

# Diversity of Unani Medicinal Plants in Chamarajanagar Wildlife Division Karnataka, India

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## Abstract

The principal source of drugs in Unani system of medicine is plant origin drugs and the Unani system of medicine owes its origin in Greece and it was developed by Arabs in to an elaborated medical sciences. A survey was conducted to study the diversity and status of Unani medicinal plants in the forest areas of Chamarajanagar Wild life division, Chamarajanagar District, Karnataka. The present paper deals with the 119 numbers of the Unani medicinal plants of 105 genera belonging to 60 families. Based on the distribution status of the Unani medicinal plants it is categorized as common, common and cultivated, vulnerable, rare, sporadic, and endangered. Those plants falls under the vulnerable, rare and endangered category are recommended for germplasm collection and to take up cultivation and propagation activities through modern agronomical techniques. Further the extensive field studies may also help to the discovery of new plant species used in the Unani system of medicine for the betterment of health care needs.

**Key words:** *Unani System, Medicinal Plants, Diversity, Karnataka*

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## 1. Introduction

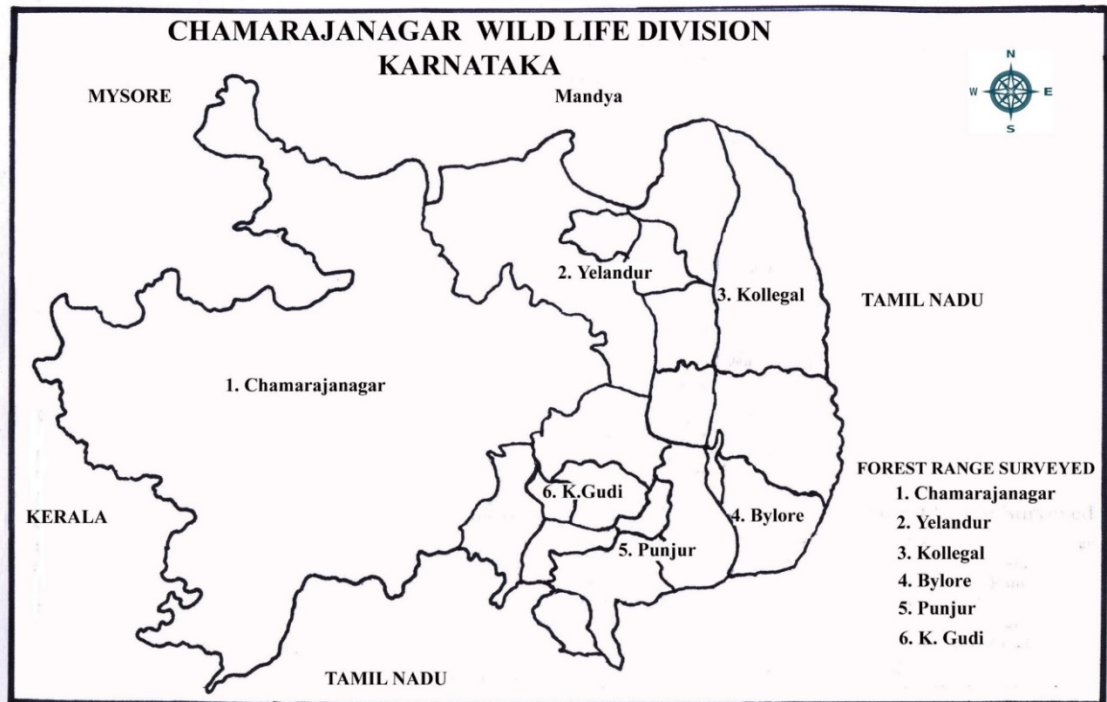
Unani system of medicine is developed throughout the India which is 95% based on plant origin drugs. Globally about 85% of the traditional medicines used for primary health care problems are derived from plants. Traditional medicine and ethno botanical information's play an important role in plant science research. Herbal medicine is still practiced about 75 - 80% of the world population mainly in the developing countries for their primary health care needs [1]. According to the World Health Organization (WHO), the use of herbal remedies throughout the world exceeds that of the conventional drugs by two to

three times [2]. Many conventional drugs originated from plant sources a century ago and most of the few effective drugs were plant based formulations which includes aspirin from willow bark, digoxin from foxglove, quinine from cinchona bark, and morphine from the opium [3]. Traditional preparations comprise medicinal plants, minerals and organic matter etc. The wide spread use of herbal medicine is not restricted to developing countries as it has been estimated that 70% of all doctors of modern medicine in France and German regularly prescribe herbal medicine for the treatment of various ailments [4].

The biodiversity of the Unani herbs are concern it is differs place to place depends on the climatic conditions and vegetation patterns. The diversity of vegetation in Indian forests have decreased considerably over the few decades due to various human intervention [5]. About 86% of the tropical forest areas are recorded in India in which 54% are classified as dry deciduous and 37% as most as moist deciduous [6-7]. The current rate of deforestation with the concurrent loss of biodiversity there is a need for accurate documentation of the knowledge and experience of the traditional knowledge [8]. Ethno botany is another important aspect which leads to the new drug discovery and gained a momentum in the recent past and such studies have revealed vast traditional knowledge available among the tribal [9]. Some of the studies related to ethno botany and floristic diversity have been reported from Karnataka state [6-7, 10-18].

