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ENVIS Newsletter on Medicinal Plants

जहाँ है हरियाली । वहाँ है खुशहाली ।।

Environmental Information System INDIA

FRLHT

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Next issue

Medicinal Plants Conservation Efforts across the country ...continued.

Editorial

Dear Friends, ***ENVIS Team at FRLHT wishes you a splendid year ahead!***

United Nations General Assembly at its 65th session, October 2010, declared the period 2011-2020 to be "the United Nations Decade on Biodiversity, with a view to contributing to the implementation of the Strategic Plan for Biodiversity for the period 2011-2020" (Resolution 65/161). This Decade will serve to support the implementation of the Strategic Plan for Biodiversity and promote its overall vision of living in harmony with nature. Its goal is to mainstream biodiversity at different levels. Throughout the United Nations Decade on Biodiversity, governments are encouraged to develop, implement and communicate the results of national strategies for implementation of the Strategic Plan for Biodiversity. This decade looks forward for participation of individuals, stakeholders and governments with action programs which not only protects life support systems but also ensures human well-being, but supports the rich variety of life on this mother earth. For more information, visit: http://www.cbd.int/2011-2020/goals/.

Based on popular demand, we continued the earlier theme-Medicinal Plants Conservation Efforts across the country, in this current newsletter. We present to you, write-ups related to Appraisal of data recording and reporting system relating to exports and imports of Indian Medicinal Plants, Medicinal Plants Conservation Areas Network in India, since 1993; finding alternates for endangered herbs using Ayurvedic concepts,Cycas beddomei, a jewel of Seshachalam hills, know and use Sankhapuspi, Conservation Concern species of a North East India and many more write-ups and updates.

We wish to reiterate that "conservation of biodiversity is positive embracing preservation, maintenance, sustainable utilisation, restoration and enhancement of natural environment".(IUCN, 1980). We hope this issue gives your more insights into conservation of medicinally important plant species and kindles interest within to act towards protecting, preserving the rich medicinal plant resources and traditional knowledge.

We invite your feedback and write-ups for the forth coming issue. Theme for the next issue is same as the current one. Our aim is to bring together the experiences of individuals, stakeholders and governments towards medicinal plants conservation. Your write-up should be brief, with colourful photographs and in popular style of writing. Email: envis@frlht.org

Best Wishes
Suma T.S, Editor - Medplant

ENVIS Centre on Medicinal Plants

Foundation for Revitalisation of Local Health Traditions, Bangalore (Institute for Ayurveda and Integrative Medicine)

Our Vision: "To revitalize Indian medical heritage", Through creative applications of traditional health sciences for enhancing the quality of health care in rural and urban India and globally.

Our Mission: To demonstrate the contemporary relevance of Indian Medical Heritage by designing and implementing innovative programs on a size and scale that will have societal impact.
The five thrust areas:-

- Contribution to the self-reliance and health security of millions of rural and urban households and communities through green health.
- Original contributions to the world of medicine from its rich materia-medica, pharmacy, pharmacology, clinical practice and basic concepts of health and disease.
- Conservation of threatened natural resources in use by Indian Systems of Medicine
- Generate well trained human resources with knowledge and skills to disseminate the traditional health sciences both in India and globally.
- Creation of traditional knowledge inspired enterprises to provide goods and services to the community, that benefit in holistic ways

Centre for ISM Informatics (CII): CII vision is to revitalize Indian Systems of Medicine through Health Informatics and mission is to develop informatics tools for the purpose of understanding, Conserving and Propagating Indian Systems of Medicine with special focus on contemporary requirements in education, research and application of Indian Systems of Medicine. The Centre's main attraction is Encyclopedia on Indian Medicinal Plants. This database houses 180,000 records pertaining to vernacular names(in 32 languages) correlated to botanical names. This database is constantly evolving and contributes to multiple need based educational materials developments, from books to databases. This also serves as the baseline information on medicinal plants for developing new projects from laboratory research to field research, publications, conduct botanical surveys, GIS mapping for generation of geo-eco distribution maps to trade studies etc. Information from this comprehensive, well research database is partially shared in our ENVIS website: www.envis.frlht.org/www.frlhtenvis.nic.in For more information, please visit: http://www.iaim.edu.in/ Centre_ISM%20Informatics.html

Along with these range of activities, this Centre also focuses on sharing COE outputs through the Environmental Information Systems Centre on Medicinal Plants. This is mainly supported by MoEF, Go.I. Here, we aim to bring awareness about the issues, concerns and experiences related to Indian Medicinal Plants conservation through the website: http://envis.frlht.org, www.frlhtenvis.nic.in, quarterly newsletter: Medplant and outreach activities, interactions with the schools, colleges, households, media, health professionals. Write to us: envis@frlht.org , frlhtenvis@nic.in

Appraisal of Data Recording and Reporting System relating to exports and imports of Indian Medicinal Plants

D.K.Ved & G.S. Goraya

The data relating to India's exports and imports is compiled and published periodically by the Directorate General of Commercial Intelligence and Statistics (DGCIS) of Government of India. In these reports, the items are listed with their HS codes. The medicinal plant species, however, do not get enlisted fully under any specific major category of HS (Harmonized System) codes. While these codes help in compilation and analysis of quantum of exports for well-known commodities like Psyllium, Senna, Henna, etc. the bulk of material gets reported only under miscellaneous categories. *In absence of specific and precise linkage of such data with the appropriate plant entities it is not possible to assess the quantum of exported plant materials pertaining to specific wild medicinal plant species of high conservation concern.* It is with this perspective that FRLHT team has taken up this appraisal under the Centre of Excellence programme supported by the Ministry of Environment & Forests of Government of India. This appraisal report has been organized into the following four headings:

1. HS codes and ITC (HS) codes
2. Analysis of data published by DGCIS.
3. Sources of data for DGCIS publications.
4. Inferences

1. HS codes and ITC (HS) codes

Millions of trade transactions, across different countries, occurring each year are classified under approximately 8000 item codes. Each such item code known as HS-code (Harmonized System) consists of progressively more specific identifiers and consists of 6 to 10 digits. As per this system most of the medicinal plants related materials fall under the major code 12 which is linked to the description "oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruits; industrial or medicinal plants; straw & fodder". A subset of this code is the more specifically defined 4 digit code 1211 pertaining to the description "Plants and plant parts for pharmacy, perfumery, insecticides, fungicidal; fresh, dried, cut or not, crushed, powdered herbs, licorice, mint, ginseng". This four digit code gets further refined to 6 or more digits for referring to more sharply defined entities/items.

This system for classification of internationally traded goods has been developed, and is maintained, by the World Customs Organization (WCO) since 1st January, 1988 and it has been adopted by most trading nations, including India.

The international HS codes are subject to an on-going periodic review by WCO. More detailed classification at the country level, to identify goods for tariff or statistical purposes, uses additional digits added to these codes(upto a total of 10 digits). The ITC (HS) codes, referring to the Indian Trade classification (HS) codes, are derived from international HS codes and can have up to 10 digits. ITC(HS) is primarily used as a tool for (a) levying of excise, (b) import tariffs and (c) generation of EXIM data. A few examples of these ITC (HS) codes, recorded in reports produced by DGCIS, are reproduced below:

Sl. No.	ITC (HS) Code	Description
1	12119012	Nux vomica dried ripe seeds
2	12119013	Psyllium seed
3	12119019	Other seeds fresh/dried W/M cut, crushed/powdered, perfumery, pharmaceuticals etc
4	12119024	Gymnema powder
5	12119029	Other leaves, powder, flowers and pods fresh/dried W/N, cut crushed/powdered
6	12119032	Psyllium husk (Isabgol husk)
7	12119021	Belladona leaves
8	12119041	Belladona roots
9	12119039	Other bark, husk and rind fresh/dried, W/N cut crushed/powdered
10	12119048	Sweet flag rhizome
11	12119049	Other roots & rhizomes fresh/dried W/M crushed/ powdered

