendrum infortunatum</i> L.	VERBENACEAE
2: 43-44, t. 26. 1679	Nalagu	<i>Leea asiatica</i> (L.) Ridsdale	LEEACEAE
2: 45-46, t. 27.1679	Niruri	<i>Breynia vitis-idaea</i> (N. Burm.) Fischer	EUPHORBIACEAE
2: 47-48, t. 28.1679	Hummatu	<i>Datura stramonium</i> L.	SOLANACEAE
2: 49-50, t. 29.1679	Nila-hummatu	<i>Datura metel</i> L.	SOLANACEAE
2: 51-52, t. 30.1679	Mudela-nila-hummatu	<i>Datura metel</i> L.	SOLANACEAE
2: 53-56, (no plate).1679	Bel-ericu	<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE

2: 53-56, t. 31. 1679	Ericu	<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE
2: 57-60, t. 32. 1679	Avanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE
2: 57-60, t. 32. 1679	Citavanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE
2: 57-60, (no plate). 1679	Pandi-avanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE
2: 61-62, t. 33. 1679	Cadel-avanacu	<i>Croton tiglium</i> L.	EUPHORBIACEAE
2: 63, t. 34. 1679	Codi-avanacu	<i>Sebastiania chamaelea</i> (L.) Müll.-Arg.	EUPHORBIACEAE
2: 65-66, t. 35. 1679	Ana-schunda	<i>Solanum lasiocarpum</i> Dunal	SOLANACEAE
2: 67-68, t. 36. 1679	Scheru-schunda	<i>Solanum violaceum</i> Ortega	SOLANACEAE
2: 69-70, t. 37. 1679	Schunda	<i>Solanum melongena</i> L.	SOLANACEAE
2: 71-72, t. 38. 1679	Cattu-gasturi	<i>Abelmoschus moschatus</i> Medic.	MALVACEAE
2: 73-74, t. 39. 1679	Schorigenam	<i>Tragia involucrata</i> L.	EUPHORBIACEAE
2: 75, t. 40. 1679	Batti-schorigenam	<i>Laportea interrupta</i> (L.) Chew	URTICACEAE
2: 77-78, t. 41. 1679	Ana-schorigenam	<i>Girardinia diversifolia</i> (Link) Friis	URTICACEAE
2: 79 [no plate]. 1679	Valli-schorigenam	<i>Tragia involucrata</i> L.	EUPHORBIACEAE
2: 81-82, t. 42. 1679	Schadida-calli	<i>Euphorbia antiquorum</i> L.	EUPHORBIACEAE
2: 83-84, t. 43. 1679	Ela-calli	<i>Euphorbia nivulia</i> Ham.	EUPHORBIACEAE
2: 85-86, t. 44. 1679	Tiru-calli	<i>Euphorbia tirucalli</i> L.	EUPHORBIACEAE
2: 87-88, t. 45. 1679	Bahel-schulli	<i>Hygrophila schulli</i> (Ham.) M.R. & S.M. Almeida	ACANTHACEAE
2: 89-90, t. 46. 1679	Nir-schulli	<i>Hygrophila ringens</i> (L.) R. Br. ex Steudel	ACANTHACEAE
2: 91-92, t. 47. 1679	Cara-schulli	<i>Barleria mysorensis</i> Roth	ACANTHACEAE
2: 93-94, t. 48. 1679	Paina-schulli	<i>Acanthus ilicifolius</i> L.	ACANTHACEAE
2: 95-96, t. 49. 1679	Carambu	<i>Ludwigia perennis</i> L.	ONAGRACEAE
2: 97, t. 50. 1679	Cattu-carambu	<i>Ludwigia octovalvis</i> (Jacq.) Raven	ONAGRACEAE
2: 99-100, t. 51. 1679	Nir-carambu	<i>Ludwigia adscendens</i> (L.) Hara	ONAGRACEAE
2: 101-102, t. 52. 1679	Ponnam-tagera	<i>Cassia sophora</i> L.	FABACEAE
2: 103, t. 53. 1679	Tagera	<i>Cassia tora</i> L.	FABACEAE
2: 105-106, t. 54. 1679	Nandi-ervatam major	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	APOCYNACEAE
2: 107, t. 55. 1679	Nandi-ervatam minor	<i>Tabernaemontana divaricata</i> (L.) R. Br. ex Roem. & Schult.	APOCYNACEAE
2: 109-110, t. 56. 1679	Capo-molago	<i>Capsicum annum</i> L.	SOLANACEAE

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VOL. & FIG. NUMBERS WITH
MALAYALAM NAME, KONKANI, PORTUGUESE
AND DUTCH/BELGIAN NAMES