The Central Council for Research in Unani Medicine, New Delhi is continuously involved in ethno-botanical surveys through Survey and Cultivation of Medicinal Plants Programme by its Regional Research Institutes throughout India particularly tribal dominated areas of Andhra Pradesh, Tamil Nadu, Bihar, Jammu & Kashmir, Madhya Pradesh, Karnataka and Utter Pradesh. Accordingly the Southern Western Ghats region of Coimbatore district, Tamil Nadu was surveyed to study the diversity and status of Unani Medicinal Plants and to carry out the research activities in the clinical research and drug standardization research of the Unani system of medicine. There is no previous report in the record of ethno botanical knowledge from Soligars tribal of Chamrajnagr district, Karnataka and the researchers of the Regional Research Institute of Unani Medicine, Chennai were made a pioneer attempt to conduct an ethno botanical study and to analyze the diversity status of the Unani medicinal plants in Chamarajanagar district, Karnataka.

## Map of the Study Area



### 1.1 Study Area and Topography

Chamarajanagar district is the southernmost district in the state of Karnataka lies on the border of Kerala and Tamil Nadu. The altitude is about 662 mts above sea level. It is lies between the North latitude 11 40 58 and 12 06 32 and East longitude 76 24 14 and 77 46 55. It falls in the Southern dry zone. Topography is undulating and mountainous with north south trending hill ranges of Eastern Ghats. It is surrounded in east by Salem and Coimbatore District of Tamil Nadu, in North by Mandya and Bangalore district of Karnataka, in the west by part of Mysore district and Kerala State and in South by Nilgiris district, Tamil Nadu. Total forest areas in the district is 48.36% of the total geographical area. Chamarajanagar district was earlier known as Arikottara but latter in the remembrance of birth place of the Chamaraja Wodeyar the king of Mysooru this place was renamed as Chamarajanagar District. The climate of the Chamarajanagar district is fairly hot summer and cold winter. March-to May is the summer months where the maximum temperature reaches from 32.6-34 C. June-September is the Southwest monsoon period and receives annual rain fall about 750-900 MM.

### 1.2 Chamarajanagar Wildlife Division

Chamarajanagar wildlife division is consisting of 6 forest ranges which is Chamarajanagr Range, Yelandur Range, Kollegal Range, Bylore Range and K.Gudi range.

The Chamarajanagar district has different types of forest vegetation's such as ever green forests, shoal forests, dry deciduous forests, and scrub jungles. The Biligirim Ranganna betta hills (BR Hills) run east from the Western Ghats to the river caveri forms a forest ecological corridor that connects the Eastern Ghats and Western Ghats. The tribal community called Soligas is settled in different places of the district. About 31 forest areas and 52 tribal settlements are located in the district, particularly B R T Hills in Bylore Range, Elanthur Range, Puninjur Range and K Gudi Range are the demarcated areas of tribal populations.

### 1.3 Forest Ranges/Areas surveyed

Sl. No	Range	Forest areas
1	Bylore	Mangikarai RF., Nellikathiri RF and Thodasambuge forest areas.
2	Chamarajanagar	Soranavathi dam,Chamarajanagar-Gundalpet slope, Chamarajanagar- Mysre slopes, Kodimoli and onganur forest areas
3	Kollegal	Arapalaya, Todasambuge RF, Onnametti,Kapparibettaand forest areas.
4	Yelandur	BRT Hills, MPC, Mul kibetta, Thoomanathatha, Purana, Kullur and Kolipalayam forest area.
5	Punjur	Bettakalli and Amara beat forest area
6	K.Gudi	R T Hills, Nellur, K Gudi lower slope, Ondrabal colony, Nagavalli, Sungudipura, Bharachakki falls forest area.

### 1.4 OBJECTIVES

1. To know the diversity and status of Unani Medicinal Plants of Chamarajanagar District, Karnataka.
2. Documentation of herbarium and raw drugs used in the Unani system of medicine.
3. Documentation of Ethno-botanical information of the study area.
4. Cultivation, conservation and propagation of rare and threatened plant species used in the Unani system of Medicine.