Conservation Concern Medicinal Plant: Shyonaaka

Oroxylum indicum (L.) Benth.ex Kurz

Family: Bignoniaceae

Threat Status:

Assessed as Endangered in Kerala, Maharashtra, Rajasthan & Orissa

Assessed as Vulnerable in Andhra Pradesh, Assam, Chattisgarh, Karnataka, Madhya Pradesh, Meghalaya & Sikkim

Vernacular names:

Hindi: Arlu, Urru, Sauna

Kannada: Alangi, Bunepaale, Pathangani

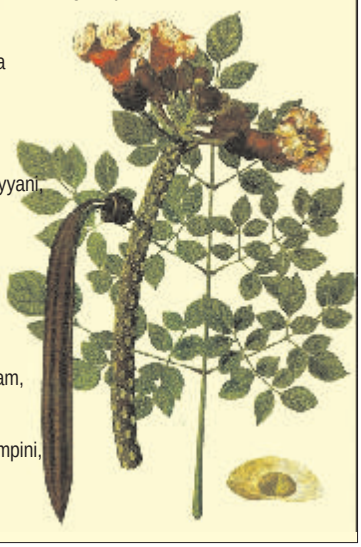
Malayalam: Palakappayyani, Vella Pathiri

Marathi: Titu, Ulu

Sanskrit: Shyonaaka

Tamil: Achi, Pana, Pei maram, Vanga maram, Peru vaagai

Telugu: Dundilamu, pampini, Nemalli chettu



Descriptions of all these 8 digit ITC (HS) codes fall within the broad category under the 4 digit HS code 1211 described earlier.

2. Analysis of data published by DGCIS:

In these compilations the items are listed with their ITC (HS) codes along with the quantities (in Kilograms) as well as value in Rupees compiled for specified periods. The data taken up for analysis, for this study, pertains to the year 2004–05.

The medicinal plant species do not get enlisted fully under any specific major category of HS (Harmonized System) codes followed internationally. In compilations relating to the year 2004-05, published by DGCIS, these materials fall mainly under the HS code 1211 and its subsets (39 items). These commodities constitute the major category linkable to medicinal plants but there are several other commodities under a number of different HS code categories e.g. 1301 (with 3 subsets – 3 items) 1302 (extracts – 7 items), 14041 (5 items) and 14049 (2 items) which need to be included to cover the range of botanicals falling under the medicinal plant category.

Summary of Medicinal Plants Export data (2004-05) is tabulated below:

S. No.	Item code	Items	Quantity in MT (04-05)	Value (Rs. in lakh)
1	12119013 + 12119032	Psyllium (Seeds + Husk)	20578.59	16775.80
2	12119022	Senna (Leaves & pods)	10924.05	2911.40
3	14041011 + 14014019	Henna (Leaves & powder)	4089.44	2878.00
4	14041061 + 1404169	Myrobalans	4009.86	1974.00
5	12119050	Sandalwood chips & dust	105.47	1422.40
6	13019016	Karaya gum	832.10	984.30
7	12119015	Jojoba seed	867.22	927.50
8	9041110	Pepper long	812.77	696.80
9	12119026	Pyrethrum	759.67	374.00
10	9109915	Cassia tora seeds	1572.46	298.10
11	-	Others (All Miscellaneous)	12036.17	6236.20
12	13021400 to 13021919	All extracts	1291.71	16098.80
		Total	**57879.51**	**51577.30**

Nearly 23% of this exported quantity (linked to nearly 24% of monetary value) is represented by "others" (Miscellaneous) codes as tabulated below:

Table: 3. Others (Miscellaneous) extracted from exports data relating to 2004-05:

Sl.No.	Item Code ITC	Items	Quantity (MT) (04-05)	Value (Rs.in Lakhs) (04-05)
1.	12119019	OTHER SEEDS FRSH/DRID W/N CUT CRSHD/PWDR USED	2,157	869
2.	12119029	OTHER LEVS, PWDR, FLRS & PODS FRSH/DRD W/N CUT	1,969	986
3.	12119039	OTHR BARK, HUSK & RIND FRESH/DRIED W/N CUT	1,049	523
4.	12119049	OTHER ROOTS & RHIZOMES FRSH/DRD W/N	529	295
5.	12119099	OTHR PRTS OF PLTS USD IN PERFMRY, PHARMA ETC,	3,307	1228
6.	13021919	OTHER EXTRACTS	425	5788
7.	14041069	MYROBALANS OTHR (WHOLE OR CUT) USD	3,850	1931
8.	14049029	OTHER SOAP NUTS	264	172
		Total (Miscellaneous)	**13,550**	**11,792**

Please note: As per the wordings written in DGCIS report.

Analysis of this data pertaining to 2004 – 05, shows that the total quantity of exports of medicinal plants (including plant extracts) amounted to 57,880 MT corresponding to the rupee value of 515.8 crores. Major proportion of these exports relates to psyllium (seeds + husk), senna and henna. These three entities, which are obtained from cultivations, constitute 21,400 MT (37 %) quantity. Out of the remaining 36, 480 MT, a quantum of 13,550 MT relates to 'Others' (miscellaneous) which includes other seeds, other roots, other leaves, other fruits, other parts of plants, other extracts, other myrobalans and other soap nuts. 'Others' category covers all plant materials which do not have a description linking it to a specific plant entity. This quantum 13,550 MT of "others" (relating to medicinal plants) has a rupee value of 118 Crores. Further break-up of this data linking it to specific plant entities is not feasible on account of the existing data recording system. Having specific codes linkable to individual plant entities can help in generating data for specific plant species. Without such a linkage it is not possible to assess the quantum of exports of the plant parts/ products of specific plant species.

3. Sources of data for DGCIS reports

While DGCIS is the agency collecting, compiling and publishing periodic reports on exports and imports, the generation of this data takes place in the Indian customs department. Our (FRLHT) team, therefore, fixed up a meeting with the Joint Commissioner Customs (Shri Garbyal), at Mumbai. He explained about the Indian customs EDI system (ICES) which is a joint effort of Indian customs and National Informatics Centre (NIC). This database is being maintained in Oracle and one of the objectives of ICES is to provide authentic data on imports and exports to DGCIS. In respect of exports the data is entered into ICES/E, from the shipping bills directly (Imports data in ICES/I is recorded from the bills of entry).

This database is accessible to the officials of Customs department (password protected). Each Shipping bill entry (Bill of entry, in case of Imports) records the HS code as well as the description/label of the consignment and the database can be searched for a specific HS code and also for a specific range of selected time period etc. However, the integrity of linkage between the HS code/s and "description of the commodity", entered in the database is not adequate for the purpose of analyzing the exports data for a specific plant entity. This lack of accuracy, in establishing such linkages, is largely on account of the fact that these plant materials do not involve different levels of customs duty and, therefore, adequate attention is not being paid in recording the appropriate HS code reflecting the identification described in the shipping bill. During our visit we could see some Shipping bills recording HS code meant for "raw drugs" though the description of the material revealed to be a "plant extract".

Our meeting and discussions with Ms. Meeta Banerjee, Regional Deputy Director (Wildlife), Air Cargo of International Airport, Mumbai also revealed another peculiarity relating to recording of source of plant materials, in the shipping bills.It showed that If the invoice (issued by any seller) records the source of material as "forest" no further certification is required from the producing agency concerned. Whereas in respect of materials recorded to have been obtained from cultivation, the certifications relating to the sources of origin of the materials are required (as explained in chapter 12 of the relevant notification). To avoid hassles of the required certification etc. even the species originating entirely from cultivations, e.g. Senna, are many a times being declared as being obtained from the "forests", in the invoices being submitted by the exporter.

4. Inferences

The errors and inaccuracies in data entry of the shipping bills, into the ICES database of customs department, lead to inadequate compilations of specific medicinal plants related export data compiled and published by DGCIS periodically. As discussed above, this lack of precision in listing of medicinal plant materials, primarily on account of non-differentiated customs tariffs, renders such compilation of data much less useful from the perspective of establishing backward linkages to the specific plant resources for appropriate management interventions.

