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Regionally accepted popular source of Ayurvedic medicinal plants in Southern India

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Abstract

South India flora comprises Western ghats as well as Nilagiri Hills which are among the most diverse biggest sources of medicinal plants. The collection, practice and preparations from Southern India are well known not only all over India but also in abroad. Many of the popular pharmaceutical companies are located in South India only, which invariably extensively depend on the regional botanical sources of raw drugs. Currently regionally accepted Ayurvedic medicinal plants are under scanner and importance is being given to validate these sources both documented and undocumented in the classics of Ayurveda. In this article efforts have been made to collect all such available sources and discuss on the various parameters such as avilability, morphological identity, pharmacological actions etc. Article also aims to contribute for popularisation of such medicinal plants andanticipating their adoption into mainstream of Ayurvedic medical practice.

Key-Words: Southern India, Plant resources, Herbs

Introduction

Folk medicine consists of the independent traditional practice of primitive nomadic tribe anywhere on the earth. These practices as old as any civilisation. They exit now, before, and they will exit forever, as long as such tribes inhabit the earth in any part of the world. In fact the folk medicine is the birth place of many medicines, which have found their proper place in the scientific medicine. This principle can be illustrated by number of examples from all over the world [(1)]

The domestic Indian System of Medicine (ISM) market, comprising Ayurveda, Unani, Siddha, and Homeopathy, has been estimated to exceed Rs. 42 billion/year (US$950 million) and India at present exports herbal medicines and materials to the tune of Rs5.5 billion/year (US$124 million). The world trade in medicinal plants is estimated to be about US$62 billion, with the major players being the European Union at 45%, Asia 17%, and Japan 16%.

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In India the classical patent or proprietary medicines of these systems are manufactured by over 9000 licensed pharmacies/manufacturing units. Some of these medicines are also exported to the Middle East. Major destination countries are the USA, Japan, Nepal, Sri Lanka, Germany, Italy, Nigeria, and the UAE[(2)]

Even as plant resources are getting depleted, there is a steady decline in human expertise capable of recognising the various medicinal herbs. The ancient sages themselves suggested that they are to be known with the help of hermits, shepherds and tribal's. With the increasing urbanisation, industrialisation and consequent changes in life style this knowledge touched the rock bottom. Unlike in the olden days, when physicians themselves used to collect the herbs, prepare and administer the medicine, the newer generation of Ayurvedic physicans, with prepared drugs in the market have degenerated into prescription writers like their counterparts in western medicine, without much knowledge of the constituent herbs of the formulations that they are prescribing. As a result, professional plant collectors have taken over the floor and the industry is forced to accept the herbs they bring on their terms without questioning. Herb collectors on their part, unable to meet increasing demand, adulterate the drugs with other plants, there by understanding the quality of the drug and credibility of the system[(3)]

Plant resources particularly medicinal plants are disappearing at an alarming rate and not enough attention is being given to seek alternate sources or substitutes for many of these plants. Although scours of medicinal species have vanished from our country or are threatened with extinction, India is blessed with one of the richest floras in the world and still there are hundreds of species which have equal value to some of the commonly used plants and may be some of them may even be superior in their properties to those in common use [(4)].

The first and foremost need of the hour is to have a uniform pattern for the selection of various herbal sources of drugs. In the light of current scarcity of several medicinal herbs, there is greater need to discover suitable substitutes for them [(5)].

Aims and objectives

1. To compile the various plant source of different drugs, with special reference to the current practice in Southern India
2. To discuss the available sources with reasons such as availability, morphological identity, pharmacological actions etc.

Material and Methods

Ayurvedic plants were screened for their various plant sources which are practiced in Kerala. The widely referred text book on medicinal plant culture in Southern India, 'Ayurvedic Drugs and their plant sources' by V.V.Shivarajan & Indira Balachandran, which covers most of the legally approved Ayurvedic plant drugs in India and their source plants in Kerala state, was taken as a reference for this study. All the plant based drugs mentioned in this book were scrutinized for their Ayurvedic as well botanical nomenclature. In this study, the common name given as the title of the monograph in the book, in Sanskrit or Hindi, was considered as Ayurvedic name. A list was then prepared having the Ayurvedic name of the plant drug and all the botanical entities attributed for the plant drug along with the family they belong to, as mentioned in the text book under reference. Instances, where one or more than one botanical entity was attributed to one single plant drug were also collected. A separate list was made on the basis of number of species attributed to one drug, i.e. two species attributed to single drug, 3 species attributed to single drug and so on.