Volume/Fig./Year	Malayalam Name	Konkani Name	Portuguese Name	Dutch/Belg. Name
2: 1-2, t. 1-5. 1679	Kaida	Bandaki	*	*
2: 3, t. 6. 1679	Kaida-taddi	*	*	*
2: 5, t. 7. 1679	Perin-kaida-taddi	*	*	*
2: 7, t. 8. 1679	Kaida-tsjeria	*	*	*
2: 9-10, t. 9. 1679	Panel	Cali-Apocara	*	*
2: 11-12, t. 10. 1679	Narum-panel	Calo-Apocara	*	*
2: 13-14, t. 11. 1679	Cara-nosi	Negunda	*	*
2: 15, t. 12. 1679	Bem-nosi		*	*
2: 17-18, t. 13. 1679	Schetti	Pada-Cali	*	*
2: 19, t. 14. 1679	Bem-schetti	Dav Padacali	*	*
2: 21-22, t. 15. 1679	Nedum-schetti	Puu-la-padacali	*	*
2: 23-24, t. 16. 1679	Scherunam-cottam		*	*
2: 25-26, t. 17. 1679	Schem-pariti		*	*
2: 27-28, t. 18. 1679	Belilla	Sravadi	*	*
2: 29-30, t. 19. 1679	Modira-canni	*	*	*
2: 31-32, t. 20. 1679	Carim-curini	Pocsoo	*	*
2: 33-34, t. 21. 1679	Bem-curini	Davo-Pocso	*	*
2: 35-36, t. 22. 1679	Caretti	Tiringoesi	*	*
2: 37-38, t. 23. 1679	Cupi	Cita-Mataki	*	*
2: 39-40, t. 24. 1679	Cattu-schiragam	Calageri	*	*
2: 41-42, t. 25. 1679	Peragu	Saikilo	*	*
2: 43-44, t. 26. 1679	Nalagu	Dino	*	*
2: 45-46, t. 27. 1679	Niruri	Pane-poi	*	*
2: 47-48, t. 28. 1679	Hummatu	Dotiro	*	*
2: 49-50, t. 29. 1679	Nila-hummatu	Calo-Dotiro	*	*
2: 51-52, t. 30. 1679	Mudela-nila-hummatu	Vallo-Dotiro	*	*
2: 53-56, (no plate). 1679	Bel-ericu	Davi-Roey	*	*
2: 53-56, t. 31. 1679	Ericu	Roey	*	*
2: 57-60, t. 32. 1679	Avanacu	Erando	*	*
2: 57-60, t. 32. 1679	Citavanacu	Erando	*	*

2: 57-60, (no plate). 1679	Pandi-avanacu	Vollo-Erando	*	*
2: 61-62, t. 33.1679	Cadel-avanacu	Japalu	*	*
2: 63, t. 34.1679	Codi-avanacu	Boin-Erando	*	*
2: 65-66, t. 35.1679	Ana-schunda	Sada-Vaingani	*	*
2: 67-68, t. 36. 1679	Scheru-schunda	Sinsarati	*	*
2: 69-70, t. 37.1679	Schunda	Dolari	*	*
2: 71-72, t. 38.1679	Cattu-gasturi	Bonda-Calo	*	*
2: 73-74, t. 39. 1679	Schorigenam	Pitta-Gasurculi	*	*
2: 75, t. 40. 1679	Batti-schorigenam	Daculi-Gasurculi	*	*
2: 77- 78, t. 41. 1679	Ana-schorigenam	Hasty-Gasurculi	*	*
2: 79 [no plate]. 1679	Valli-schorigenam	Pitta-Gasurculi	*	*
2: 81-82, t. 42.1679	Schadida-calli	Pada-Nivuli	*	*
2: 83-84, t. 43. 1679	Ela-calli	Nivuli	*	*
2: 85-86, t. 44. 1679	Tiru-calli	Portigalli-Nivuli	*	*
2: 87-88, t. 45.1679	Bahel-schulli	Colasso	*	*
2: 89-90, t. 46. 1679	Nir-schulli	Bula-Vanga	*	*
2: 91-92, t. 47.1679	Cara-schulli	Rana-Gondu	*	*
2: 93-94, t. 48.1679	Paina-schulli	*	*	*
2: 95-96, t. 49.1679	Carambu	Bula-Vanga	*	*
2: 97, t. 50.1679	Cattu-carambu	Cara-Pulli	*	*
2: 99-100, t. 51.1679	Nir-carambu	Comody	*	*
2: 101-102, t. 52. 1679	Ponnam-tagera	Arpuli	*	*
2: 103, t. 53.1679	Tagera	*	*	*
2: 105-106, t. 54.1679	Nandi-ervatam major	Vallo-Nanditu	*	*
2: 107, t. 55.1679	Nandi-ervatam minor	Dacola-Nanditu	*	*
2: 109-110, t. 56.1679	Capo-molago		*	*

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SCIENTIFIC NAMES WITH FAMILY NAME,
MALAYALAM NAME AND VOL. & FIG. NUMBER