For more information: Shri D.K.Ved, Advisor, FRLHT (I-AIM), Bangalore Email:dk.ved@frlht.org. Dr. G.S. Goraya, IFS, Addl. PCCF, Himachal Pradesh, Go.I.

Please note: This is an excerpts taken from Ved D.K & G. S Goraya (2008), Demand and Supply of Medicinal Plants in India, Bishen Singh, Mahendra Pal Singh, Dehra Dun & FRLHT, Bangalore, India

Conservation Concern Medicinal Plant: Shyonaaka *Oroxylum indicum* (L.) Benth.ex Kurz

Special characters: This tree can easily be recognized in the filed by its 2 to 3 branched large leaves, strikingly large purplish flowers and huge sword-like flat woody fruit.

Trade information: Traded locally and regionally as *Shyonaaka*. Root bark constitutes the drug *Shyonaaka* that is sold under the trade name *Shyonaaka mool chaal* or *Sonapaathaa mool chaal*. The material is sometimes adulterated with stem bark of the same species. A commonly used substitute, in Rajasthan and Gujarat, is the root bark of *Ailanthes excelsa*, known as *Aruka* or *Arlu*.

For more information:

1. Click on the link: http://envis.frlht.org/medicinal-plants conservation - concern-species.php
2. Ravikumar K. and Ved D.K. (2000), 100 Red Listed Medicinal Plants of Conservation Concern in Southern India, Foundation for Revitalisation of Local Health Traditions, Bangalore.

Medicinal Plant Species of Conservation Concern identified for Sikkim

Conservation Assessment & Management Prioritisation (CAMP) workshop was held at Guwahati during March 2003 to assess the threat status of prioritized Medicinal plants of Sikkim.During this process 24 medicinal plant species were assigned the Red Listed (RL) status of Near Threatened (NT) and above category.

S.No	Botanical	Species	Author	Habit	Status	Red Listed status (Global)	Recorded in Trade	Trade 100 MT/yr (dry wt.)
1	*Abies*	*densa*	W.Griff. ex Parker	Tree	NT	-		
2	*Aconitum*	*ferox*	Wall. ex Seringe	Herb	EN	-	Trade	Yes
3	*Aconitum*	*heterophyllum*	Wall. ex Royle	Herb	EN	CR(G)	Trade	Yes
4	*Bergenia*	*ciliata*	(Haw.) Sternb.	Herb	VU	-	Trade	Yes
5	*Dendrobium*	*nobile*	Lindl.	Herb	VU	-	Trade	
6	*Flickingeria*	*fugax*	(Rchb.f.) Seodemf.	Herb	EN	-	Trade	
7	*Fritillaria*	*cirrhosa*	D.Don	Herb	EN	-		
8	*Gymnadenia*	*orchides*	Lindl.	Herb	VU	-		
9	*Malaxis*	*muscifera*	(Lindl.) Kuntze	Herb	EN	-		
10	*Mahonia*	*napaulensis*	DC.	Shrub	VU	-		
11	*Nardostachys*	*grandiflora*	DC.	Herb	EN	-	Trade	Yes
12	*Oroxylum*	*indicum*	(L.) Benth.ex Kurz	Tree	VU	-	Trade	Yes
13	*Picrorhiza*	*kurrooa*	Royle ex Benth.	Herb	VU	-	Trade	Yes
14	*Piper*	*boehmeriaefolium*	Wall. ex C.DC.	Climber	NT			
15	*Piper*	*pedicellatum*	C.DC.	Shrub	VU	VU(G)		
16	*Piper*	*peepuloides*	Roxb.	Climber	VU	VU(G)	Trade	
17	*Pleione*	*maculata*	(Lindl.) Lindl. & Paxton	Climber	VU	-		
18	*Podophyllum*	*hexandrum*	Royle	Herb	CR	-	Trade	
19	*Rheum*	*nobile*	Hook.f. & Thoms.	Herb	VU	-		
20	*Rhododendron*	*anthopogon*	D.Don	Shrub	EN	-	Trade	Yes
21	*Swertia*	*chirayita*	(Roxb. ex Flem.) Karst.	Herb	VU	-	Trade	Yes
22	*Taxus*	*wallichiana*	Zucc.	Tree	EN	-	Trade	Yes
23	*Valeriana*	*hardwickii*	Wall.	Herb	VU	-	Trade	Yes
24	*Valeriana*	*jatamansi*	Jones	Herb	VU	-	Trade	Yes

No of RL species recorded in trade = 15

No of RL species in high trade = 11

Of these 24 species, 3 species have a global RL status as these are endemic (or nearly so) the state/region for which the assessment was undertaken. Only 1 species has been assigned Critically Endangered (CR) status, 6 species are Endangered (EN), 13 species are Vulnerable (VU) and 2 species are Near Threatened (NT). 11 of these Red Listed medicinal plant species have been recorded in high volume trade, as per the national level trade study (D.K.Ved & G.S. Goraya, 2008).

Book Release: *Garcinia Brothers Emba Gaarudigaru,* *by Shri B.S. Somashekar*

A book in Kannada on four *Garcinia* species of the Western Ghats (as a socio-conservation profile), which rendered in a popular style and published by Snehakunja, Honnavara in Dec 2011, has been chosen by Karnataka Science & Technology Academy, Govt of Karnataka, for this year's award. You may like to click the link below: http://kstacademy.org

A glimpse of the book was made available on ENVIS website, after the book was released.
http://envis.frlht.org/documents/garcinia_bros_kannada.pdf

As you might be aware, the species of *Garcinia* are endemic and endangered medicinal plants of Karnataka, which also register high volume trade. Conservation initiatives, though at regional level by certain individuals and institutions to save the species, can be found in Uttara Kannada of Karnataka and Ratnagiri of Maharashtra.

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Caring Touch Matters: Meet Paala, Our Friend!

Suma TS and Thinley Bhutia

Two years back, we met Paala at his Kyongnosla Herbal Nursery, Sikkim. We were touched by his caring touch, concern, commitment towards the medicinal plants he raised in his nursery. These plants are not common. They are high altitude medicinally important and conservation concern species. This gardener (mali in Hindi) has been in this nursery since 2002. He carefully showed us every bed. When requested for a plant, he sternly said, "*I cannot give any plant to you because they are from this region, they grow here and I will protect them. I do not want any money". That is his commitment and conviction!*

Again next year, we visited him. He recognised us. As usual, with his excitement, he took us to the garden with same zeal and explained about the plants. When we asked him, *"what makes him continue in this profession". Palaa said with a gentle smile, "I love my plants!"*

Paala is the nick name of Shri. Gyanzen Bhutia, S/o. Lt. Thendu Bhutia resident of 15th Mile JN Road, Karponangunder Gnathang GPU, East District is working as a Mali of Herbal Garden Nurseriesat Kyongnosla, East District since 2002-03. He is very sincere and dedicated to his work. Shri.Gyanzen Bhutiais practically well experienced in Conservation and Propagation of High Altitude Medicinal Herbs. Though he has attended age of 78 years and he is still very active on his duty and performing his duty very satisfactorily.

Shri Gyanzen Bhutia was working under Forests, Department as a nursery labour under River Valley Project(RVP) Scheme from 1980-1981. After saturation of the RVP scheme in 1992 -93 he was again absorbed under Minor Forest Produce (MFP) Scheme till 1997 - 1998. From 1998-1999 he was again brought under Non-Timber Forest Produce (NTFP) scheme for maintenance of Nurseries as nursery Mali.

Shri. Gyanzen Bhutia is very honest and simple old man and we wish him very healthy and long life. People like him with commitment, passion are inspirations for us.

