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## ENVIS Newsletter on Medicinal Plants



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#### Next Quarterly Issue:

Diversity of herbal raw drugs and plant species  
in trade

### Editorial

We are happy to bring to you Medplant - Issue 2 & 3. Theme for this issue is "Production and supply of medicinal plants in trade". In this issue, we wish to share our recent research findings and learning experience based on the study published in 2008, titled "Demand and Supply of Medicinal Plants in India", undertaken by FRLHT for National Medicinal Plants Board, Government of India. This issue carries articles on medicinal plants species of conservation concern, research findings on sources of medicinal plants, discussion on quality issue pertaining to cultivated source of medicinal plants, a profile on conservation concern species, and about *pashanabheda*: a drug name, synonymous with several plants species, but has similar function. We also bring to you the latest news, such as outreach activities, book release, training programs and much more.

This newsletter is an initiative of ENVIS Centre for Medicinal Plants, specially targeted to enrich resource managers, traders, industrialists, physician academicians, researchers, policy makers, regulatory authorities. Our constant effort through this platform is to share the latest research insights, happenings related to medicinal plant, in trade and their management issues. We hope our readers will find this newsletter meaningful addition to deepen their understanding about medicinal plants and also inspire them to contribute through providing write ups (not exceeding 1000 words) and feed backs through email: [envis@frlht.org](mailto:envis@frlht.org)

With Best Wishes,  
**Suma TS**

## ENVIS Centre on Medicinal Plants

### Foundation for Revitalisation of Local Health Tradition, Bangalore

FRLHT is a registered public trust, since 1991. Our vision is to "*Revitalise Indian Medical Heritage*". Our mission is to demonstrate the contemporary relevance of Indian Medical Traditions in providing medical relief, in extending education, training and imparting creative community services by designing and implementing innovative programs related to

1. High quality medical practices and research in Indian systems of medicine,
2. Conservation of the natural resources used by Indian systems of medicine
3. Revitalisation of social processes for transmission of our medical heritage, on a size and scale that will have societal impact.

FRLHT is designated as "ENVIS Centre on Medicinal Plants" by MoEF, Government of India. 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.in> and quarterly newsletter: Medplant. By visiting our Centre at Bangalore, you can experience a well landscaped ethno-medicinal plant garden with over 900 plant species across the country. Amidst this greenery, you can meet 150 professionals, access exclusive Encyclopedia on Indian Medicinal Plants database, FRLH- Herbarium and Raw Drug Repository with 35,000 accessions pertaining to 2,800 medicinal plant species, 602 plant raw drug samples relating to 452 species collected from authentic botanical sources; and 484 raw drugs pertaining to 395 species collected from various markets. It also has a full fledged analytical laboratory: Centre for Pharmacology and Pharmacognosy, Amruth Ayurveda Nursing Home and Yoga Centre, a new wing- Indian Institute of Ayurveda and Integrative Medicine has been established. This deals with clinical research, manuscript research, offers continuing education courses for doctors, para medical courses for *panchakarma* therapist, and many such initiatives.

## Medicinal Plant Species of Conservation Concern in Trade

Information source: 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

An estimated 15,000 medicinal plant species, forming about 21% of the total plant species used for medicinal purposes in the world, fall in the endangered category (Schippmann et. al (2006). So far 265 wild Indian medicinal plant species have been assessed as threatened in one or more Indian states (FRLHT Database).

A comparison of this list of threatened species with the list of 178 species of medicinal plants recorded in high quantity trade (>100 MT/yr) in India reveals that a number of threatened species like *Aconitum heterophyllum*, *Coscinium fenestratum*, *Decalepis hamiltonii*, *Nardostachys grandiflora*, *Oroxylum indicum*, *Picrorhiza kurroa*, *Saraca asoca*, *Swertia chirayita* and *Vateria indica* are in high quantity trade. Concerns about global depletion of populations of some of these species have prompted their inclusion in the CITES lists. Government of India had also drawn up a 'negative list of exports' wherein some of these threatened medicinal plant species were included. However, wild populations of many of these threatened species continue to decline in the face of indiscriminate harvesting.

***Podophyllum hexandrum* Royle**  
(=*P. emodi* Wall. ex Honig.)

**BANKAKRI**



A temperate Himalayan herb found at altitudes ranging from 2800 to 3500 m. It is commercially collected for its rhizomes that are processed to extract 'podophyllin', derivatives, which are used in treatment of tumours. The species, once known to form extensive dense populations in its natural zone, has borne the brunt of heavy exploitation over the past more about 50 years and has become endangered now. Since, the rhizomes take 5-6 years to mature, efforts to domesticate the species and cultivate it on commercial scale have proved to be non-viable and abandoned.