Scientific Name	Family Name	Malayalam Name	Volume/Fig./Year
<i>Abelmoschus moschatus</i> Medic.	MALVACEAE	Cattu-gasturi	2: 71-72, t. 38.1679
<i>Acanthus ilicifolius</i> L.	ACANTHACEAE	Paina-schulli	2: 93-94, t. 48.1679
<i>Barleria mysorensis</i> Roth	ACANTHACEAE	Cara-schulli	2: 91-92, t. 47.1679
<i>Breynia vitis-idaea</i> (N. Burm.) Fischer	EUPHORBIACEAE	Niruri	2: 45-46, t. 27.1679
<i>Bridelia scandens</i> (Roxb.) Willd.	EUPHORBIACEAE	Scherunam-cottam	2: 23-24, t. 16. 1679
<i>Caesalpinia bonduc</i> (L.) Roxb.	FABACEAE	Caretti	2: 35-36, t. 22.1679
<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE	Bel-ericu	2: 53-56,(no plate).1679
<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE	Ericu	2: 53-56, t. 31. 1679
<i>Capsicum annuum</i> L.	SOLANACEAE	Capo-molago	2: 109-110, t. 56.1679
<i>Cassia sophera</i> L.	FABACEAE	Ponnam-tagera	2: 101-102, t. 52. 1679
<i>Cassia tora</i> L.	FABACEAE	Tagera	2: 103, t. 53.1679
<i>Clerodendrum infortunatum</i> L.	VERBENACEAE	Peragu	2: 41-42, t. 25. 1679
<i>Croton tiglium</i> L.	EUPHORBIACEAE	Cadel-avanacu	2: 61-62, t. 33.1679
<i>Datura metel</i> L.	SOLANACEAE	Mudela-nila-hummatu	2: 51-52, t. 30.1679
<i>Datura metel</i> L.	SOLANACEAE	Nila-hummatu	2: 49-50, t. 29.1679
<i>Datura stramonium</i> L.	SOLANACEAE	Hummatu	2: 47-48, t. 28.1679
<i>Ecbolium viride</i> (Forssk.) Alston	ACANTHACEAE	Carim-curini	2: 31-32, t. 20.1679
<i>Euphorbia antiquorum</i> L.	EUPHORBIACEAE	Schadida-calli	2: 81-82, t. 42.1679
<i>Euphorbia nivulia</i> Ham.	EUPHORBIACEAE	Ela-calli	2: 83-84, t. 43. 1679
<i>Euphorbia tirucalli</i> L.	EUPHORBIACEAE	Tiru-calli	2: 85-86, t. 44. 1679
<i>Girardinia diversifolia</i> (Link) Friis	URTICACEAE	Ana-schorigenam	2: 77- 78, t. 41. 1679
<i>Glycosmis pentaphylla</i> (Retz.) DC.	RUTACEAE	Panel	2: 9-10, t. 9. 1679
<i>Hibiscus rosa-sinensis</i> L.	MALVACEAE	Schem-pariti	2: 25-26, t. 17.1679
<i>Hugonia mystax</i> L.	LINACEAE	Modira-canni	2: 29-30, t. 19.1679
<i>Hygrophila ringens</i> (L.) R. Br. ex Steudel	ACANTHACEAE	Nir-schulli	2: 89-90, t. 46. 1679