Results and Conclusion

i) Presentation of the subject

Introductory part reveals that drug and its important usage in Ayurvedic classic as well as ethnomedicinal use in Southern India mainly in Kerala. Further important preparations are given. The Author tries to correlate synonym and homonym of the drug to match the proper identification of the plant source on the parallel lines of Ayurveda. Where the various authors opinions were coated which through enlight on the current scenario of the controversial aspects of the drugs. Then the regional alternative drugs have been elaborated as accepted source. The drug is explained broadly with their detailed morphology description and distribution as well as the where so ever necessary with distinguishing morphological character.

Notes on references to recent, important pharmacognostical, pharmacological and clinical studies are mentioned. Exclusively Ayurvedic drugs are explained with their alphabetical order relates to Sanskrit names.

ii) Pecularites used for plant source:

Certain plants like *Alpinia galanga, Alpinia calcarata, Alpinia molacansis* are only found in south India which is peculiar charactertic and the drug is used as source plant for Rasna[(6)] The plants like *Calotropis gigantea* (Linn)R.Br.-Asclepiadaceae are only found in North India thus the white variety *Calotropis procera* R.Br.-Asclepiadaceae used as plant source in Kerala [(7)]

iii) Accepted source as regional variations:

Certain plants are available in certain regions and on the basis of availability the various drugs are used as accepted source as,

Sariva: *Hemidesmus indicus* (Linn)Schult.-Asclepiadaceae North india, *Cryptolepis buchanani* Roem and Schult-South India. [(8)]

Shankapuspi: *Clitoria ternatea* Linn-Fabacae-South India, *Convolvulus pluricaulis* Chois-Convolvulaceae-North India. **(9)**

iv) Pharmacological actions

It is found that *Eclipta prostrata* (L.) is effective in the treatment of infective hepatitis (Dixit and Achar, 1979; Dube et al., 1982).Chandra et.al. (1987) found that *Eclipta alba* is effective against liver injury and inflammation [(10)]. Yang et.al (1986) studied the antihepatotoxic effect of Wedelia chinensis.The isolated constituents of this plant exhibited strong activity against liver damage induced by chemicals.

Clinical studies conducted by Bhalla et al.,(1971) prove that *Boerhaavia diffusa* root possesses anti-inflammatory and antiarthritic activity. Vohra et.al.,(1983) found that *Trianthema portulacastrum* exhibits antipyretic, analgesic and anti-inflammatory activities[(11)].

This type of studies gives us guidelines the usage of alternative source plants in various diseases.

v) Chemical composition

Coscinium fenestratum (Gaertn.)Colebr. Menispermaceae is used as substitute for root and stem of Indian Barberry,Rasut (Berberis aristata DC) which is a bitter tonic[12].

A number of saponins which can be used antistress compounds have been isolated from the plant *Panax pseudo-ginseng* Wall.-Araliaceae and this indicates that the plant can be used as a good substitute for *Panax ginseng* Mey.which can be accepted antistress drug all over the world (Polunin and stainton,161;CSIR News,38(5 and 6),70,1988.By the extrapharmacopoeal drugs acceptance we can also work on the parallel lines of regional subtitutes or alternatives[13].

The roots of *Paris polyphylla* Smith (Liliaceae) contain good amount of Diosgnin and therefore,this can be exploited as an alternative source in place of *Dioscorea deltoidea* Wall(Polunin and Stainton,426;Santapu and Henry,125;Singhet.al, Indian J.Chem.4,460,1966;Chopra and Kapoor, Indian For.,94,620,1968)[14].

Beeries of *Solanum elaeagnifolium* Cav.Solanaceae are rich source of Solasodine and is an ideal potential crop for the drug. Since this plant is thornless, collection of berries is easier to collect than *Solanum khasianum* Clarke which is usually explored for the drug solasodine(Uphof,490;Maiti and Mathew,Curr.Sci.,36,126,1967;Kaul and Zutshi,Indian J.Pharm.35(3),94-96,1973)[15].