### 2. Methodology

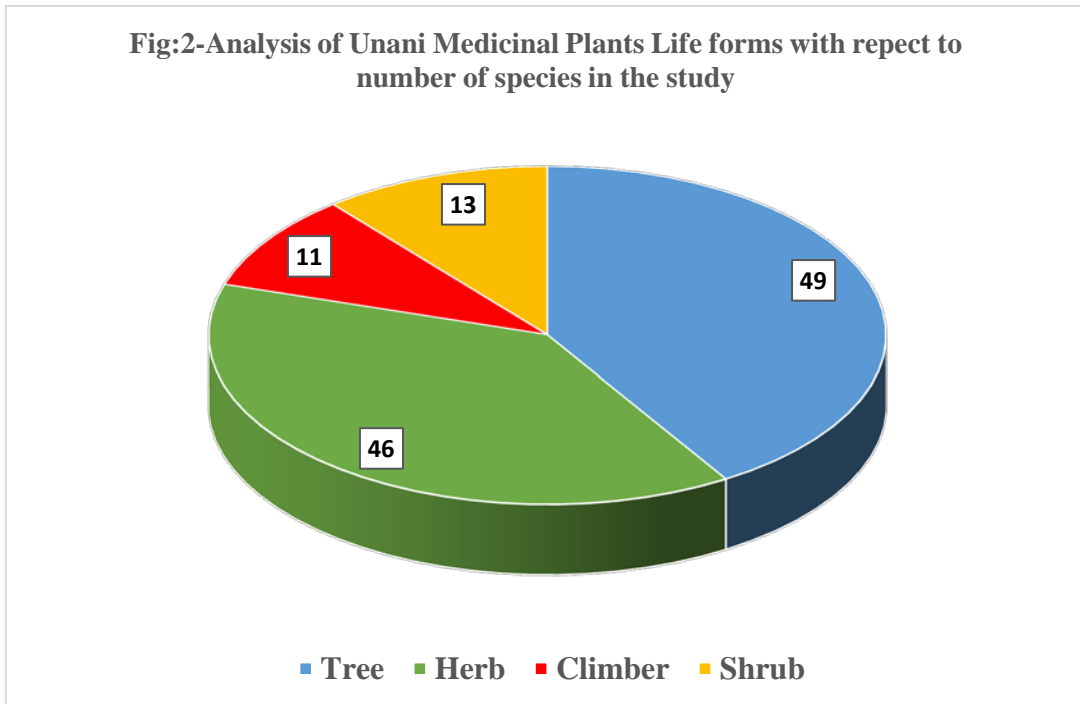
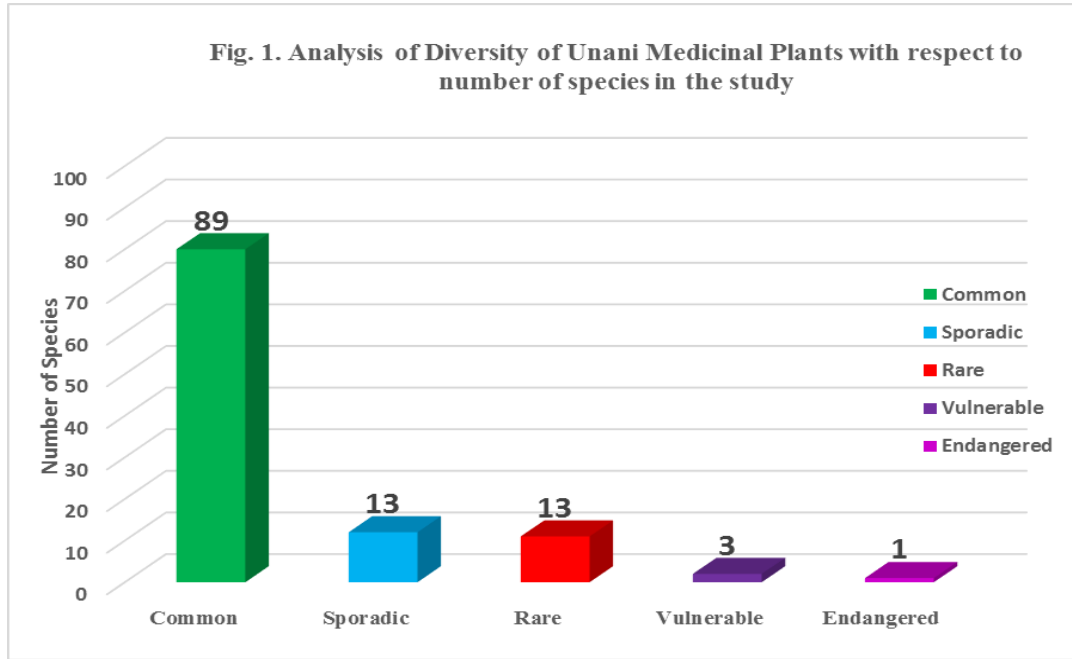
Two multiday survey tour programme was conducted in different seasons at Chamarajanagar district forest divisions of Karnataka, during the year 2009-2010. About 31 forest areas belong to 4 forest ranges were surveyed. During the field study about 300 species of plant specimens have been collected and identified. Among this 119 species of Unani