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Medicinal Plant Conservation Areas Network in India - State-Wise

In India a unique and pioneering program for conservation of wild medicinal plants has been initiated since 1993. It has involved establishment of a network of Medicinal Plant Conservation Areas (MPCAs) focused on conservation of prioritized wild medicinal plants occurring in different regions of the country. The Foundation for Revitalisation of Local Health Traditions (FRLHT) which has been supported as a Centre of Excellence on Medicinal Plants and Traditional Knowledge by Ministry of Environment & Forests, since 2002, has been coordinating the establishment of this network of conservation areas in collaboration with the concerned state forest departments.

Entrance of MPCA

So far a total of 108 such MPCAs have been established across 12 states. State wise list of Medicinal Plant Conservation Areas is tabulated.

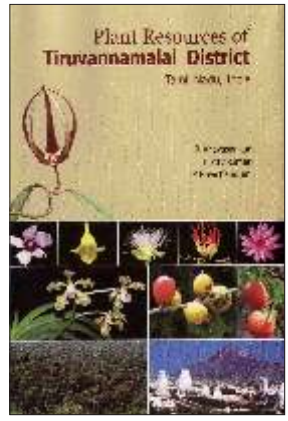
State	No.	Name of MPCA	District
Andhra Pradesh	1.	Mallur	Warangal
	2.	Sukkumamidi	Khammam
	3.	Talakona	Tirupati
	4.	Maredumilli	East Godavari
	5.	Lankapakalu	Visakhapatnam
	6.	Coringa	East Godavari
	7.	Peddacheruvu	Kurnool
	8.	K.Kuntalapalli	Anantapur
Arunachal Pradesh	9.	Lumla - Lumla	Tawang
	10.	Selari - Bomdila	West kameng
	11.	Mayodia	Dibang valley
	12.	Parasuramkhund	Lohit
	13.	Wang (Longiding)	Tirap
	14.	Hake–Tari (Hapoli)	Lower Subansiri
	15.	Dakpe (Daporijo)	Upper Subansiri
Chattisgarh	16.	Amadob	Marwahi
	17.	Jabarra	Dhamtari
	18.	Tiriya	Bastar
	19.	Bhatwa	South Kondagaon
	20.	Ghatpendari	North Surguja
	21.	Patiya	Jashpur
	22.	Bandhatola	Rajnandgaon
Karnataka	23.	BRT Hills	Chamrajnagar
	24.	Talacauvery	Kodagu
	25.	Savandurga	Ramanagara
	26.	Subramanya	DakshinaKannada
	27.	Charamadi	DakshinaKannada
	28.	Devarayandurga	Tumkur
	29.	Kuderemukha	Chikmagalur
	30.	Kemmangundi	Chikmagalur
	31.	Agumbe	Shimoga
	32.	Devimane	Uttara Kannada
	33.	Sandur	Bellary
	34.	Karpakapalli	Bidar
	35.	Kollur	Udupi
Kerala	36.	Agasthiar malai	Thrivendram
	37.	Triveni	Pathanamthitta
	38.	Eravikulam	Idukki
	39.	Peechi	Trissur
	40.	Athirappally	Trissur
	41.	Silent Valley	Palakkadu
	42.	Wayanad	Wayanad
	43.	Kulamavu	Idukki
	44.	Anapadi	Palakkadu
Madhya Pradesh	45.	Bhundakona	Anuppur
	46.	Latri Bithli	North Balaghat
	47.	Parcha	Sehore
	48.	Kapoornala	Chhindwara
	49.	Hinota	Panna
	50.	Kupi Jatashankar	Chattarpur
	51.	Bhagpura	Khandwa
	52.	Chapparisotia	Mandla
	53.	Nawali & Sawad	Mandsaur
	54.	Narsimhpur	Narsimhpur
	55.	Narayanpur	Sagar
	56.	Shyamagiri	Panna
	57.	Panarpani	Hoshangabad
Maharashtra	58.	Amba	Raigad
	59.	Amboli	Sindhudurg
	60.	Gadmauli	Gadchiroli
	61.	Gullarghat	Amravati
	62.	Honya Koli	Pune
	63.	Legapani	Nandurbar
	64.	Nagzira	Gondia
	65.	Navaja	Satara
	66.	Patanadevi	Jalgaon
	67.	Sawarna	Nasik
	68.	SGNP, Borivali	Thane

State	No.	Name of MPCA	District
	69.	Ukalapani	Nandurbar
	70.	Yedshi Ramling	Osmanabad
Orissa	71.	Kapilash	Dhenkanal
	72.	Tamna	Khurda
	73.	Gurudongar	Nuapada
	74.	Satkosia	Mayurbhanj
	75.	Pradhanpat	Deogarh
Rajashtan	76.	Ramkunda	Udaipur
	77.	Bada bhakar	Jodhpur
	78.	Bhanwarkot	Banswara
	79.	Gajroop Sagar	Jaisalmer
	80.	Badkochara	Ajmer
	81.	Sitamata	Chittaurgarh
	82.	Kumbalgarh	Rajsamand
Tamil Nadu	83.	Petchiparai	Nagarkovil
	84.	Mundanthurai	Tirunelveli
	85.	Kutrallum	Tirunelveli
	86.	Thaniparai	Tirunelveli
	87.	Alagarkovil	Madurai
	88.	Kodaikanal	Madurai
	89.	Kodikkarai	Nagapattanam
	90.	Topslip	Coimbatore
	91.	Kollihills	Namakkal
	92.	Kurumbaram	Kanchipuram
	93.	Thenmalai	Thiruvannamalai
	94.	Nambikovil	Tirunelveli
Uttarakhand	95.	Kandara	Uttarkashi
	96.	Khaliya	Pithoragarh
	97.	Jhuni	Bageshwar
	98.	Gangi	Tehri-Garhwal
	99.	Bastiya	Champawat
	100.	Mohan	Almora
	101.	Mandal	Chamoli
West Bengal	102.	Garhpanchkot	Purulia
	103.	Dhotrey	Darjeeling
	104.	Tonglu	Darjeeling
	105.	Sursuti	Jalpaiguri
	106.	North Sevoke	Jalpaiguri
	107.	NRVK	Jalpaiguri
	108.	Bony Camp	South 24Parganas

For more information: info@frlht.org,
Kindly mention subject line: MPCAs

New Flora

R. Vijayasankar, K. Ravikumar and P. Ravichandran, 2011. Plant Resources of Tiruvannamalai District, Tamil Nadu, India. Bishen Singh, Mahendra Pal Singh, Dehra Dun, India. ISBN:978-81-211-0736-5



We can see enumeration of 1365 taxa of Angiosperms including infra-specific and cultivated ones with more than 300 color photographs. A separate diagnostic key has been given for easier identification. These apart, the authors have identified endemic, rare and other interesting species in this work. This rigorous work also gives information on ethno-botany for most of the species. It also gives suggestive in-situ measures for threatened plants. This book is useful for students, teachers, ecologists, agriculturists, phyto-geographers, foresters and those concerned with conservation.

XI Conference of the Parties to the Convention on Biological Diversity

Hosted by India at Hyderabad from 1 to 19 October 2012.

The CoP logo has been developed by National Institute of Design, Ahmedabad for Ministry of Environment & Forests, Government of India. Inspired by logo of CoP-10, this logo symbolises the cycle of life with a tiger, a dolphin, a bird and a women with grains depicting linkage of biodiversity with livelihoods. On top is the slogan in Sanskrit with English translation 'Nature Protects if She is Protected'

For more information:
http://moef.nic.in/modules/others/?f=cbdlogo

Finding Alternates for Endangered Herbs using Ayurvedic Concepts

Padma Venkatasubramanian and Subrahmanya Kumar K

Plants are the source for most of the drugs in both traditional and conventional systems of medicine. According to an estimation, the world market for plant derived drugs may account for more than Rs.2,00,000 Crores[1]. Due to their increasing popularity, demand for herbs and herbal origin drugs is constantly increasing.