The tannin from the bark of *Terminalia alata* Heyne ex.Roth –Combretiaceae is a substitute for Babul bark tannin *Acacia indica* (Benth) Brenan (Karnik et.al, Indian For. 96,612,1970; Satyavati and Rajadurai,Leath,Sci.14,40,1967)[16].

Vi) Morphological characters

All the species of Krishnabeeja (Ipomoea nil (Linn.) Roth.-Convolvulaceae) are available in India and are possibly used as source of Krishna bija[17].

1. Sepals soft-pilose or glabrous- I.indica.
2. Sepals hispid- I.pilose:

i).Sepals acute - I.purpurea.

3. Sepals long acuminate:

i) Sepals gradually narrowed, tips erect or suberect- I.nil.

ii) Sepals abruptly narrowed; tips strongly spreading- I.hederacea.

Many taxonomists have erroneously treated C.bonduc and C.crista as nonspecific. They represent two different species and can be recognised as follows [18]

Stipules foliaceous, pinnate, pod prickly-C.bonduc.

Stipules simple, pod smooth-C.creista.

In Kerala *T.sinensis* is substituted for *Tinospora cordifolia*-Menispermaceae, as the leaf shape of *T.sinensis* is entire or sinuately 3-5 lobed, to15×12 cm and that of *T.cordifolia* leaf is shortly acuminate at the apex to 9×8 cms[19].

vii) On the basis of the vernacular names

In South India the drug Takkola and Kankola are substitued for each other as there is very much similarity in vernaculars as well as their usage in spices .These drugs are botanically identified as *Vitex altissima*-Verbenceae and *Piper cubeba* Linn-Piperaceae respectively [20].

viii) Obervation of the table

Pashanabheda is having highest number of plant source i.e.8.below that Sahachara is having 6 source plant and that of Mudgaparni, Masaparni and Amlavetas having five plant sources.

Sr.no.	Drug name	Plant source
1.	Pasanabheda- *Aerva lanata*(Linn)-Amaranthaceae	1.*Coleus ambonicus* Lour-Lamiaceae 2.*Homonoia riparia* Lour-Euphorbiaceae 3. *Saxifraga ligulata* Wall-Saxifragaceae. 4.*Kalanchoe pinnata* Salisb-Crassulaceae 5.*Ocimum basilicum* Linn-Lamiaceae 6.*Bridelia montana*-Euphorbiaceae 7.*Ammania baccifera* Linn-Lythraceae 8.*Rotula aquatica* Lour-Boraginaceae

Higest number of familes documented as plant source

Sr.no	Family	Number
1	Fabaceae	28
2	Euphorbiaceae	13
3	Rubiaceae	11
4	Acanthaceae	08

Fabaceae is the one of the most dominant family of the angiosperms, study also supported that nearly 28 plant sources were found of the same, next followed by other families plant members.

The most dominant family is Fabaceae most dominant other source plant is Pasanabheda. The study may helps to overcome controversial aspects of the drug and current practices of adulteration. The future prospects require standardisation to include in different pharmacopoeia.

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12. Ibid Substitute and Adulterant plants; Pg.no.47.
13. Ibid Substitute and Adulterant plants; Pg.no.87.
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15. Ibid Substitute and Adulterant plants; Pg.no.102.
16. Ibid Substitute and Adulterant plants; Pg.no.106.
17. Ibid Ayurvedic Drugs and their plant sources; Pg.no.256
18. Ibid Ayurvedic Drugs and their plant sources; Pg.no.260.
19. Ibid Ayurvedic Drugs and their plant sources; Pg.no. 38
20. T.R.Shanta,J.K.Pattanshetty and S.N.Yognarasimhan-The Journal of Reesearch and Education in Indian medicine,Jan-June,1985