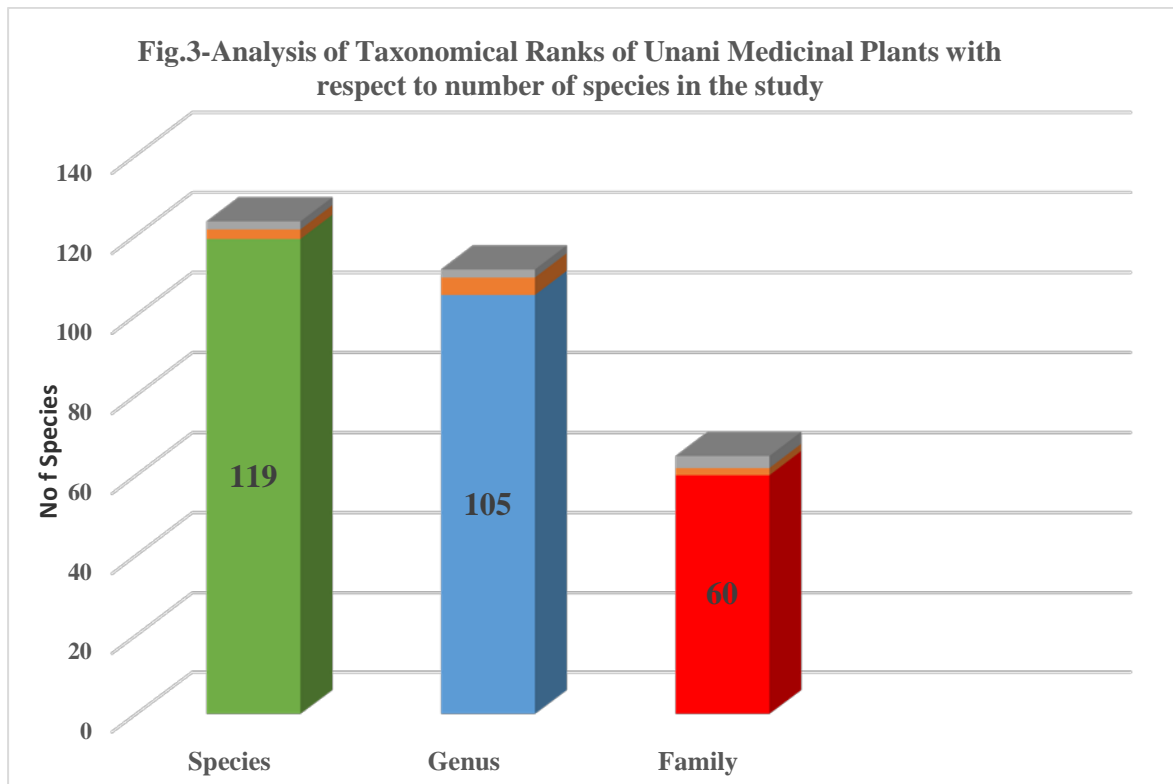
medicinal plants were identified and documented. The botanical identity of all the plant species are identified through modern floras [19-26]. and conformed at Botanical survey of India, Coimbatore, Tamil Nadu. The plants are arranged alphabetically according to their botanical names with collection number, followed by family, Unani name, habit and their status were described based on their occurrence in the nature (Table-I). The voucher specimens are deposited at the herbarium of the Survey of Medicinal Plants Unit (SMPU), Regional Research Institute of Unani Medicine (RRIUM), Chennai, Tamil Nadu.

### 3. Result and Conclusion

In the present study 119 Unani medicinal plants were collected from Chamarajanagar wild life division, Karnataka (Table-1) and analyzed their diversity status. In which 76 species are common, 13 species common and engaged in cultivation activities species like *Allium ceba* L., *Alpinia galangal* Sw., *Annona squamosa* L., *Brassica juncea* L., *Cajanus cajan* (L.) Mill, *Citrus limon* (L.) Burm.f., *Curcuma longa* L., *Gossypium herbaceum* L., *Helianthus annuus* L. *Moringa pterigosperma* Gaertn., *Piper nigrum* L., *Solanum nigrum* L. and *Tamarindus indica* L., are found in cultivation activities in some part of the study area. More over 13 species are falls in sporadic distribution which is very much restricted their distribution to particular area, 3 species are vulnerable, 13 species are rare and 1 species is endangered category respectively (Fig.1)

In the family level Fabaceae is the largest family with 10 species, followed by in Caesalpiniaceae 9 species, in Euphorbiaceae 8 species, Apocynaceae and Rutaceae (each 5 species), in Rubiaceae 5 species and Combretaceae, Solanaceae (each 4 species), Asteraceae and Malvaceae (each 4 Species) and in Amaranthaceae 3 species, similarly other families are distributed each 2 or 1 species respectively. In the life form analysis 49 species of trees, 46 species of herbs, 11 species of climbers, twiners and creepers and 13 species of shrubs were collected during the field study and identified (Fig:2). In addition according to the systematic classification the taxonomic hierarchy also analyzed in which 119 species, belong to 105 genus and 60 family were recorded in the study (Fig: 3).





The Unani medicinal plants used in the treatment of various ailments like Arthritis, Boils, Bleeding Hemorrhoids, Diarrhea, Dysentery, Gastric Ulcer, Head ache, Inflammation, Skin diseases, Stomach disorders and Urinary diseases etc. The plant species which are falls under vulnerable, rare and endangered category are due to various external factors. These wild medicinal plants species which are available in the natural sources are recommended to the germplasm collection and to take up conservation and propagation activities seriously. Because due to various external factors many of the valuable plant species are under threat to became rare, endangered and some are on the verge of extinction. Around 1000 plant species are under threat in different bio-geographic regions of the country. It is concluded that these wild plant species should be conserved seriously and to be encouraged for large scale cultivation and to develop many herbal gardens for medicinal plants in the suitable areas adopting the modern agronomical techniques.