Supply of medicinal plants is presently not adequate to meet the demand for many herbal products. Limited natural distribution and yet a high demand for several medicinal plants have put them in the endangered species list. Such a situation demands immediate conservation strategies for protection[2]. Cultivation of several plant species have been propagated at different levels by the Governments and private agencies to some extent. However, it has not been proved to be successful because of several practical reasons like economical viability and poor implementation. This situation has led to unscientific and arbitrary substitution and also extensive adulteration of several popular herbal drugs in the raw drug market.

Ayurveda approaches this problem in a different perspective. It recommends use of alternative herbs in place of the one which is scarce and not available. Bhava Mishra, the 15-16th century writer on Ayurvedic herbs introduces an idea of using entirely different herbs instead of those which are not easily available. He writes

||Raajnaamapyashtavargastu tato apyamatidurlabha. Tasmaadasya pratinidhim grhneeyaat tadgunam bhishak||
(Bhavaprakasha Nighantu, Hareetakyaadi Varga, 143)

"Certain drugs like *'Ashtavarga'* group of herbs are not available even to the kings. Therefore the *Vaidya* can use other drugs having similar *Guna* (properties)". He then suggests some commonly available herbs as substitutes for difficult to get, but very useful eight herbs (*Ashtavarga* group). Thus for example, in place of *Meda* and *Mahameda (botanical identity is highly controversial)* use of *Shatawari* (*Asparagus racemosus*) and *Vidari* (*Pueraria tuberosa*) as a substitute for *Kakoli* and *Kshirakakoli* have been recommended[3].

Later, the 18th century works like Bhaishajya Ratnavali[4] and Yogaratnakara[5] give quite an elaborate list of substitutes for unavailable drugs. Unavailable drugs have been called as *'Abhava Dravya',* and the substitutes as *'Abhava-Pratinidhi Dravya'*. Regional texts written during same time like Vaidyachintamani (in Telugu) also contributed to this concept by indicating substitutes for several herbs[6].

Though such thoughts were initiated by Charaka at around 1000 BC, by indicating that the Vaidya could opt for other herbs having similar properties and action as that of mentioned by him, it was not elaborated and structured till 15-16th century AD.

Swalakshaanyanumaanayukti kushalaanaam anuktaartha jnaanayeti
(Charaka Samhitha, Sutrasthana, 4/20-21)[7]

Thus is a need for research before using this concept as an answer for contemporary problems because the logic of substitution is not clearly spelt out in Ayurvedic literature. Also, the Abhava-Pratinidhi Dravya list in Ayurvedic literature is limited.

Unlike modern sciences, Ayurveda's method of finding substitution lies in recognizing a similar Dravyaguna profile. Ie., Rasa (taste), Guna (properties), Veerya (potency), Vipaka (post digestive effect) and Karma (pharmacological actions).

Despite being taxonomically unrelated, difficult to get (Abhava) plant, Ativisha (*Aconitum heterophyllum* Wall. Ex Royle.), *and* its substitute (Pratinidhi) *Musta (Cyperus*

Abhava Dravya:
Ativisha (*Aconitum heterophyllum* Wall. Ex Royle.)

Abhava Pratinidhi Dravya:
Musta (*Cyperus rotundus* L.)

rotundus L.), are similar in Ayurvedic pharmacology (Dravyaguna) profile. Our sustained research effort at Centre for Pharmacognosy, Pharmaceutics and Pharmacology of I-AIM have proved their similarity in phytochemical and anti-diarrheal properties[8]. Similarity at the level of Ayurvedic propertries and sensorial attributes of several such Abhava- Pratinidhi Dravya pairs like *Daruharidra (Berberis aristata* DC.)- *Haridra (Cucuma longa* L.) have been studied and found considerable amount of similarity.

If properly understood and used appropriately, this alternate drug concept of Ayurveda could lead to a solution to the problem of over-exploitation of endangered herbal species while providing . It will also be an answer to raw drug non availability in Ayurvedic drug industry.

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Abhava Dravya:
Daruharidra (*Berberis aristata* DC.)

Abhava Pratinidhi Dravya:
Haridra (*Cucuma longa* L.)

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GEF Project and "Globally Significant Medicinal Plants" in India

An approach to conserve "Globally Significant Medicinal Plants (GSMPs)" is an initiative supported by Global Environment Facility (GEF) for Medicinal Plants Conservation in three States of India. This project is currently being implemented in Arunachal Pradesh, Chattisgharh and Uttarakh and States.
In this project context, medicinal plants that qualify any one of the important criteria such as near endemic, narrow distribution, sporadic nature, reducing population size, and prioritized species through Conservation Assessment Management Prioritization workshop process, high volume traded species etc., will be considered for conservation management plan and action projects under GEF project. These Globally Significant Medicinal Plants will further be identified in specific locations, so that their gene pool will be conserved in Medicinal Plants Conservation Areas (MPCAs), already established. These MPCA's will be study centers to understand sustainable harvest protocols and implement resource augmentation measures for identified species.

For more information: Dr. Debabrata Saha, Ph.D., Scientist, FRLHT (I-AIM), Bangalore, Email: dr.dsaha@frlht.org

2010: FRLHT (I-AIM) - Recognized as National R&D Facility (Rasayana) by Department of Science and Technology, Go.I.

For more information: http://www.frlht.org/rasayana/

Cycas beddomei : A Jewel of Seshachalam Hills

Boyina Ravi Prasad Rao

Cycas beddomei Dyer is a global endemic of Seshachalam hills (formerly called as Tirupati-Kadapa hills) belongs to family Cycadaceae, is the only Cycad species of India listed critically endangered by IUCN (IUCN, 2007) and the only Indian Cycad part of Appendix-I of CITES (Inskipp & Gillett, 2005). The species is of immense significance in the context of its medicinal importance and usuage and consequent resource exploitation led to decline in numbers. Scientific reports pertaining to the distribution of the species are based in many cases on non-detriment findings and secondary data published elsewhere. Our research team made keen efforts to study its distribution pattern and conservation *in situ*. The study was carried out in Seshachalam hill ranges, located in the Southern Eastern Ghats of Andhra Pradesh lying between Latitude $13^{0}37^{1}$ to $15^{0}58^{1}$N and Longitude $79^{0}15^{1}$ to $79^{0}30^{1}$E. These ranges have typical gorges and gaps due to faulting and stream erosion resulting into discontinuous ranges. The study area encompasses Sri Venkateswara Wildlife sanctuary and National Park. The altitude of the study area varies from 200 to 1150m above MSL and most of the hill peaks are above 900m above MSL. *Cycas beddomei*, locally called as Peritha or Madanakamakshi appear like a small phoenix tree with distinct trunk reaching up to 1.5m.

Habit

The plants are dioecious; the male and female plants can be distinguished, the former in clumps and the latter with isolated growth. Leaves pale green grown up to 1m long; leaflets narrow, linear, 12-18cm long, 2-3.5mm wide, with revolute margins. Male cones oblong-ovoid, to 35 x 16cm, with a short peduncle. Megasporophylls grow to 4 x 2cm. Ovules usually 2-4, occasionally 6 to 8 inserted above the middle of the stalk, to 4 cm across. All the individuals of the species were enumerated along an altitudinal gradient ranging from 400 to 1100m. Seven transects of 1000 m x 5m were laid at an interval of 100m altitude each. Interestingly the species has not been found at an altitude interval of 400-500m. The species was found distributed between 500m to 1100m above MSL with a slope range between 15^{0} and 78^{0} across. We inventoried a total of 900 individuals in 6 transects and found the species with a mean density of 150 84.27. Distributional ranges of *C.beddomei* were segregated along the widened altitudinal ranges. Plant density was recorded maximum at mid-altitudes and such, the peak density was at 900-1000m MSL; however below and above this altitudinal range the individual numbers show declining trend. In all grids, female trees component is higher (60-80%) than the male trees. Of the total recorded 900 individuals, majority of them i.e., 543 (60.53%) comprises 0-25 cm height class, followed by 174 individuals (19.37%) under 26-50 cm height, 149 individuals (16.49%) with 50-100cm height and the rest (3.37%) higher than 100cm height category.