Table 1: List of Ayurvedic drug

S/No.	Name of the Drug	Latin name With family	Plant source
1.	Agnimantha	*Clerodendrum phlomides*-Verbenaceae	*Premna serratifolia*- Verbenaceae
2.	Akhukarni	*Maremia emarginata*(Brum.f)Hall.f.-Convolvulaceae	*Hemionitis arifolia*(Brum)Moore-Chelianthaceae.
3.	Alambusa	*Biophytum sensitvum* Wt.-Oxalidaceae	*Mimosa pudica*-Mimosaceae
4.	Amlavetasah	*Garcinia pedunculata* Roxb.-Clusiaceae	1.*Rheum emodii*-Polygonaceae 2.*Rumex vesicarius*- Polygonaceae 3.*Cissus repens* Lam-Vitaceae 4.*Ampelocissus latifolia* (Roxb)Planch-Vitaceae 5.*Cayratia trifolia*(Linn.)Domin-Vitaceae
5.	Amrita	*Tinospora cordifolia* (Willd) Hook f and Thoms-Menispermaceae.	1.*Tinospora sinensis* (Lour)-Menispermaceae 2.*Tinospora crispa* Hook and Thomas.- Menispermaceae
6.	Apamargah	*Achyranthes aspera* Linn.-Amaranthaceae	1.*Achyranthes bidentata* Bl.-Amaranthaceae (Red variety) 2.*Cyanthula prostrata* (Linn.)Blume-Amaranthaceae.
7.	Arka	*Calotropis gigantea* (Linn)R.Br.-	*Calotropis procera* R.Br.-

		Asclepiadaceae	Asclepiadaceae (sweta arka)
8.	Asokah	*Saraca asoca*(Roxb)-Caesalpiniaceae	*Polyalthia longifolia*-Annonaceae
9.	Bhadra	*Aerva lanata* (Linn)Juss.-Amaranthaceae.	Sweta brhati *Solanum indicum* Linn -Solanaceae
10.	Bharangi	*Clerodendrum serratum*(L) Moon.-Verbenaceae	1.*Clerodendrum indicum* L. 2.*Gardenia turgida* Roxb-Rubiaceae 3.*Gardenia latifolia* Ait-Rubaceae 4.*Picrasma quassioides* Benn.-Simaroubaceae
11.	Bhrngarajah	*Eclipta alba* (Linn)Hassk-Asteraceae	1.*Wedelia chinensis*(Osbeck)Merr.-Asteraceae
12.	Brhati	*Solanum indicum* Linn. -Solanaceae	1.*Solanum melongena* Linn.-Solanaceae 2.*Solanum insanum* Linn.- 3.Solanaceae 3.*Solanum virginianum* Linn.-Solanaceae
13.	Canda	*Costus speciosus*-Zingiberaceae	*Kaemferia pandurata*-Zingiberaceae
14.	Chandanam	*Santalum album* Linn-Santalaceae	*Pteocarpus santalinus* Linn.f.-Fabacae
15.	Citrakah	*Plumbaga zeylanica* Linn.-Plumbaginaceae(White)	1.*Plumbago indica* Linn.-Plumbaginaceae(Red) 2.*Plumbago capensis* Thumb-Plumbaginaceae.
16.	Dravanti	*Jatropha glandulifera*-Euphorbiaceae	1.*Jatropa curcuas* Linn.-Euphorbiaceae 2.*Jatropa gossypifolia* Linn.-Euphorbiaceae
17.	Dronapuspi	*Leucas cephalotes*-Lamiaceae	1.*Leucas indica*(Linn)- Lamiaceae 2.*Leucas aspera* (Willd)Spr.-Lamiaceae 3.*Leucas stricta* Benth-Lamiaceae
18.	Dugdhika	*Euphorbia thymifolia* Linn.-Euphorbiaceae	1.*Euphorbia microphylla*-Euphorbiaceae 2.*Euphorbia hypericifolia* Euphorbiaceae - 3.*Euphorbia hirta*(Linn)Millsp.-Euphorbiaceae
19.	Duralabha	*Fagonia arabia* Linn.-Zygophyllaceae	1.*Alhagi camelorum* Fisch-Fabacae 2.*Tragia involucrata* Linn-Euphorbiaceae
20.	Goksurah	*Tribulus terrestris* Linn-Zygophyallaceae	*Pedalium murex* Linn-Pedaliaceae
21.	Hallakam	*Kaempferia rotunda* Linn. Zingiberaceae	1.*Zingiber zerumbet* Rosc.-Zinziberaceae 2.*Lagenandra toxicaria* Dalz-Araceae
22.	Hamsapadi	*Adiantum lunulatum* Brum.f.-Polypodiaceae	*Desmodium triflorum*(Linn)Dc-Fabacae
23.	Hapuds	*Sphaeranthus indicus* Linn.-Asteraceae	1.*Sphaeranthus africanus* Linn-Asteraceae 2.*Juniperus communis* L.-Pinaceae
24.	Indravaruni	*Citrullus colocynthis*(Linn.)Schrad-Cucurbitaceae	1.*Cucumis callosus*(Rottl)Cogn-Cucurbitaceae 2.*Trichosanthes tricuspidata* Lour.-