<i>Hygrophila schulli</i> (Ham.) M.R. & S.M. Almeida	ACANTHACEAE	Bahel-schulli	2: 87-88, t. 45.1679
<i>Ixora alba</i> L.	RUBIACEAE	Bem-schetti	2: 19, t. 14. 1679
<i>Ixora coccinea</i> L.	RUBIACEAE	Schetti	2: 17-18, t. 13.1679
<i>Justicia betonica</i> L.	ACANTHACEAE	Bem-curini	2: 33-34, t. 21. 1679
<i>Laportea interrupta</i> (L.) Chew	URTICACEAE	Batti-schorigenam	2: 75, t. 40. 1679
<i>Leea asiatica</i> (L.) Ridsdale	LEEACEAE	Nalagu	2: 43-44, t. 26. 1679
<i>Ludwigia adscendens</i> (L.) Hara	ONAGRACEAE	Nir-carambu	2: 99-100, t. 51.1679
<i>Ludwigia octovalvis</i> (Jacq.) Raven	ONAGRACEAE	Cattu-carambu	2: 97, t. 50.1679
<i>Ludwigia perennis</i> L.	ONAGRACEAE	Carambu	2: 95-96, t. 49.1679
<i>Memecylon sessile</i> Benth. ex Wight & Arn.	MELASTOMACEAE	Nedum-schetti	2: 21-22, t. 15.1679
<i>Mussaenda belilla</i> Ham.	RUBIACEAE	Belilla	2: 27-28, t. 18. 1679
<i>Pandanus fascicularis</i> Lam.	PANDANACEAE	Kaida-taddi	2: 3, t. 6.1679
<i>Pandanus furcatus</i> Roxb.	PANDANACEAE	Kaida-tsjeria	2: 7, t. 8.1679
<i>Pandanus kaida</i> Kurz	PANDANACEAE	Kaida	2: 1-2, t. 1-5. 1679
<i>Pandanus unipapillatus</i> Dennst.	PANDANACEAE	Perin-kaida-taddi	2: 5, t. 7.1679
<i>Ricinus communis</i> L.	EUPHORBIACEAE	Avanacu	2: 57-60, t. 32. 1679
<i>Ricinus communis</i> L.	EUPHORBIACEAE	Citavanacu	2: 57-60, t. 32. 1679
<i>Ricinus communis</i> L.	EUPHORBIACEAE	Pandi-avanacu	2: 57-60, (no plate).1679
<i>Sebastiana chamaelea</i> (L.) Müll.-Arg.	EUPHORBIACEAE	Codi-avanacu	2: 63, t. 34.1679
<i>Solanum lasiocarpum</i> Dunal	SOLANACEAE	Ana-schunda	2: 65-66, t. 35.1679
<i>Solanum melongena</i> L.	SOLANACEAE	Schunda	2: 69-70, t. 37.1679
<i>Solanum violaceum</i> Ortega	SOLANACEAE	Scheru-schunda	2: 67-68, t. 36. 1679
<i>Tabernaemontana divaricata</i> (L.) R. Br. ex Roem. & Schult.	APOCYNACEAE	Nandi-ervatam minor	2: 107, t. 55.1679
<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	APOCYNACEAE	Nandi-ervatam major	2: 105-106, t. 54.1679
<i>Tarenna asiatica</i> (L.) Kuntze ex K. Schum.	RUBIACEAE	Cupi	2: 37-38, t. 23. 1679
<i>Tragia involucrata</i> L.	EUPHORBIACEAE	Schorigenam	2: 73-74, t. 39. 1679
<i>Tragia involucrata</i> L.	EUPHORBIACEAE	Valli-schorigenam	2: 79 [no plate]. 1679
<i>Uvaria narum</i> (Dunal) Wall. ex Wight & Arn.	ANNONACEAE	Narum-panel	2: 11-12, t. 10. 1679
<i>Vernonia anthelmintica</i> (L.) Willd.	ASTERACEAE	Cattu-schiragam	2: 39-40, t. 24.1679
<i>Vitex negundo</i> L.	VERBENACEAE	Bem-nosi	2: 15, t.12.1679
<i>Vitex trifolia</i> L.	VERBENACEAE	Cara-nosi	2: 13-14, t. 11.1679

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MALAYALAM NAMES WITH SCIENTIFIC NAME,
FAMILY NAME AND VOL. & FIG. NUMBER

Malayalam Name	Scientific Name	Family Name	Volume / Fig. /Year
Ana-schorigenam	<i>Girardinia diversifolia</i> (Link) Friis	URTICACEAE	2: 77- 78, t. 41. 1679
Ana-schunda	<i>Solanum lasiocarpum</i> Dunal	SOLANACEAE	2: 65-66, t. 35.1679
Avanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE	2: 57-60, t. 32. 1679
Bahel-schulli	<i>Hygrophila schulli</i> (Ham.) M.R. & S.M. Almeida	ACANTHACEAE	2: 87-88, t. 45.1679
Batti-schorigenam	<i>Laportea interrupta</i> (L.) Chew	URTICACEAE	2: 75, t. 40. 1679
Bel-ericu	<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE	2: 53-56,(no plate).1679
Belilla	<i>Mussaenda belilla</i> Ham.	RUBIACEAE	2: 27-28, t. 18. 1679
Bem-curini	<i>Justicia betonica</i> L.	ACANTHACEAE	2: 33-34, t. 21. 1679
Bem-nosi	<i>Vitex negundo</i> L.	VERBENACEAE	2: 15, t.12.1679
Bem-schetti	<i>Ixora alba</i> L.	RUBIACEAE	2: 19, t. 14. 1679
Cadel-avanacu	<i>Croton tiglium</i> L.	EUPHORBIACEAE	2: 61-62, t. 33.1679
Capo-molago	<i>Capsicum annum</i> L.	SOLANACEAE	2: 109-110, t. 56.1679
Carambu	<i>Ludwigia perennis</i> L.	ONAGRACEAE	2: 95-96, t. 49.1679
Cara-nosi	<i>Vitex trifolia</i> L.	VERBENACEAE	2: 13-14, t. 11.1679
Cara-schulli	<i>Barleria mysorensis</i> Roth	ACANTHACEAE	2: 91-92, t. 47.1679
Caretti	<i>Caesalpinia bonduc</i> (L.) Roxb.	FABACEAE	2: 35-36, t. 22.1679
Carim-curini	<i>Ecbolium viride</i> (Forssk.) Alston	ACANTHACEAE	2: 31-32, t. 20.1679
Cattu-carambu	<i>Ludwigia octovalvis</i> (Jacq.) Raven	ONAGRACEAE	2: 97, t. 50.1679
Cattu-gasturi	<i>Abelmoschus</i> <i>moschatus</i> Medic.	MALVACEAE	2: 71-72, t. 38.1679
Cattu-schiragam	<i>Vernonia anthelmintica</i> (L.) Willd.	ASTERACEAE	2: 39-40, t. 24.1679
Citavanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE	2: 57-60, t. 32. 1679
Codi-avanacu	<i>Sebastiania chamaelea</i> (L.) Müll.-Arg.	EUPHORBIACEAE	2: 63, t. 34.1679
Cupi	<i>Tarenna asiatica</i> (L.) Kuntze ex K. Schum.	RUBIACEAE	2: 37-38, t. 23. 1679
Ela-calli	<i>Euphorbia nivulia</i> Ham.	EUPHORBIACEAE	2: 83-84, t. 43. 1679
Ericu	<i>Calotropis gigantea</i> (L.) W. T. Aiton	ASCLEPIADACEAE	2: 53-56, t. 31. 1679