In view of threat to its wild populations, export of this species was banned in 1994. However, since it is preferred over its American allied species (*P. peltatum* L.) for its higher alkaloid content, it continues to be indiscriminately harvested from the wild, further endangering even its residual populations.

***Picrorhiza kurroa* Royle ex Benth.**

**KUTKI**

Traded as 'kutki', this temperate Himalayan herb found at altitudes ranging from 3000 to 3500 m was hitherto believed to have wide distribution extending from North - West Himalayas to Nepal and Bhutan in the East. Its increasing domestic and global trade coupled with concerns about its fast shrinking populations prompted the inclusion of *Picrorhiza kurroa* in the CITES Appendix-II to regulate its foreign trade. However, typification of the taxon growing in Uttarakhand, Nepal and Bhutan as *Picrorhiza scrophulariiflora* Pennel (= *Neopicrorhiza scrophulariiflora* Pennel D. Y. Hong) has added a new dimension to the trade of 'kutki' as this new taxon is not included in the CITES list.



The estimated consumption of 'kutki' by the domestic herbal industries was 416 MT during 2005-06. Since rhizomes of both these species are freely traded as 'kutki', it is difficult to link a specific quantitative estimate to any one of these. The foreign trade of 'kutki', derived from both the species, can also continue under the name of *P. scrophulariiflora*. Cultivation of the species at any significant scale is yet to take off. The net result is further decline in wild populations of both *P. kurroa* and *P. scrophulariiflora*.

Lack of accuracy in identification of plant material in trade is a major area of concern. This lack of accuracy leads to an inadequate linkage of the trade data with the specific plant species though many of these species remain of high conservation concern. *Gentiana kurroo*, *Dactylorhiza hatageria* etc earlier recorded in trade are already on the verge of extinction and their wild populations have drastically declined.

There is an urgent need to initiate management interventions by way of assessments of the status of wild populations of these threatened species in trade for guiding comprehensive *in-situ* conservation as well as resource augmentation efforts.

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Reference: Schippmann, U., D. Leaman & A.B Cunningham (2006). A comparison of Cultivation and wild collection of medicinal and aromatic plants under sustainability aspects. In R.J Bogers, L.E. Crakers & D. Lange (eds), Medicinal and Aromatic Plants (2006). Springer. Netherlands. 75-95

## Sources of Supply of Botanical Raw Drugs

Based on the study, "Demand and Supply of Medicinal Plants in India", (Ved D.K. and G.S Goraya, 2008), it is estimated that, 178 species are consumed in volumes exceeding 100 MT per year, with their consolidated consumption accounting for about 80% of the total industrial demand of all botanicals in the country.

Analysis of these 178 species by their major sources of supply reveals that 21 species (12%) are obtained from temperate forests, 70 species (40%) are obtained from tropical forests, 36 species (20%) are obtained largely or wholly from cultivations /plantations, 46 species (25%) are obtained largely from road sides and other degraded land use elements and the remaining 5 species (3%) are imported from other countries amongst these the temperate and alpine herbs and the tropical trees form the most vulnerable group of species that needs immediate management focus.

The following boxes give more details about the same.

### 46 medicinal plant species in high trade sourced mainly from wastelands, etc.

The following 46 species are found growing wild in abundance in wastelands including farm bunds, fallow lands, roadsides, shrubberies, etc. and their domestic supplies are largely obtained from wastelands. As such, these species may not require immediate management focus so far as their wild populations are concerned. Some amongst these species may, however, need cultivation to conform to quality standards, especially in cases where more than one equivalent species are freely traded as one botanical.