			Cucurbitaceae
25.	Iswari	*Aristolochia indica* Linn.- Aristolochiaceae	*Aritolochia tagala* Cham.-Aristolochiaceae
26.	Jambuh	*Syzygium cumini*(Linn)Skeels-Myrtaceae	*Syzygium caryophyllatum* (Linn)Alston-Myrtaceae
27.	Jivanti	*Leptadenia reticulata* (Retz)Wt and Arn-Asclepidaceae	1.*Holostemma annulare*(Roxb)K.Schum. 2.*Dendrobium macraci* auct.
28.	Kakamachi	*Solanum nigram* auct-Solanacae.	*Geophila reniformis*-Rubiceae
29.	Kampillakah	*Mallotus philippensis* (Lam)Muell-Arg.-Euphorbiaceae	*Tabernaemontana alternifolia*-Apocynaceae
30.	Kanchanarah	*Bauhinia varigata* Linn-Caesalpinaceae	1.*Bauhinia tomentosa* Linn-Caesalpiniaceae 2.*Bauhinia purpurea* Linn-Caesalpinaceae 3.*Buhinia acuminata* Linn.-Caesalpinaceae
31.	Kantkari	*Solanum xanthocarpum* Schand Klendl-Solanaceae	1.*Solanum capsicodes* All-Solanaceae 2.*Solanum melongena* Linn.-Solanaceae
32.	Karcurah	*Kaempferia galanga* Linn.-Zinziberaceae	1.*Curcuma zedoaria* (Christm)Roscoe-Zingiberaceae 2.*Hedychium spicatum* Ham.-ex.Smith- Zingiberaceae
33.	Kasamarda	*Cassia occidentalis* Linn.-Caesalpinaceae	*Cassia sophera* (Linn)Roxb.
34.	Ketaki	*Pandanus odoratissimus* L.F.-Pandanaceae	1.*Pandanus kaida* Kurz.- Pandanaceae 2.*Pandanus fascicularis* Lam.-Pandanaceae 3.*Pandanus unipappilatus* Dennst-Pandanaceae 4.*Pandanus furcatus* Roxb.-Pandanaceae
35.	Kiratatiktah	*Andrographis paniculata* (Curm.f)-Acanthaceae	*Swertia chirayita* (Roxb.ex.flem)-Acanthaceae
36.	Kokilaksah	*Asteracantha longifolia*(Linn)Nees.-Acanthaceae	*Artanema longifolium*(Linn)-Scrophulariaceae
37.	Kosataki	*Luffa acutangula*(Linn)Roxb	*Luffa cylindrica*(Linn)M.J.Roem-Cucurbitaceae
38.	Kuberaksi	*Caesalpinia bonduc*(Linn)Roxb-Caesalpinaceae	*Caesalpina crista* Linn-Caesalpinaceae
39.	Kurutakah	*Pergularia daemia* (Forsk)Choiv-Asclepidaceae	*Heliotropium indicum* L.
40.	Kutaja	*Holarrhena antidysenterica*(Linn)wall.ex.DC.-Apocynaceae	1.*Wrightia tinctoria*(Roxb)R.Br.-Apocynaceae 2.*Wrightia tomentosa* Roemer and Schultea-Apocynaceae
41.	Lajjalu	*Mimosa pudica* Linn.Mimosaceae	*Biophytum sensitivum*-Oxalidaceae
42.	Laxmana	*Sepiaria koenig* ex Roxb-Convolvulaceae	1.*Ipomoea obscura*(L)-Convolvulaceae. 2.*Mandragora officinalis*-Solanaceae
43.	Langali	*Gloriosa superba* Linn.-Liliaceae	*Costus speciosus*(Koen)Sm-Zingiberaceae