## Exploration of Unani Medicinal Plants in Chamarajanagar Wildlife Division, Karnataka.



**Fig: 4-5. Survey team identifying Unani Medicinal plants during field work**



**Fig: 6. Ankol (*Alangium salvifolium* (L.f.) Wang)**



**Fig: 7. Dhawa (*Anogeissus latifolia* Wall.)**



**Fig: 8. Gul-e-Tusu (*Butea monosperma* (Lam.))**



**Fig: 9. Sheetraj Hindi (*Plumbago zeylanica* L.)**



**Fig: 10. Kaith (*Limonia acidissima* L.)**



**Fig: 11. Halela (*Terminalia chebula* (Gae.) Retz.)**



**Table. I-Diversity of Unani Medicinal Plants in Chamarajanagar Wild life Division, Karnataka**

S.No	Botanical Name Collection No.	Family	Vernacular Name	Unani Name	Habit	St at us
1	<i>Abutilon indicum</i> (L.) Sweet (RRIUM, CH-9365)	Malvaceae	Thuthi	Kanghi	Shrub	C
2	<i>Acacia sinuate</i> (Lour.)Merrill (RRIUM, CH-9125)	Mimosaceae	Sehakai	Shikakai	W.Climber	C
3	<i>Acalypha indica</i> L.(RRIUM, CH-9359)	Euphorbiaceae	Kuppaimeni	Kuppi	Herb	C
4	<i>Achyranthes aspera</i> L. (RRIUM, CH-9283)	Amaranthaceae	Nayuruvi	Chirchita	Herb	C
5	<i>Aegle marmelos</i> (L.) Corr.(RRIUM, CH-9233)	Rutaceae	Vilvam	Belgiri	Tree	V
6	<i>Aerva lanata</i> (L.) A. Juss. ex Sch. (RRIUM, CH-9427)	Amaranthaceae	Poolaipoo	Bisheributi	Herb	C
7	<i>Alangium salvifolium</i> (L.f.) Wang(RRIUM, CH-9348)	Alangiaceae	Alinji	Ankol	Tree	S
8	<i>Allium ceba</i> L.(RRIUM, CH- 9432)	Liliaceae	Venkayam	Piyaz	Herb	C/ C
9	<i>Alpinia galangal</i> Sw. (RRIUM, CH-9539)	Zingiberaceae	Sirarathai	Khulanjan	Herb	C/ C
10	<i>Amaranthus spinosus</i> L. (RRIUM, CH-9170)	Amaranthaceae	Mullukeerai	Chauli Khardar	Herb	C
11	<i>Annona squamosa</i> L. (RRIUM, CH-9433)	Annonaceae	Seetha	Sharifa	Tree	C/ C
12	<i>Anogeissus latifolia</i> Wall. (RRIUM, CH-9317)	Combretaceae	Vekkali	Dhawa	Tree	C
13	<i>Anthocephalus chinensis</i> (Lam.) A.Rich. ex. Walp. (RRIUM, CH-9340)	Rubiaceae	Vellakadambu	Kadam	Tree	R
14	<i>Argemone mexicana</i> L.	Papavaraceae	Naikadugu	Satyanasi	Herb	C

	(RRIUM, CH-9178)					
15	<i>Aristolochia indica</i> L. (RRIUM, CH-9506)	Aristolochiaceae	Perumarunthu	Zarawand	Twainer	R
16	<i>Asparagus recemosus</i> Willd. (RRIUM, CH-9263)	Liliaceae	Thaneervitank zhangu	Satawar	Climber	R
17	<i>Azadirachta indica</i> A. Juss. (RRIUM, CH-9232)	Meliaceae	Veppam	Neem	Tree	C
18	<i>Barleria prionitis</i> L. (RRIUM, CH-9128)	Acanthaceae	Chemulli	Piyabasa	Herb	C
19	<i>Bauhinia purpurea</i> L. (RRIUM, CH-9526)	Caesalpiniaceae	Aathi	Kachnal	Tree	C
20	<i>Bauhinia racemosa</i> Lam. (RRIUM, CH-9526)	Caesalpiniaceae	Mantharai	Kachnal	Tree	C
21	<i>Bauhinia variegata</i> L. (RRIUM, CH-9376)	Caesalpiniaceae	Mantharai	Kachnal	Tree	C
22	<i>Boerhaavia diffusa</i> L. (RRIUM, CH-9383)	Nyctaginaceae	Mukkarattai	Handakaku	Herb	C
23	<i>Bombax ceiba</i> L. (RRIUM, CH-9563)	Bombacaceae	Elavam	Mochras Sainbhal	Tree	C
24	<i>Brassica juncea</i> L.(RRIUM, CH-9328)	Brassicaceae	Kaduku	Rai	Herb	C/ C
25	<i>Buchanania lanzan</i> Spr. (RRIUM, CH-9484)	Anacardiaceae	Kattumunthri	Chironji	Tree	R
26	<i>Butea monosperma</i> (Lam.) Kuntz. (RRIUM, CH-9440)	Papilionaceae	Elaiporasu	Gul-e-Tesu	Tree	C
27	<i>Caesalpinia crista</i> (L.) Roxb. (RRIUM, CH-9357)	Caesalpiniaceae	Kazhachikai	Karanjawa	Shrub	S
28	<i>Cajanus cajan</i> (L.) Mill. (RRIUM, CH-9420)	Fabaceae	Thuvarai	Arhar	Shrub	C/ C
29	<i>Calotropis gigantea</i> (L.) R.Br. exAit.	Asclepiadeceae	Errukku	Madar	Herb	C