Hummatu	<i>Datura stramonium</i> L.	SOLANACEAE	2: 47-48, t. 28.1679
Kaida	<i>Pandanus kaida</i> Kurz	PANDANACEAE	2: 1-2, t. 1-5. 1679
Kaida-taddi	<i>Pandanus fascicularis</i> Lam.	PANDANACEAE	2: 3, t. 6.1679
Kaida-tsjeria	<i>Pandanus furcatus</i> Roxb.	PANDANACEAE	2: 7, t. 8.1679
Modira-canni	<i>Hugonia mystax</i> L.	LINACEAE	2: 29-30, t. 19.1679
Mudela-nila-hummatu	<i>Datura metel</i> L.	SOLANACEAE	2: 51-52, t. 30.1679
Nalagu	<i>Leea asiatica</i> (L.) Ridsdale	LEEACEAE	2: 43-44, t. 26. 1679
Nandi-ervatam major	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	APOCYNACEAE	2: 105-106, t. 54.1679
Nandi-ervatam minor	<i>Tabernaemontana divaricata</i> (L.) R. Br. ex Roem. & Schult.	APOCYNACEAE	2: 107, t. 55.1679
Narum-panel	<i>Uvaria narum</i> (Dunal) Wall. ex Wight & Arn.	ANNONACEAE	2: 11-12, t. 10. 1679
Nedum-schetti	<i>Memecylon sessile</i> Benth. ex Wight & Arn.	MELASTOMACEAE	2: 21-22, t. 15.1679
Nila-hummatu	<i>Datura metel</i> L.	SOLANACEAE	2: 49-50, t. 29.1679
Nir-carambu	<i>Ludwigia adscendens</i> (L.) Hara	ONAGRACEAE	2: 99-100, t. 51.1679
Nir-schulli	<i>Hygrophila ringens</i> (L.) R. Br. ex Steudel	ACANTHACEAE	2: 89-90, t. 46. 1679
Niruri	<i>Breynia vitis-idaea</i> (N. Burm.) Fischer	EUPHORBIACEAE	2: 45-46, t. 27.1679
Paina-schulli	<i>Acanthus ilicifolius</i> L.	ACANTHACEAE	2: 93-94, t. 48.1679
Pandi-avanacu	<i>Ricinus communis</i> L.	EUPHORBIACEAE	2: 57-60, (no plate).1679
Panel	<i>Glycosmis pentaphylla</i> (Retz.) DC.	RUTACEAE	2: 9-10, t. 9. 1679
Peragu	<i>Clerodendrum infortunatum</i> L.	VERBENACEAE	2: 41-42, t. 25. 1679
Perin-kaida-taddi	<i>Pandanus unipapillatus</i> Dennst.	PANDANACEAE	2: 5, t. 7.1679
Ponnam-tagera	<i>Cassia sophora</i> L.	FABACEAE	2: 101-102, t. 52. 1679
Schadida-calli	<i>Euphorbia antiquorum</i> L.	EUPHORBIACEAE	2: 81-82, t. 42.1679
Schem-pariti	<i>Hibiscus rosa-sinensis</i> L.	MALVACEAE	2: 25-26, t. 17.1679
Scherunam- cottam	<i>Bridelia scandens</i> (Roxb.) Willd.	EUPHORBIACEAE	2: 23-24, t.16. 1679
Scheru-schunda	<i>Solanum violaceum</i> Ortega	SOLANACEAE	2: 67-68, t. 36. 1679
Schetti	<i>Ixora coccinea</i> L.	RUBIACEAE	2: 17-18, t. 13.1679
Schorigenam	<i>Tragia involucrata</i> L.	EUPHORBIACEAE	2: 73-74, t. 39. 1679
Schunda	<i>Solanum melongena</i> L.	SOLANACEAE	2: 69-70, t. 37.1679
Tagera	<i>Cassia tora</i> L.	FABACEAE	2: 103, t. 53.1679
Tiru-calli	<i>Euphorbia tirucalli</i> L.	EUPHORBIACEAE	2: 85-86, t. 44. 1679
Valli-schorigenam	<i>Tragia involucrata</i> L.	EUPHORBIACEAE	2: 79 [no plate]. 1679