*Abrus precatorius* (Gunja), *Achyranthes aspera* (Upmarga), *Aerva lanata* (Cheroola), *Andrographis paniculata* (Kalmegh), *Bacopa monnieri* (Brahmi), *Boerhavia diffusa* (Punarnava), *Cardiospermum halicacabum* (Mudakkatham), *Cassia absus* (Chaksoo), *Cassia tora* (Chakoda beeja), *Centella asiatica* (Brahmi booti), *Centratherrum anthelminticum* (Kali zeeri), *Citrullus colocynthis* (Indrayan), *Convolvulus microphyllus* (Shankhapushpi), *Curculigo orchioidea* (Kali musli), *Cynodon dactylon* (Durva), *Cyperus esculentus* (Musta), *Cyperus rotundus* (Nagar moth), *Datura metel* (Dhatura), *Eclipta prostrata* (Bhringraj), *Fumaria indica* (Shatara), *Hedyotis corymbosa* (Pitpapra), *Hemidesmus indicus* (Anatmool), *Hygrophylla schulli* (Tal makhana), *Ipomoea nil* (Kadalana), *Merremia tridentata* (Prasarani), *Ocimum americanum* (Ban tulsi), *Peganum harmala* (Harmal), *Phyllanthus amarus* (Bhumiamla), *Pluchea lanceolata* (Rasna), *Plumbago zeylanica* (Chitrak), *Pseudarthra viscida* (Moovila), *Psoralea corylifolia* (Bawachi), *Sida rhombifolia* (Bala), *Sisymbrium irio* (Khukbala), *Solanum anguivi* (Katheli badi), *Solanum nigrum* (Makoi), *Solanum virginianum* (Kateli), *Sphaeranthus indicus* (Gorakh mundi), *Tephrosia purpurea* (Sarpankha), *Tinospora cordifolia* (Giloy), *Tragia involucrata* (Kodithoova), *Tribulus terrestris* (Gokshura), *Trichosanthes cucumerina* (Patol panchang), *Vetiveria zizanioides* (Lavancha), *Withania coagulens* (Panir dodi), *Woodfordia fruticosa* (Dhatki).

### 70 medicinal plant species in high trade sourced mainly from temperate forests

*Abies spectabilis* (Brahmi talish), *Aconitum ferox* (Vachnag), *Aconitum heterophyllum* (Atis), *Berberis aristata* (Daruahaldi), *Bergenia ciliata* (Pashanbheda), *Cedrus deodara* (Devdar), *Cinnamomum tamala* (Tejpatra), *Ephedra gerardiana* (Somlata), *Juniperus communis* (Hauber), *Jurinea macrocephala* (Dhoop), *Nardostachys grandiflora* (Jatamansi), *Onosma hispidum* (Ratanjot), *Parmelia perlata* (Chadila), *Picrorhiza kurroa* (Kutaki), *Pistacia integerrima* (Kakarsingi), *Rheum australe* (Revandchini), *Rhododendron anthopogon* (Talish patra), *Swertia chirayita* (Chirata), *Taxus wallichiana* (Talish), *Valeriana jatamansi* (Mushakbala), *Viola pilosa* (Banafasha).

### 70 medicinal plant species in high trade sourced mainly from tropical forests\*

*Acacia catechu* (Katha), *Acacia nilotica* (Babool), *Acacia sinuata* (Shikakai), *Aegle marmelos* (Bael), *Albizia amara* (Cheroola), *Alstonia scholaris* (Saptaparni), *Anogeissus latifolia* (Dhawada), *Asparagus racemosus* (Shatavari), *Baliospermum montanum* (Dantimool), *Bombax ceiba* (Simal), *Boswellia serrata* (Salai guggul), *Buchnanan lanzan* (Chironji), *Butea monosperma* (Tesu phool), *Careya arborea* (Vaai kumbha), *Cassia fistula* (Amaltas), *Celastrus paniculatus* (Malkangani), *Chlorophytum tuberosum* (Safed musali), *Cinnamomum sulphuratum* (Dalchini), *Clerodendrum phlomidis* (Arnimool), *Coscinium fenestratum* (Maramanjol), *Cyclea peltata* (Paadu kizhangu), *Decalepis hamiltonii* (Magali), *Desmodium gangeticum* (Salparni), *Embelia tsjerum-cottam* (Vai-vidang), *Embelia officinalis* (Amla), *Garcinia indica* (Kokam), *Gardenia resinifera* (Dikamali), *Gmelina arborea* (Gambar Chhal), *Gymnema sylvestre* (Gudmar), *Helicteres isora* (Marod phali), *Holarrhena pubescens* (Kutja), *Holoptelea integrifolia* (Aavithali), *Holostemma ada-kodien* (Jeevanti), *Ipomoea mauritiana* (Pal mudhukkan kizhangu), *Ixora coccinea* (Thechippoovu), *Lannea coromandelica* (Jhinganjingini), *Litsea glutinosa* (Maida chhal), *Lobelia nicotianaefolia* (Lobelia leaves), *Madhuca indica* (Madhuka), *Messua ferrea* (Nagakesar), *Mimusops elengi* (Bakul), *Morinda pubescens* (Manjanathi), *Mucuna puriens* (Kaunch beej), *Nilgirianthus ciliatus* (Kurinji), *Operculina turpethum* (Nishoth), *Oroxylum indicum* (Tetu chhal), *Premna serratifolia* (Arnimool), *Pterocarpus marsupium* (Vijaysaar), *Pterocarpus santalinus* (Rakta chandan), *Rauvolfia serpentina* (Sarpagandha), *Rubia cordifolia* (Manjishtha), *Santalum album* (Chandan), *Sapindus mukorossi* (Reetha), *Saraca asoca* (Ashoka Chhal), *Schrebera swietenoides* (Ghanti phool), *Semecarpus anacardium* (Balave), *Shorea robusta* (Raal), *Smilax glabra* (Chopchini), *Soymdia febrifuga* (Rohan), *Sterculia urens* (Karaya), *Stereospermum chelonoides* (Patala), *Strychnos nux-vomica* (Kuchla), *Strychnos potatorum* (Nirmali), *Symplocos racemosus* (Lodh pathani), *Terminalia arjuna* (Arjan), *Terminalia bellirica* (Behra), *Terminalia chebula* (Harda), *Vateria indica* (Manda dhooa), *Wrightia tinctoria* (Inderjau), *Ziziphus xylocarpus* (Ghonta phala).