	(RRIUM, CH-9172)					
30	<i>Capsicum annum</i> L. (RRIUM, CH-9508)	Solanaceae	Melakai	Filfil-e-Ahmar	Herb	C
31	<i>Cardiospermum halicacabum</i> L. (RRIUM, CH-9255)	Sapindaceae	Mudakathan	QilQil	Climber	C
32	<i>Careya arborea</i> Roxb. (RRIUM, CH-9356)	Barringtoniaceae	Ayma	Baokamba Kumbhi	Tree	S
33	<i>Carica papaya</i> L.(RRIUM, CH-9233)	Caricaceae	Papali	Papita	Tree	C
34	<i>Cassia auriculata</i> L. (RRIUM, CH-9115)	Caesalpiniaceae	Avaram	Tarwar	Shrub	C
35	<i>Cassia fistula</i> L. (RRIUM, CH-9109)	Caesalpiniaceae	Konnai	Amaltas	Tree	C
36	<i>Cassia occidentalis</i> L. (RRIUM, CH 9308)	Fabaceae	Thagarai	Kasondi	Herb	C
37	<i>Cassia tora</i> L. (RRIUM, CH 9435)	Caesalpiniaceae	Thaarai	Panwar	Herb	C
38	<i>Catharanthus roseus</i> (L.) G. Don. (RRIUM, CH-9210)	Apocynaceae	Nithyakalyani	Sadabahar	Herb	C
39	<i>Catunaregam spinosa</i> (Thumb.) Tiruveng. (RRIUM, CH-9117)	Rubiaceae	Karai	Mayeenphal	Tree	C
40	<i>Cissus quadrangularis</i> L. (RRIUM, CH-9429)	Vitaceae	Pirandai	Hadjora	Herb	C
41	<i>Citrus aurantifolia</i> Chr.) Sw. (RRIUM, CH-9198)	Rutaceae	Orange	Tree	Tree	C
42	<i>Citrus limon</i> (L.) Burm.f. (RRIUM, CH-9465)	Rutaceae	Ezhumichai	Lemun Kaghzi	Tree	C/ C
43	<i>Cleome viscosa</i> L.(RRIUM, CH-9284)	Cleomaceae	Naivelai	Bantakalan	Herb	C
44	<i>Clitoria ternatea</i> L. (RRIUM, CH-9231)	Fabaceae	Sankupusam	Mazaryoon	Climber	C
45	<i>Coccinia grandis</i> (L.) J.	Cucurbitaceae	Kovai	Kanduri	Climber	C

	Voigt (RRIUM, CH-9217)					
46	<i>Coffea arabica</i> L. (RRIUM, CH-9196)	Rubiaceae	Kappi	Qahwa	Shrub	C
47	<i>Curculigo orchioides</i> Gaertn. (RRIUM, CH-9253)	Hypoxidaceae	Kali Musli	Black Musale	Herb	R
48	<i>Curcuma longa</i> L. (RRIUM, CH-9509)	Zingiberaceae	Manjal	Zardchob	Herb	C/ C
49	<i>Cuscuta reflexa</i> Roxb. (RRIUM, CH-9177)	Convolvulaceae	Ottuchedi	Kasoos	Herb	C
50	<i>Dalbergia sissoo</i> Roxb. (RRIUM, CH-9190)	Fabaceae	Etti	Sheesham	Tree	S
51	<i>Eclipta alba</i> (L.) Hassk. (RRIUM, CH-9394)	Ateraceae	Karisalnkanni	Bhangra	Herb	C
52	<i>Euphorbia hirta</i> L. (RRIUM, CH-9387)	Euphorbiaceae	Ammanpacharisi	Dudhi Kalan	Herb	C
53	<i>Euphorbia thymifolia</i> L. (RRIUM, CH-9290)	Euphorbiaceae	Sitrapaladi	Dhudhi Khurd	Herb	C
54	<i>Evolvulus alsinoides</i> (L.) L. (RRIUM, CH-9258)	Convolvulaceae	Vishnukaranthai	Sankhavli	Herb	S
55	<i>Ficus benghalensis</i> L. (RRIUM, CH-9531)	Moraceae	Alam	Bargad	Tree	C
56	<i>Ficus racemosa</i> L. (RRIUM, CH-9573)	Moraceae	Atthi	Gular	Tree	C
57	<i>Gossypium herbaceum</i> L. (RRIUM-CH: 9238)	Malvaceae	Parutti	Pambadana	Shrub	C/ C
58	<i>Gymnema sylvestre</i> R.Br. (RRIUM-CH: 9238)	Asclepiadaceae	Sirukurinja	Gurmarbutti	Shrub	R
59	<i>Helianthus annuus</i> L. (RRIUM-CH: 9397)	Asteraceae	Suryakanta	Surajmukhi	Herb	C/ C
60	<i>Helicteres isora</i> L. (RRIUM, CH-9223)	Sterculiaceae	Edampuri Valampuri	Marorphali	Tree	C