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FAMILY NAMES WITH SCIENTIFIC NAME
MALAYALAM NAME AND VOL. & FIG. NUMBER

Family	Scientific Name	Malayalam Name	Volume / Fig. / Year
ACANTHACEAE	<i>Acanthus ilicifolius</i> L.	Paina-schulli	2: 93-94, t. 48.1679
ACANTHACEAE	<i>Barleria mysorensis</i> Roth	Cara-schulli	2: 91-92, t. 47.1679
ACANTHACEAE	<i>Ecbolium viride</i> (Forssk.) Alston	Carim-curini	2: 31-32, t. 20.1679
ACANTHACEAE	<i>Hygrophila ringens</i> (L.)	R. Br. ex Steudel Nir-schulli	2: 89-90, t. 46. 1679
ACANTHACEAE	<i>Hygrophila schulli</i> (Ham.) M.R. & S.M	Almeida Bahel-schulli	2: 87-88, t. 45.1679
ACANTHACEAE	<i>Justicia betonica</i> L.	Bem-curini	2: 33-34, t. 21. 1679
ANNONACEAE	<i>Uvaria narum</i> (Dunal) Wall. ex Wight & Arn.	Narum-panel	2: 11-12, t. 10. 1679
APOCYNACEAE	<i>Tabernaemontana</i> <i>divaricata</i> (L.) R. Br. ex Roem. & Schult.	Nandi-ervatam minor	2: 107, t. 55.1679
APOCYNACEAE	<i>Tabernaemontana</i> <i>divaricata</i> (L.) R.Br. ex Roem. & Schult.	Nandi-ervatam major	2: 105-106, t. 54.1679
ASCLEPIADACEAE	<i>Calotropis gigantea</i> (L.) W. T. Aiton	Bel-ericu	2: 53-56,(no plate).1679
ASCLEPIADACEAE	<i>Calotropis gigantea</i> (L.) W. T. Aiton	Ericu	2: 53-56, t. 31. 1679
ASTERACEAE	<i>Vernonia anthelmintica</i> (L.) Willd.	Cattu-schiragam	2: 39-40, t. 24.1679
EUPHORBIACEAE	<i>Breynia vitis-idaea</i> (N. Burm.) Fischer	Niruri	2: 45-46, t. 27.1679
EUPHORBIACEAE	<i>Bridelia scandens</i> (Roxb.) Willd.	Scherunam-cottam	2: 23-24, t.16. 1679
EUPHORBIACEAE	<i>Croton tiglium</i> L.	Cadel-avanacu	2: 61-62, t. 33.1679
EUPHORBIACEAE	<i>Euphorbia antiquorum</i> L.	Schadida-calli	2: 81-82, t. 42.1679
EUPHORBIACEAE	<i>Euphorbia nivulia</i> Ham.	Ela-calli	2: 83-84, t. 43. 1679
EUPHORBIACEAE	<i>Euphorbia tirucalli</i> L.	Tiru-calli	2: 85-86, t. 44. 1679
EUPHORBIACEAE	<i>Ricinus communis</i> L.	Avanacu	2: 57-60, t. 32. 1679
EUPHORBIACEAE	<i>Ricinus communis</i> L.	Citavanacu	2: 57-60, t. 32. 1679
EUPHORBIACEAE	<i>Ricinus communis</i> L.	Pandi-avanacu	2: 57-60,(no plate).1679
EUPHORBIACEAE	<i>Sebastiania chamaelea</i> (L.) Müll.-Arg.	Codi-avanacu	2: 63, t. 34.1679
EUPHORBIACEAE	<i>Tragia involucrata</i> L.	Schorigenam	2: 73-74, t. 39. 1679
EUPHORBIACEAE	<i>Tragia involucrata</i> L.	Valli-schorigenam	2: 79 [no plate]. 1679