44.	Lodhrah	*Symplocos racemosa* Roxb-Symplocaceae	1.*Symplocos creataegoides* Buch-Ham-Symplocaceae 2.*Syplocos cochinchinensis*(Lour)S.Moor-Symplocaceae.
45.	Lonika	*Portulaca oleraceae* Linn-Portulacaceae	1.*Alternanthera sessilis* Linn R.Br.ex DC-Amaranthaceae 2.*Glinus oppositifolius* (Linn.)A.DC.-Molluginaceae
46.	Malati	*Jasminum grandiflorum* Linn.-Oleaceae	*Jasminum Angustifolium* Vahl-Oleaceae
47.	Mashaparni	*Teramnus labialis* Spr-Fabacae	1.*Vinga radiata*(Linn)-Fabacae 2.*Phaseolus dalzelli* T.Cooke-Fabacae 3.*Phaseolus calcaratus* Roxb.-Fabacae 4.*Rhyncosis nummularia* (Linn)DC-Fabacae 5.*Atylosia goensis* Dalz-Fabacae.
48.	Mudgaparni	*Phaseolus trilobus* Alt-Fabacae	1.*Centrosema pubescens* Benth 2.*Phaseolus angularis* Willd 3.*Phaseolus adenanthus* G.F.Meyer 4.*Vinga pilosa* Baker 5.*Vinga vexillata* Linn)A.Rich-Fabaceae
49.	Murva	*Marsdenia tenacisima*(Roxb)Moon-Asclepiadaceae	1.*Chonemorpha macrophylla*(Roxb)G.Don.-Apocynaceae 2.*Argyreia nervosa*(Brum.f)Boj.-Convolvulaceae
50.	Musali	*Curculigo orchioides* Gacrtn-Hypoxidaceae	*Aspargus adscendens*-Liliaceae
51.	Musta	Cyperus rotundus Linn-Cyperaceae	1.*Cyperus kyllinga* Endl-Cyperaceae 2.*Cyperus esculentus* Linn.-Cyperaceae
52.	Nimbh	*Azadirachta indica* A.Juss-Meliaceae	*Melia azedarach* Linn-Meliaceae
53.	Nirgundi	*Vitex negundo* Linn-Verbenaceae	1.*Vitex purpurascens* Sivar andMold-Verbenaceae 2.*Vitex trifolia* Linn.-Verbenaceae.
54.	Padmacharni	*Hybanthus enneaspermus*(L.f)Muell.-Violaceae	1.*Nervilia plicata* Schltr.- Orchidaceae 2.*Nervilia aragoana* Gaud-Orchidaceae 3.*Nervilia prainiana* King and Pantl-Orchidaceae 4.*Habeneria diphylla* Dalz.-Orchidaceae
55.	Palash	*Butea monosperma* (Lam)Taub-Fabacae	*Butea superba* Roxb-Fabacae
56.	Paphanah	*Pavetta indica* Linn-Rubiaceae	1.*Pavetta tomentosa* Roxb.ex Smith.-Rubicaeae 2.*Morinda pubescens* Smith-Rubiaceae 3.*Stylocoryne lucens* Gamble-Rubicaeae
57.	Paribhadrah	*Erythrina variegata* Linn-Fabacae	*Erythrina stricta* Roxb-Fabacae
58.	Parisah	*Thepesia populnea* (Linn)Sol.ex.Corr-Malvaceae	*Ficus tjakela* Roxb.-Moraceae