61	<i>Heliotropium indicum</i> L. (RRIUM, CH-9289)	Boraginaceae	Thelkodukku	Hathisundh	Herb	C
62	<i>Hibiscus rosa-sinensis</i> L. (RRIUM, CH-9306)	Malvaceae	Semparuthi	Gurhal	Herb	C
63	<i>Hygrophylla auriculata</i> (Schum.) Heine (RRIUM, CH-9220)	Acanthaceae	Neermulli	Talmakhana	Herb	C
64	<i>Jasminum grandiflorum</i> L. (RRIUM-CH: 9250)	Oleaceae	Kattumalli	Yasmeen	Shrub	S
65	<i>Jatropha curcas</i> L. (RRIUM, CH-9224)	Euphorbiaceae	Kattamanaku	Baghrendah	Shrub	C
66	<i>Lawsonia inermis</i> L. (RRIUM, CH-9298)	Lythraceae	Maruthani	Hina	Shrub	C
67	<i>Leucas nerifolia</i> L. RRIUM: CH-9293.	Lamiaceae	Thumbai	Thumba	Herb	C
68	<i>Limonia acidissima</i> L. (RRIUM, CH-9222)	Rutaceae	Vilam	Kaith	Tree	S
69	<i>Michelia champaca</i> L. (RRIUM: CH-9248)	Magnoliaceae	Sampenga	Champa	Tree	C
70	<i>Mimosa pudica</i> L. (RRIUM-CH: 9125)	Mimosaceae	Thottal surungi	Lajwanti	Herb	C
71	<i>Mimosops elangi</i> L. (RRIUM, CH-9479)	Sapotaceae	Magilam	Mulsari	Tree	S
72	<i>Mirabilis jalapa</i> L. (RRIUM, CH-9281)	Nyctaginaceae	Anthimalli	Gul-e- Abbas	Herb	C
73	<i>Moringa pterigosperma</i> Gaertn. (RRIUM, CH-9507)	Moringaceae	Murungai	Sahajana	Tree	C/ C
74	<i>Morinda tinctoria</i> L. (RRIUM-CH: 9130)	Rubiaceae	Nuna	Aal	Tree	C
75	<i>Mucuna pruriens</i> (L.) DC. (RRIUM, CH-9462)	Fabaceae	Poonaikali	Konch	Twiner	R

76	<i>Nelumbo nucifera</i> Gaertn. (RRIUM, CH-9256)	Nelumbonaceae	Thamarai	Nilofer	Herb	C
77	<i>Nerium indicum</i> Mill. (RRIUM, CH-9205)	Apocynaceae	Arali	Kaner	Shrub	C
78	<i>Ocimum americanum</i> L. (RRIUM, CH-9406)	Lamiaceae	Naithulasi	Badrooj	Herb	C
79	<i>Phonix sylvestris</i> (L.) Roxb. (RRIUM, CH-9331)	Arecaceae	Malaiecham	Khajur	Shrub	C
80	<i>Phyllanthus amarus</i> Sch. &Tho. (RRIUM, CH-9379)	Euphorbiaceae	Kizhanelli	Bhui Aamla	Herb	C
81	<i>Phyllanthus emblica</i> L. (RRIUM, CH-9268)	Euphorbiaceae	Nelli	Aamla	Tree	C
82	<i>Phyllanthus madaraspattensis</i> L. (RRIUM, CH-9400)	Euphorbiaceae	Melanelli	Kanocha	Herb	C
83	<i>Piper nigrum</i> L. (RRIUM, CH-9572)	Piperaceae	Kurumilagu	Filfil Siyah	Creeper	C/ C
84	<i>Plantago ovate</i> Forssk. (RRIUM, CH-9202)	Plantaginaceae	Isapgol	Isapghol	Herb	R
85	<i>Plumbago zeylanica</i> L. (RRIUM, CH-9239)	Plumbaginaceae	Kodiveli	Sheetraj Hindi	Herb	C
86	<i>Plumeria rubra</i> L. (RRIUM, CH-9142)	Apocynaceae	Kalimantharai	Gulchin	Tree	C
87	<i>Pongamia pinnata</i> (L.) Pierre (RRIUM, CH-9119)	Fabaceae	Pungan	Karanj	Tree	C
88	<i>Portulaca oleraceae</i> L. (RRIUM, CH-9392)	Portulacaceae	Paruppukeerai	Khurfa	Herb	C
89	<i>Psidium gujava</i> L.(RRIUM, CH-9358)	Myrtaceae	Koiya	Amrood	Tree	C
90	<i>Pterocarpus marsupium</i> . Roxb. (RRIUM, CH-9129)	Fabaceae	Vengai	Bijasar	Tree	S
91	<i>Pterocarpus sandalinus</i> L. (RRIUM, CH-9282)	Fabaceae	Rathasanthanam	Sandal Surk	Tree	R