FABACEAE	<i>Caesalpinia bonduc</i> (L.) Roxb.	Caretti	2: 35-36, t. 22.1679
FABACEAE	<i>Cassia sophera</i> L.	Ponnam-tagera	2: 101-102, t. 52. 1679
FABACEAE	<i>Cassia tora</i> L.	Tagera	2: 103, t. 53.1679
LEEACEAE	<i>Leea asiatica</i> (L.)	Ridsdale Nalagu	2: 43-44, t. 26. 1679
LINACEAE	<i>Hugonia mystax</i> L.	Modira-canni	2: 29-30, t. 19.1679
MALVACEAE	<i>Abelmoschus moschatus</i> Medic.	Cattu-gasturi	2: 71-72, t. 38.1679
MALVACEAE	<i>Hibiscus rosa-sinensis</i> L.	Schem-pariti	2: 25-26, t. 17.1679
MELASTOMATACEAE	<i>Memecylon sessile</i> Benth. ex Wight & Arn.	Nedum-schetti	2: 21-22, t. 15.1679
ONAGRACEAE	<i>Ludwigia adscendens</i> (L.) Hara	Nir-carambu	2: 99-100, t. 51.1679
ONAGRACEAE	<i>Ludwigia octovalvis</i> (Jacq.) Raven	Cattu-carambu	2: 97, t. 50.1679
ONAGRACEAE	<i>Ludwigia perennis</i> L.	Carambu	2: 95-96, t. 49.1679
PANDANACEAE	<i>Pandanus fascicularis</i> Lam.	Kaida-taddi	2: 3, t. 6.1679
PANDANACEAE	<i>Pandanus furcatus</i> Roxb.	Kaida-tsjeria	2: 7, t. 8.1679
PANDANACEAE	<i>Pandanus kaida</i> Kurz	Kaida	2: 1-2, t. 1-5. 1679
PANDANACEAE	<i>Pandanus unipapillatus</i> Dennst.	Perin-kaida-taddi	2: 5, t. 7.1679
RUBIACEAE	<i>Ixora alba</i> L.	Bem-schetti	2: 19, t. 14. 1679
RUBIACEAE	<i>Ixora coccinea</i> L.	Schetti	2: 17-18, t. 13.1679
RUBIACEAE	<i>Mussaenda belilla</i> Ham.	Belilla	2: 27-28, t. 18. 1679
RUBIACEAE	<i>Tarenna asiatica</i> (L.) Kuntze ex K. Schum.	Cupi	2: 37-38, t. 23. 1679
RUTACEAE	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Panel	2: 9-10, t. 9. 1679
SOLANACEAE	<i>Capsicum annum</i> L.	Capo-molago	2: 109-110, t. 56.1679
SOLANACEAE	<i>Datura metel</i> L.	Mudela-nila-hummatu	2: 51-52, t. 30.1679
SOLANACEAE	<i>Datura metel</i> L.	Nila-hummatu	2: 49-50, t. 29.1679
SOLANACEAE	<i>Datura stramonium</i> L.	Hummatu	2: 47-48, t. 28.1679
SOLANACEAE	<i>Solanum lasiocarpum</i> Dunal	Ana-schunda	2: 65-66, t. 35.1679
SOLANACEAE	<i>Solanum melongena</i> L.	Schunda	2: 69-70, t. 37.1679
SOLANACEAE	<i>Solanum violaceum</i> Ortega	Scheru-schunda	2: 67-68, t. 36. 1679
URTICACEAE	<i>Girardinia diversifolia</i> (Link) Friis	Ana-schorigenam	2: 77- 78, t. 41. 1679
URTICACEAE	<i>Laportea interrupta</i> (L.) Chew	Batti-schorigenam	2: 75, t. 40. 1679
VERBENACEAE	<i>Clerodendrum infortunatum</i> L.	Peragu	2: 41-42, t. 25. 1679
VERBENACEAE	<i>Vitex negundo</i> L.	Bem-nosi	2: 15, t.12.1679
VERBENACEAE	<i>Vitex trifolia</i> L.	Cara-nosi	2: 13-14, t. 11.1679

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KONKANI NAMES WITH MALAYALAM,
PORTUGUESE, DUTCH/BELGIAN NAMES
AND VOL. & FIG. NUMBER