59.	Parpatakah	*Oldenlandia corymbosa* Linn-Rubiaceae	1.*Oldenlandia brachpoda* DC-Rubiceae 2.*Oldenlandia diffusa*(Willd)Roxb-Rubiaceae 3.*Fumaria indica*(Hauss kn)pugsley-Fumariaceae.
60.	Pasanabheda	*Aerva lanata*(Linn)-Amaranthaceae	1.*Coleus ambonicus* Lour-Lamiaceae 2.*Homonoia riparia* Lour-Euphorbiaceae 3.*Saxifraga ligulata* Wall-Saxifragaceae. 4.*Kalanchoe pinnata* Salisb-Crassulaceae 5.*Ocimum basilicum* Linn-Lamiaceae 6.*Bridelia montana*-Euphorbiaceae 7.*Ammania baccifera* Linn-Lythraceae 8.*Rotula aquatica* Lour-Boraginaceae
61.	Patala	*Stereospermum suaveolens* DC-Bignoniaceae	1.*Stereospermum chelenoides*(Linn.f)DC-Bignoniaceae 2.*Stereospermum colais*(Dillwyn)Mabb.-Bignoniaceae
62.	Patha	*Cissampelos pariera* Linn-Menispermaceae	1.*Cyclea peltata*(Lam)Hook.and Thomson-Menispermaceae 2.*Stephania japonica*(Thunb)Miers.-Menispermaceae
63.	Patolah	*Trichosanthes cucumerina* Linn-Cucurbitaceae	*Trichosanthes dioica* Roxb.-Cucurbitaceae
64.	Plaksah	*Ficus microcarpa* Linn.f.-Moraceae	1.*Ficus infectoria* Roxb.- Moraceae 2.*Ficus arnottiana* Miq- Moraceae 3.*Ficus lacor* Buch-Ham.- Moraceae 4.*Ficus Talboti* King.- Moraceae
65.	Prasarani	*Merremia tridenta* (Linn)Hallier F.ssp-Convolvulaceae	1.*Merremia hastata* (Desv)Oost.-Convolvlaceae. 2.*Paederia foetida* Linn-Rubiaceae
66.	Prsniparni	Desmodium gangeticum DC-Fabacae	Desmodium velutinum(Willd)DC Desmodium laxiflorum DC.
67.	Punarnava	*Boerhaavia diffusa* Linn-Nyctaginaceae	1.*Boerhaavia erecta* Linn-Nyctaginaceae 2.*Commicarpus verticillatus* (poir)standl-Nyctaginaceae 3.*Trianthema portulacastrum* Linn.-Aizoaceae
68.	Puskaramula	*Inula racemosa* Hook.f.-Asteraceae	1.*Psilanthus travancorensis*(Wt and Arn)Leroy-Rubiaceae 2.*Iris germanica* Linn-Iridaceae 3.*Costus speciosus*(Koening)-Zingiberaceae 4.*Saussurea lappa* C.B.Clarke-Asteraceae
69.	Rasna	*Alpinia galanga* Sw-Zingiberacaeae	1.*Vanda roxburghii* R.Br.-Orchidaceae 2.*Pluchea lanceolata*-Asteraceae 3.*Alpinia calcarata* Rosc-Zingiberaceae