92	<i>Punica granatum</i> L. (RRIUM, CH-9269)	Punicaceae	Mathulam	Anar	Tree	C
93	<i>Rauvolfia serpentina</i> (L.) Benth ex. Kurtz.(RRIUM, CH-9535)	Apocynaceae	Sarpagandha	Asrol	Herb	R
94	<i>Ricinus communis</i> L. (RRIUM, CH-9143)	Euphorbiaceae	Amanckku	Arand, Bedanjeer	Shrub	C
95	<i>Rubia cordifolia</i> L. (RRIUM, CH-9444)	Rubiaceae	Manjitti	Majeeth	Climber	V
96	<i>Ruta chalepensis</i> L. (RRIUM, CH-9538)	Rutaceae	Aruvadha	Sudaab	Herb	R
97	<i>Santalum album</i> L. (RRIUM, CH-9212)	Santalaceae	Santhanam	Sandal Safaid	Tree	E
98	<i>Sapindus laurifolius</i> Vahl. (RRIUM: CH-9221)	Sapindaceae	Soapanakai	Reetha	Tree	C
99	<i>Semicarpus anacardiuum</i> L.f. (RRIUM, CH-9559)	Anacardiaceae	Serankottai	Baladur	Tree	R
100	<i>Shorea robusta</i> Gaertn. (RRIUM: CH-9530)	Dipterocarpaceae	Salamaram	Sal, Saj	Tree	C
101	<i>Sida rhombifolia</i> L. (RRIUM, CH-9330)	Malvaceae	Kurunthotti	Bariyala	Herb	C
102	<i>Solanum nigrum</i> L. (RRIUM, CH-9228)	Solanaceae	Manathakali	Mako	Herb	C/ C
103	<i>Solanum virginianum</i> L. (RRIUM, CH-9173)	Solanaceae	Kandamkathiri	Kataikhurd	Herb	C
104	<i>Sphaeranthus indicus</i> L. (RRIUM, CH-9491)	Asteraceae	Kottaikaranthai	Mundi	Herb	C
105	<i>Strychnos nux-vomica</i> L. (RRIUM, CH-9399)	Loganiaceae	Etti	Kuchla	Tree	S
106	<i>Syzygium cumini</i> (L.) Skeels (RRIUM, CH-9148)	Myrtaceae	Naval	Jamun	Tree	C
107	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Puliyam	Tamar	Tree	C/

	(RRIUM, CH-9207)			Hindi		C
108	<i>Tectona grandis</i> L.f. (RRIUM, CH-9381)	Verbenaceae	Thekku	Sawan	Tree	C
109	<i>Tephrosia purpurea</i> (L.) Pers. (RRIUM, CH-9368)	Fabaceae	Kolinji	Sarphuka	Herb	C
110	<i>Terminalia arjuna</i> (Roxb ex DC.) Wt. & Arn. (RRIUM, CH-9338)	Combretaceae	Neermathi	Arjun	Tree	S
111	<i>Terminalia bellirica</i> Roxb. (RRIUM, CH-9498)	Combretaceae	Thanri	Balela	Tree	S
112	<i>Terminalia chebula</i> (Gae.) Retz. (RRIUM, CH-9351)	Combretaceae	Kadukkai	Halela	Tree	S
113	<i>Tinospora cordifolia</i> (Willd.) Miersex Hook.f. & Thoms. (RRIUM, CH-9426)	Menispermaceae	Seenthil	Gilo	Climber	C
114	<i>Toona ciliata</i> Roem (RRIUM, CH-9533)	Meliaceae	Santhanavembu	Tun	Tree	C
115	<i>Tribulus terrestris</i> L. (RRIUM, CH-9410)	Zygophyllaceae	Nerinji	Khar-e- Khasak	Herb	C
116	<i>Vitex negundo</i> L. (RRIUM, CH-9236)	Verbenaceae	Nochi	Sambhalu	Tree	C
117	<i>Withania somnifera</i> Dunal (RRIUM, CH-9540)	Solanaceae	Amukkira	Asgand	Herb	R
118	<i>Wrightia tinctoria</i> L. (RRIUM, CH-9425)	Apocynaceae	Veppalai	Inderjo Sheerin	Tree	C
119	<i>Zizyphu smauritiana</i> Lam. (RRIUM, CH-9428)	Rhamnaceae	Elanthai	Ber	Tree	C

C-Common, C/C- Common & Cultivated, S-Sporadic, V-Vulnerable, R- Rare, E- Endangered

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