Konkani Name	Malayalam Name	Portuguese Name	Dutch/Belgian Name	Volume/ Fig./Year
*	Kaida-taddi	*	*	2: 3, t. 6.1679
*	Kaida-tsjeria	*	*	2: 7, t. 8.1679
*	Modira-canni	*	*	2: 29-30, t. 19.1679
*	Paina-schulli	*	*	2: 93-94, t. 48.1679
*	Perin-kaida-taddi	*	*	2: 5, t. 7.1679
*	Tagera	*	*	2: 103, t. 53.1679
.....	Bem-nosi	*	*	2: 15, t.12.1679
.....	Capo-molago	*	*	2: 109-110, t. 56.1679
.....	Schem-pariti	*	*	2: 25-26, t. 17.1679
.....	Scherunam-cottam	*	*	2: 23-24, t.16. 1679
Arpuli	Ponnam-tagera	*	*	2: 101-102, t. 52. 1679
Bandaki	Kaida	*	*	2: 1-2, t. 1-5. 1679
Boin-Erando	Codi-avanacu	*	*	2: 63, t. 34.1679
Bonda-Calo	Cattu-gasturi	*	*	2: 71-72, t. 38.1679
Bula-Vanga	Carambu	*	*	2: 95-96, t. 49.1679
Bula-Vanga	Nir-schulli	*	*	2: 89-90, t. 46. 1679
Calageri	Cattu-schiragam	*	*	2: 39-40, t. 24.1679
Cali-Apocara	Panel	*	*	2: 9-10, t. 9. 1679
Calo-Apocara	Narum-panel	*	*	2: 11-12, t. 10. 1679
Calo-Dotiro	Nila-hummatu	*	*	2: 49-50, t. 29.1679
Cara-Pulli	Cattu-carambu	*	*	2: 97, t. 50.1679
Cita-Mataki	Cupi	*	*	2: 37-38, t. 23. 1679
Colasso	Bahel-schulli	*	*	2: 87-88, t. 45.1679
Comody	Nir-carambu	*	*	2: 99-100, t. 51.1679
Dacola-Nanditu	Nandi-ervatam minor	*	*	2: 107, t. 55.1679
Daculi-Gasurculi	Batti-schorigenam	*	*	2: 75, t. 40. 1679
Dav Padacali	Bem-schetti	*	*	2: 19, t. 14. 1679
Davi-Roey	Bel-ericu	*	*	2: 53-56, (no plate). 1679
Davo-Pocso	Bem-curini	*	*	2: 33-34, t. 21. 1679

Dino	Nalagu	*	*	2: 43-44, t. 26. 1679
Dolari	Schunda	*	*	2: 69-70, t. 37.1679
Dotiro	Hummatu	*	*	2: 47-48, t. 28.1679
Erando	Avanacu	*	*	2: 57-60, t. 32. 1679
Erando	Citavanacu	*	*	2: 57-60, t. 32. 1679
Hasty-Gasurculi	Ana-schorigenam	*	*	2: 77- 78, t. 41. 1679
Japalu	Cadel-avanacu	*	*	2: 61-62, t. 33.1679
Negunda	Cara-nosi	*	*	2: 13-14, t. 11.1679
Nivuli	Ela-calli	*	*	2: 83-84, t. 43. 1679
Pada-Cali	Schetti	*	*	2: 17-18, t. 13.1679
Pada-Nivuli	Schadida-calli	*	*	2: 81-82, t. 42.1679
Pane-poi	Niruri	*	*	2: 45-46, t. 27.1679
Pitta-Gasurculi	Schorigenam	*	*	2: 73-74, t. 39. 1679
Pitta-Gasurculi	Valli-schorigenam	*	*	2: 79 [no plate]. 1679
Pocsoo	Carim-curini	*	*	2: 31-32, t. 20.1679
Portigalli-Nivuli	Tiru-calli	*	*	2: 85-86, t. 44. 1679
Puu-la-padacali	Nedum-schetti	*	*	2: 21-22, t. 15.1679
Rana-Gondu	Cara-schulli	*	*	2: 91-92, t. 47.1679
Roey	Ericu	*	*	2: 53-56, t. 31. 1679
Sada-Vaingani	Ana-schunda	*	*	2: 65-66, t. 35.1679
Saikilo	Peragu	*	*	2: 41-42, t. 25. 1679
Sinsarati	Scheru-schunda	*	*	2: 67-68, t. 36. 1679
Sravadi	Belilla	*	*	2: 27-28, t. 18. 1679
Tiringoesi	Caretti	*	*	2: 35-36, t. 22.1679
Vallo-Dotiro	Mudela-nila-hummatu	*	*	2: 51-52, t. 30.1679
Vallo-Nanditu	Nandi-ervatam major	*	*	2: 105-106, t. 54.1679
Vollo-Erando	Pandi-avanacu	*	*	2: 57-60, (no plate). 1679



K.S.Manilal, Emeritus Professor, Malabar Botanical Garden, Calicut, Kerala prepared the English Edition of *Hortus Malabaricus* with Annotations and Modern Botanical Nomenclature. He has been studying the various aspects of Van Rheedee's *Hortus Malabaricus* for the past 35 years. After obtaining Ph.D. degree from the University of Saugar, Prof. Manilal joined the faculty of the University of Kerala in 1964. Later he worked in several Universities and academic institutions such as the University of London, the University of N.Wales (UK), National Museum of Natural History, Washington DC (USA), Royal Botanic Gardens, Kew, Rijksherbarium, Leiden University, the Netherlands. He retired as senior Professor of Botany from the University of Calicut. He has published over 200 research papers and 11 books which include *Botany and History of Hortus Malabaricus* (1980), *An Interpretation of Van Rheedee's Hortus Malabaricus* (jointly) (1988).

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