70.	Sahacarah	*Barleria prionitis*(yellow)-Acanthaceae	1.*Barleria cristata*(red and white)-Acanthaceae 2.*Barleria strigosa*(Blue)-Acanthaceae 3.*Ecbolium viride*(Forsk)Alston-Acanthaceae 4.*Justicia betonica* Linn-Acanthaceae 5.*Barleria courtollica* Nees-Acanthaceae 6.Calacanthus grandiflorus(Dalz)Radlk-Acanthaceae
71.	Saliparni	*Uraria picta* Desv-Fabacae	1.*Pseudarthria viscida*(Linn)W and A –Fabacae 2.*Uraria lagapodioides*(Linn)Desv.-Fabacae
72.	Sanapuspi	*Crotalaria pallida* Aiton-Fabacae	1.*Crotalaria junica* Linn-Fabacae 2.*Crotalaria retusa* Linn-Fabacae 3.*Crootalaria verrucosa* Linn-Fabacae
73.	Sankhapuspi	*Convolvulus pluricaulis* Chois-Convolvulaceae	1.*Evolvulus alsinoides* – Convolvulaceae 2.*Canscora decussata* Schultes and Schultes f.-Gentianaceae 3.*Clitoria ternatea* Linn-Fabacae
74.	Sarah	*Saaharum arundinaceum* Retz-Poaceae	*Arundo donax* Linn-Poaceae
75.	Sarapunkhah	*Tephrosia purpurea* (Linn)pers-Fabacae	1.*Tephorsia procumbens* Buch-Ham-Fabacae 2.*Tephrosia candida* DC Fabacae 3.*Tephorsia villosa* Pers- Fabacae 4.*Tephorsia spinosa* Pers.- Fabacae
76.	Sariva	*Hemidesmus indicus* Linn-Asclepiadaceae	1.*Ichnocarpus frutescens* – Apocynaceae 2.*Cryptolepis buchanani*-Asclepiadaceae
77.	Sigru	*Moringa oleifera* Lam-Moringaceae	*Moringa concanensis* NimmoexDalz and Gibsen-Moringaceae
78.	Snuhi	*Euphorbia nivulia* Buch-Ham-Euphorbiaceae	1.*Euphorbia-Nerifolia* L 2.*Euphorbia antiquorum* Linn- 3.*Euphorbia trigona* Haw 4.*Euphorbia royleana* Boiss Euphorbiaceae
79.	Sprkka	*Anisomeles malbarica* (Linn)R.Br.exsims-Lamiaceae	*Adenosma indiana*(Lour)Merr.-Scrophulariaceae.
80.	Suranah	*Amorphophalus paeoniifolius* (Dennst)Nicolson-Araceae	1.*Amorphophalus campanulatus*(Decne)Sivad-Araceae 2.*Tacca leontopetaloides* (Linn)Kuntze-Taccaceae
81.	Svarnaksiri	*Euphorbia thomsoniana*-Euphorbiaceae	1.*Argemone maxicana* Linn-Papaveraceae 2.*Garcinia morella* Desv.-Clusiaceae
82.	Tamalaki	*Phyllanthus amarus* Schum and Thonn-Euphorbiaceae	*Phyllanthus airyshawii* Brunal and Roux-Euphorbiaceae
83.	Tanduliyah	*Amaranthus spinosus* Linn-Amaranthaceae	1.*Amaranthus viridis* Linn-Amaranthaceae. 2.*Celosia argentea* Linn-

			Amaranthaceae.
84.	Tinisah	*Melastoma malabathricum* Linn-Melastomataceae	1.*Ougenia dalbergioides* Fabacae 2.*Osbeckia aspera*(Linn)Blume-Melastomataceae
85.	Trivrt	*Operculina turpethum*(Lin)A.silva.Manso-Convolvulaceae	*Marsdenia tenacisima* W & A. Asclepiadaceae
86.	Tukah (Tartaval)	*Spermacoce articularis* L.f.-Rubiaceae	*Spermacoce hispida* Linn-Rubiaceae
87.	Upodika	*Basella alba* Linn-Basellaceae	1.*Ludwigia hypssopifolia* (Don)Excell-Onagraceae 2.*Ludwigia octovalvis*(Jacq) Raven-Onagraceae 3.*Ludwigia peruviana*(Linn)H.Hara.-Onagraceae
88.	Valakah(Hribera)	*Coleus zeylanicus*(Benth)Cramer-Lamiaceae	1.*Coleus vettiveroides* Jacob-Lamiaceae 2.*Pavonia odorata* Willd-Malvaceae
89.	Varunah	*Crataeva magna* (Lour)DC-Capparadaceae	*Crataeva adansonii* DC-Capparadaceae
90.	Vasa-	*Adathoda vasica* Nees-Acanthaceae	*Adathoda beddomei* Cl.-Acanthaceae
91.	Vidangah	*Embelia ribes* Burm.f.-Myrsinaceae	*Embelia tsjeriam*-cottam A.DC.-Myrsinaceae
92.	Vidari	*Ipomoea digitata* auct-Convolvulaceae	1.*Adenia hondala*(Gaertn)dewilde-Passifloraceae 2.*Pueraria tuberosa*(Willd)DC-Fabacae
93.	Visanika	*Vallaris solanaceae*(Roth)Kuntze-Apocynaceae	1.*Cryptolepis buchanani* Roem and Schult-Asclepidaceae. 2.*Aristolochia bracteolata* Ham-Aristolochiaceae 3.*Dolichandrone falcata*(DC)Seemann-Bignoniaceae
94.	Vrscikali	*Heliotropium indicum* Linn-Boraginaceae	1.*Heliotropium keralens* Siv and Mani-Boraginaceae 2.*Pergularia daemia* (Forsk)Choiv-Asclepiadaceae.