The habitat of *Cycas beddomei* was found mostly of quartzite rock and sandy black soils. Plants grow in silt soils at lower elevation and clayey-loam in higher elevation (above 600m MSL). The pH of the soil was slightly acidic to near neutral (6.67) but at higher elevation (>800m MSL) it is acidic (6.08-6.1). The species usually grow in well-drained soils, but also found in nutrient poor soils. It is observed that specialized coralloid roots of plant containing symbiotic blue green algae, *Nostoc* and *Anabaena* which are able to fix

Box -1

Threat Status Justification: *Cycas beddomei* was originally listed as Vulnerable in the Indian Red Data Book (Nayar and Sastry 1987) and later re-evaluated as Endangered by Rao *et al*. (2003). Jadhav *et al*. (2001) classified the species as Critically Endangered based on secondary data and this assessment was the basis for the 2003 assessment (Hill 2003). However recent population studies (Suresh and Rao 2009; Rao *et al*. 2009) have provided detailed information on the distribution and population size of *C. beddomei*. These data show that the extent of occurrence (388 km²) and area of occupancy (20 km²) are small, but they are greater than originally thought and would mean that *C. beddomei* qualifies as Endangered (not Critically Endangered) under criterion B. Population size was originally estimated as <1,000 mature individuals, which means that it may also have qualified as Endangered under criterion C.

However, the latest data provides an estimate of between 20,000 and 30,000 individuals, so the risk associated with small population size is minimal.

The population is declining, partly due to local use and partly due to the frequency of fires. It was not possible to estimate the extent of decline as the historical data appears to have underestimated the actual extent and size of the population.

This species is threatened by frequent grassfires that effectively block reproduction. The male cones are used in Ayurvedic medicine, although the impact on populations is not known. The stems are also harvested for the extraction of the pith, which is used as treatment in the case of debility. The stem is used as a substitute for an Ayurvedic drug *Vidari*, which is originally *Ipomoea mauritiana*. Land clearing may also have a negative effect on populations.

For more information: www.iucnredlist.org

atmospheric nitrogen allows the cycads to survive in nutrient poor environments. The species occur in a range of habitats from closed canopy to open forests and scrub.


Megasporophylls

Although the species in reference is present in considerable numbers locally, it is noticed that this species is experiencing severe threats. The seeds have no dormant period and are relatively short-lived and subject to damage by desiccation. Although rapid recovery of the individuals is noticed even after fire, frequent grass fires are preventing the cone-setting as well seed maturity. It is also found that, the past unsustainable collection of the plant material for illegal marketing owing to its medicinal importance led to fall of alarming proportions of individuals. However it is to be appreciated the efficient management of the local forestry sector leading to strong positive recovery of the populations.

Our team along with John Donaldson, authority on the world cycads, re-assessed in terms of the International Union for the Conservation of Nature Red List. New data available from field surveys indicates that *C. beddomei* to be classified as Endangered (EN B1 a, b (i–v) + B2 a, b (i–v)) and that it still meets the biological criteria for inclusion in Convention on International Trade in Endangered Species Appendix I under criterion B (Bi, iii, iv). The justification for including the *Cycas bedommei* as Endangered in IUCN listing is provided in the box 1 of page 11.

More reading:

1. Rao, R.P.B., M.V.S. Babu, B. Sadasivaih, S.K. Basha, & K.N. Ganeshaiah (2009). Current threat status of *Cycas beddomei* Dyer, an endemic species of the Tirupati-Kadapa Hills, Andhra Pradesh, India. *Encephalartos* 97: 21–25.
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For more information: Professor of Botany, Sri Krishnadevaraya University, Anantapur 515 003, Andhra Pradesh.

Thought to ponder!

Eco-Restoration of Endangered Medicinal Plant Species

K.V Krishnamurthy

Biological diversity at all three levels (generic, species and ecosystem) is getting lost at a very rapid rate due to several stochastic and deterministic causes. Hence, many countries have started to shift their focus of attention from studying nature ecosystems to damaged ecosystems. They have also started to take several in-situ and ex-situ conservation measures to save their biodiversity. One such measure is eco-restoration, a process under the Science of Restoration Ecology. The Society of Ecological Restoration (RER) formed in 1987 has defined eco-restoration as "a process of intentionally altering a site to establish or defined, indigenous, historical ecosystem" with goal of emulating the structure, function, diversity and dynamics of the concerned ecosystem. Many ecologists have also felt that conserving a threatened plant species as part of its ecosystem is better than its ex-situ conservation. The restoration of an endangered plant species to its original ecosystem is not very easy and hence poses several problems.

Five important sampling decisions for relocating the endangered species have to be followed stringently in order to capture a significant percentage of the species total diversity. The successful re-establishment of the concerned species depends on its Minimum Viable Population (MVP) size, which varies from taxon to taxon and has to be estimated through Population Vulnerability Analysis (PVA).

Reintroduction of the endangered species should also involve the re-introduction of its associated pollinators/dispensers, soil microbes, plants and animals in order to rebuild the correct food chain/web. It also requires knowledge on the Autecology- Study of ecology of individual organisms of the concerned plant species, its genetic and demographic traits and an understanding of the causes on or circumstances leading to the species endangerment from the original ecosystem. However , it should be borne in mind that reintroduction of a species involves high risk, high cost and high expertise in different disciplines, and should be based on considerations of economic, social, political and other demands of humanity. Although more than 600 projects have been taken so far the world over, only few plant species have been successfully rehabilitated in their original habitats. But the taste of eco restoration is going to be very difficult in future particularly in tropics since ecosystem/species loss is happening at a very alarming rate.

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Sankhapuspi

Shilpa Naveen & Venugopal S.N

Sankhapuspi is one of the very important plants of Ayurveda, which is cited in 55 references ranging from 1500 BC to 1900 AD. In ayurvedic texts, *Sankapushpi* has numerous synonyms describing its attributes, viz. *medhya* – intellect promoting, *mangalya kusuma* – auspicious flower, *ksira* white flowered, sulaghna – alleviates abdominal pain, *smrtihita* – augments memory etc. The great sage *Caraka* has graded it as *medhya rasayana* – a rejuvenative to nervous tissue.

Sankhapuspi is tikta in rasa (bitter in taste), hima in *veerya* (cold in potency), *medhya* (promotes intellect), *svarya* (promotes voice).

शङ्खपुष्पी हिमा तिक्ता मेधाकृत् स्वरकारिणी।
ग्रहभूतादिदोषघ्नी वशीकरणसिद्धिदा।। (Rjn)

References pertain about single uses of this plant and also as an ingredient in various compound formulations. As a single drug *Sankhapuspi* is recommended as a nervine tonic [*medhya Rasayana*- meaning it promotes *dhi* (intelligence), *dhriti* (retention), *smriti* (memory)]

The Sanskrit word *Sankhapuspi* literally means that the flowers of which are in the shape of a conch or *sankha* which is considered to be auspicious.

There are several species recorded to be in use as *Sankapushpi*. This is regional manifestation. Most of the species recorded does not comply with ethymological analysis of the name-*Sankapushi* (conch shaped flowers). The following list provides popular candidates being used in Ayurvedic industries.

1. *Convolvulus pluricaulis* Chois. (Plant name is not given in Sanskrit except in Gujarati. It is reported to contain an alkaloid called Sankhapushpine)
2. *Evolvulus alsinoides* L. (like the previous plant this also has regular trumpet shaped flowers which has little likeness to a conch. The name *Sankhapuspi* is not given as a synonym for the plant)
3. *Canscora decussata* Schultes and Schultes.f. (In this plant the flower is bilaterally symmetric and a distinct resemblance to a conch may be found. The plant is acclaimed as a good brain tonic)
4. *Clitoria ternatea* L. (the Sanskrit name *Sankhapuspi* is found among synonyms of this plant. As far as the shape of the flower is concerned the name '*gokarna*' is more appropriate than *Sankhapuspi*)
5. *Canscora diffusa* (Vahl.) R.Br. (this is used as a substitute for *Canscora decussata*)
6. *Lavandula bipinnata* Kuntze (no Sanskrit name is found for this plant. It is reported that this plant is medicinally used in Gujarat)

Several scholars have tried to understand which is the real *sankapuspi* as per Ayurveda. As per scholarly interpretations, Prof. P.V. Sharma writes commentary in *Dravyaguna* book that *Sankhapuspi* is *Convolvulus pluricaulis, a* tender vine spreading on ground. Acharya K.C.Chunekar gives importance to regional choice of species. He says *Clitoria ternatea* is widely used as *Sankhapuspi* in South and *Canscora decussata* by Bengali practitioners. While Vaidya Bapalal does not conclude on any species but correlates it with five botanical candidates such as 1) *Convolvulus pluricaulis* 2) *Evolvulus alsinoides* 3)*Canscora diffusa* 4) *Clitoria ternatea* 5) *Lavendula bipinnata*. He mentions that the choice of species is practitioner's preference.

Going by most of the scholarly interpretations, *Clitorea ternatea* is best correlated to *Sankapushi* as its flowers are also conch shaped.

Sankhapuspi preparations are mostly recommended for mental disorders in order to boost the functions of brain, in case of insanity, epilepsy etc. Three important formulations based on this plant are in the high market; demand and their consumption exceed 100 tons per year. The genuine identity of the plant is therefore a matter of concern.

More information, write to: Dr. Venugopal S.N, Asst. Director & Dr. Shilpa Naveen, Research Officer, FRLHT (I-AIM) Email: shilpa.naveen@frlht.org

PREPARATION

- *The whole plant juice (crush the whole plant to extract juice) is used in various mental disorders. It is useful to promote intelligence, enhance memory and retention. Should be taken at bed time.*
- *Ghee should be cooked with 3 times juice of sankapushpi along with milk. By its regular usage even the dull becomes sharp and intellectual. (Ah.U.39.47)*

Parts used: Whole plant Dose: 10-20 gm, 10-20 ml

Centre for herbal gardens and landscaping services brings to you EMG mannual

EMG manual: The EMG team brought out a user friendly manual on the principles and guidelines for establishing a medicinal plant garden. The manual titled 'Secrets of Ethno Medicinal Gardens' illustrates step-by-step procedure for establishing a medicinal plant garden on similar lines of EMG. Besides, it also offers information on the nursery and propagation methods for select medicinal plants and includes images of selected species of around 200 herbs, 130 shrubs, 100 climbers, 200 trees, 100 orchids and 50 species of ferns.

Centre has already established about two lakh home herbal gardens and dozens of community and institutional gardens. It has established a nursery of medicinal plants with several rare medicinal orchids, bamboos and ferns. The Centre is engaged in research, training and outreach activities related to gardening, propagation and landscaping.

For more information: Garden in-charge, Email: *garden@frlht.org,* Tel: 91 80 28568006, 28568000, 28565760 Fax: 91 80 28567926

Whats in news?

- 9th March 2012: St. Joseph's Post Graduate Centre, Bangalore, 19 students, II year M.Sc. and two professors came for a one-day orientation program
- 17th February 2012: Mrs. Poorva Joshi, visiting faculty from Pune visited us to know about ENVIS activities.
- 10th February 2012: 10 students from St. Joseph's Undergraduate Course students visited for one day orientation program on medicinal plants
- 3rd February 2012: TN Khoshoo Ecology and Environment Award for Schools 2011: The Khoshoo Endowment Fund and Ashoka Trust for Research in Ecology and the Environment, along with The Teacher Foundation, Wipro, IAIM-FRLHT and Pravah launched the TN Khoshoo Ecology and Environment Award for Schools in 2010. *The aim of these awards was to* encourage schools to promote environmental thought and action—with emphasis on action, and therefore better environmental stewardship. Awards were given to the winners in a function.
- 25th November 2011: Ms. Sathya Sangeetha, Research Officer, FRLHT (I-AIM) presented ENVIS activities, at the Workshop on Biodiversity Informatics, organized by ATREE, Bangalore.
- 14thNovember 2011: A one day workshop, "Neighbourhood Medicinal Plants of Bangalore City" for 50 students from the Canadian International School, Bangalore was organized at our campus. These children launched - Children page in www.envis.frlht.org. on the occasion of Children Day.
- 10th June 2011: ENVIS team served as resource person on the occasion of World Environment Day celebration at ATREE, Bangalore to create awareness among students about medicinal plants and traditional knowledge. Nature trail was also organized.
- 9th-11th March 2011: Mr. D.K.Ved, Advisor, FRLHT, presented a talk on Wild Medicinal Plants in Trade in the National Seminar on Forest Resources: Diversity, Utilization and Conservation - Organized by University of Agricultural Sciences, GKVK, Bangalore.

Centre for Conservation of Natural Resources Activities, FRLHT, Bangalore:

- 16th - 18th February 2012: National level workshop on Strengthening Livelihoods of Forest communities – organized by Karnataka State Forest Department and Japan International Cooperation Agency. Poster on Community to Community Training (CTCT), sustainable collection models and other publications from the IAIM-FRLHT was shared to participants.
- 22nd - 23rd December 2011: National Consultation cum Workshop on People's Biodiversity Registers (PBR) was held at Royal Orchid Central, Bengaluru. This was jointly organized by National Biodiversity Authority, Ministry of Environment and Forests (MOEF) Government of India, UNDP and GEF and FRLHT, Bangalore.
- 1st-3rd December, 2011:Training cum field exposure on Sustainable harvesting practices at Amarkantak, Madhya Pradesh for Uttarakahand Task team members and front line staff of Bodmalla Van Panchayath, Mohan Range, Almora forest division and Dharkot Van Panchayath, Thanu Range, Dehradun forest division and representatives of SMPB.

Neighbourhood Medicinal Plants of Bangalore
CDROM for High School Students

Now, Bangalore city students can use the new CDROM, to explore your fascinating plant world. Experience the richness of plant diversity in your traditions, life style and environ. Share with us your interesting and enriching learnings in a creative way(such as poems, essays, paintings etc. Best expressions will be published in our website : *www.envis.frlht.org.* Email:*envis@frlht.org* or send your entries by post.

Herbarium Technique Training Programme

The goal of FRLH is to make significant contribution towards creating awareness about the diversity of medicinal plants and their conservation status. Thus act as a vehicle to promote medicinal plant conservation and go a long way to help revive our health care traditions. Several training programs and workshop have been conducted for high school students, teachers, lecturers, students of pre-university, graduation and post graduation, ISM practitioners on need basis. Usually a 15 member team is given training and interested institutions or groups may write to:

Assistant Director

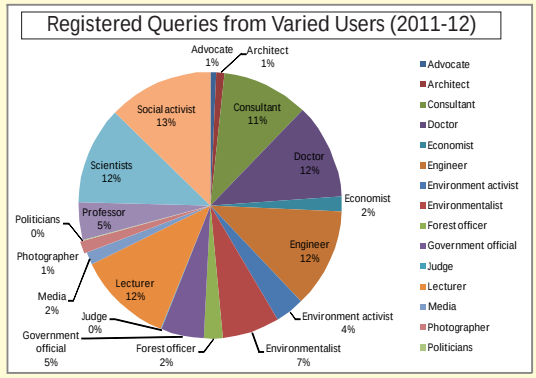
FRLH (Bio-Cultural Herbarium & Repository of Raw Drugs)

Foundation for Revitalisation of Local Health Traditions
No. 74/2, Jarakbande Kaval, Post Attur, Via Yelahanka
Bangalore. 560 106, Karnataka, INDIA. Phone: + 91 80 2856 8005/8000/8001Fax: + 91 802856 5873

Email: *herbarium@frlht.org, k.ravikumar@frlht.org*
http://www.iaim.edu.in

Just double click: *www.envis.frlht.org / www.frlhtenvis.nic.in*

Explore a well referenced, unique one-stop-information house on medicinal plants of India. This exclusively website gives information on conservation concern species, traded species, latest reports/ publications/ directories. User friendly search, enables us to access range of information related to botanical and local names correlations, view digital atlas and digital herbarium! Down load free *M edplant* e-version newsletter. Browse for more.....



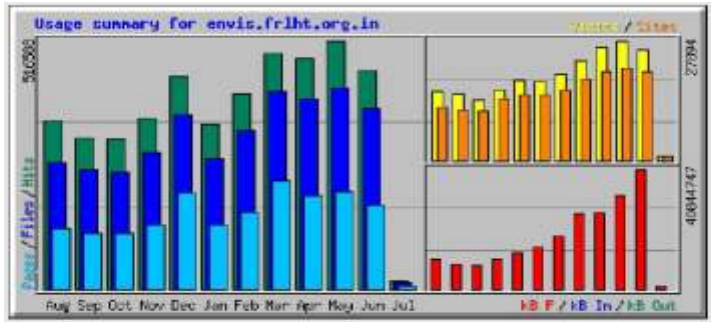
Coming soon : http://frlhtenvis.nic.in

ENVIS Centre on Medicinal Plants: Since 2004

FRLHT, Bangalore. Financially supported by MoEF, Go.I.

This centre aims to share information on Indian Medicinal Plants, Conservation Concern Species, trade related aspects to people in a popular, semi-technical fashion through websites and varied activities. The contents on the website is mainly derived from Centre of Excellence on Medicinal Plants program and other related projects across FRLHT and its partnering institutions. We invite academicians, policy makers, researchers, resource managers and people interested in medicinal plants conservation to contribute in development of this centre and propagate the message: Revitalising Indian Medical Heritage!

Usage Statistics for envis.frlht.org



Summary by Month

Month	Daily Avg				Monthly Totals						
	Hits	Files	Pages	Visits	Sites	KB F	KB In	KB Out	Visits	Pages	Hits
Jul 2012	8132	6838	3284	459	958	917623	0	0	918	6569	13677	16264
Jun 2012	15162	12483	5785	861	20515	40844747	0	0	25840	173578	374516	454872
May 2012	16664	13537	6493	899	21460	31819436	0	0	27894	201294	419647	516588
Apr 2012	16015	13207	6492	882	20573	26191382	0	0	26469	194780	396230	480457
Mar 2012	15815	13228	7241	744	18797	25777634	0	0	23064	224491	410068	490267
Feb 2012	14026	11375	5481	687	16464	18157491	0	0	19951	158974	329808	406771
Jan 2012	13145	10440	5186	706	15143	14327603	0	0	18371	134856	271444	341786
Dec 2011	14266	11706	6410	600	15365	12107097	0	0	18603	198723	362887	442270
Nov 2011	11840	9496	4448	541	14313	10163141	0	0	16255	133446	284883	355223
Oct 2011	10046	7808	3707	456	11443	8264695	0	0	14160	114917	242057	311439
Sep 2011	10470	8271	3856	519	11765	8475569	0	0	15592	115703	248130	314108
Aug 2011	11305	8531	4072	515	12349	10137977	0	0	15974	126262	264486	350478
Totals						207184390	0	0	223091	1783593	3617923	4480523

Shri M.F. Farooqui, Additional Secretary, MoEF visited FRLHT, Bangalore in February 2012.

Centre of Excellence on Medicinal Plants

Annual Report 2010-11

e-mail: info@frlht.org

Awards and Recognitions

2011: The Rajagopal Rama Varier Memorial AVP Excellence award to the Founder, Shri Darshan Shankar

2011: Padma Shri awarded to the Founder, Shri. Darshan Shankar

2011: Designated as Bio-Resource Information Centre on Indian Medicinal Plants Database, D.B.T., Go.I

2010: Recognized as National R&D facility (Rasayana) by : Department of Science and Technology, GOI

2010: Indian Innovation Award, Indian Express (EMPI Group of Institutions)

2009: Recognized as a Center of Excellence in Indian Systems of Medicine by Dept. of AYUSH, Ministry of Health and Family Welfare

2009: Award for Proficiency in Clinical Application of Ayurveda Shastra from Vaidyaraj Datar Panchaboutik Chikitsa and Samshodhan Kendra, Sangli, Maharashtra

2008: Global Propagation of Ayurveda Award from the AVR Foundation, Coimbatore

2007: "The Green Institution Award", Better Interiors, Mumbai

2007: "Citizen Extra Ordinaire", Rotary Club, Bangalore

2004: Designated as Environmental Systems Centre on Medicinal Plants, Mo.E.F., Go.I.

2003: Recognized as an organization engaged in Scientific and Industrial Research by the Dept. of Scientific and Industrial Research

2003: International Award for Leadership in Complementary & Alternative Medicine, Columbia University, New York

2002: Recognized as National Centre of Excellence, Ministry of Environment and Forests, GOI Ministry of Health and Family Welfare, GOI

2002: Equator Initiative Prize of United Nations for Linking Conservation to Livelihood Needs of Rural Communities

1998: Norman Borlaug Award

DECADE ON BIODIVERSITY

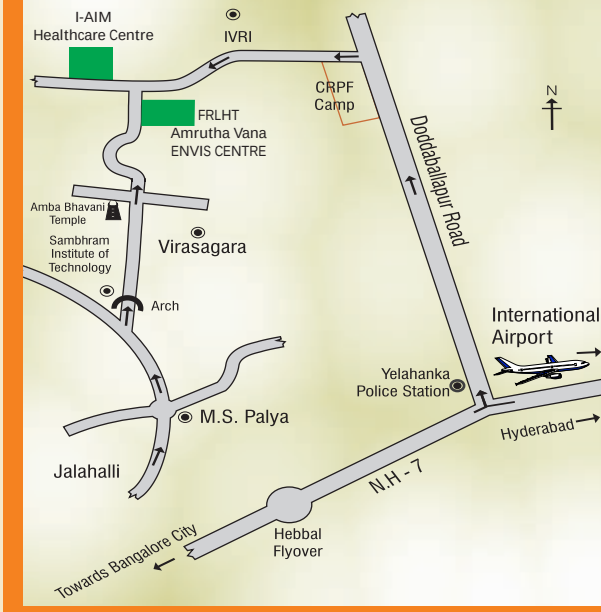
The United Nations agreed to a Decade on Biodiversity from 2011–2020 at the global biodiversity meeting, called the Nagoya COP10, held in Japan in October 2010.

The decade will highlight the value of biodiversity to all our lives and build on the success of the International Year of Biodiversity (IYB) during 2010.

The aim of the IYB was to celebrate life on Earth, to highlight the value of biodiversity to our lives and to call for a renewed effort to safeguard the variety of life. It was celebrated around the globe by 146 countries using 29 languages. As the year drew to an end, world governments agreed a 10-year plan to protect our natural resources for the future. Read a summary of what the UK partnership for IYB achieved during 2010. More info: http://www.decadeonbiodiversity.net/

How to reach IAIM-Health Care Centre, Yelahanka, Bangalore

Contact us: Land line phone number:+91-80-28567000



I-AIM

पूर्णोऽयं लोकसंग्रहः

An Expression of FRLHT
Institute for Ayurveda & Integrative Medicine

www.iaim.edu.in

We invite readers to send their responses/views/features of interest etc. through e-mail: *envis@frlht.org* (Please note: Articles for subsequent issues should not exceed more than 1500 words. It can be accompanied with images in .jpg format)

For more information contact:
The Co-ordinator,
ENVIS Centre on Medicinal Plants

Foundation for Revitalisation of Local Health Traditions
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www.envis.frlht.org / www.frlhtenvis.nic.in
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