\**Commiphora wightii* (guggul) and *Aquilaria agallocha* (agar), largely sourced through imports at present, are also native tropical species and need special management focus.

### 36 medicinal plant species in high trade sourced largely from cultivation

*Abelmoschus moschatus* (Muskdana), *Acorus calamus* (Bach), *Adhatoda zeylanica* (Adusa), *Aloe barbedensis* (Kumari), *Alpinia*



## Research findings

*calcarata* (Chittartha), *Azadirachta indica* (Neem), *Caesalpinia sappan* (Pathimugam), *Cassia angustifolia* (Sonamukhi), *Catharanthus roseus* (Sadabahar), *Cichorium intybus* (Kasani), *Croton tiglium* (Jamalgota), *Curcuma angustifolia* (Tikhur), *Curcuma zerumbet* (Kachur), *Ficus benghalensis* (Vada Chhal), *Ficus religiosa* (Arali chakki), *Gloriosa superba* (Kalihari), *Indigofera tinctoria* (Nili), *Inula racemosa* (Pushkarmool), *Jatropha curcas* (Nepalam seed), *Kaempferia galanga* (Kacholum), *Lawsonia inermis* (Henna), *Lepidium sativum* (Halim), *Ocimum basilicum* (Sweet basil), *Ocimum tenuiflorum* (Tulasi), *Piper longum* (Pippali), *Plantago ovata* (Isabgol), *Plectranthus barbatus* (Gandhira), *Pongamia pinnata* (Karanj), *Prunus armeniaca* (Chuli), *Saussurea costus* (Kuth), *Silybum marianum* (Milk thistle), *Simmondsia chinensis* (Jojoba), *Trachyspermum ammi* (Ajwain), *Vitex negundo* (Neergundi), *Withania somnifera* (Ashvagandha), *Ziziphus jujuba* (Ber)

These 36 species are sourced wholly or largely from cultivation and have got firmly incorporated into the local agricultural systems and hence they do not need any promotional incentives. However, the focus in relation to these species would need to be on developing better cultivars/ varieties and making their germplasm available to the growers in adequate quantities for enhancing their income.

### 5 medicinal plants species in high trade sourced largely through imports

Raw material pertaining to the following five species is largely obtained through imports. *Aquilaria agallocha* (Agar), *Commiphora wightii* (Guggul), *Glycyrrhiza glabra* (Mulethi), *Piper chaba* (Chavak) and *Quercus infectoria* (Majuphal)

Two of these five species, namely *Aquilaria agallocha* (Agar) and *Commiphora wightii* (Guggul), do occur in tropical India, but their wild populations are able to meet only a fraction of the total domestic requirement. Efforts are needed to be taken up to build up wild populations of these two species.

**Information source:** 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



## Cultivation of Guggul - *Commiphora wightii*

Commercial scale cultivation of *Guggul* in the country is still to take off. The plant reportedly dies after its tapping and that has caused its wild population to dwindle at a drastic rate. FRLHT's study team visited the Mangliawas 'Guggul Research Station' near Ajmer, where efforts at plantation and sustainable tapping are on for quite sometime. Whereas the farm has managed to raise guggul plants over 30 hectares. The sustainable tapping experiments are yet to come to successful conclusion. The plants, tapped at an average age of 15 years, yield about 300 gms of guggul before drying.

The domestic production and supply of *guggul* < 90 MT as against the estimated annual consumption level of > 900 MT; The remaining demand is reportedly being fulfilled through imports. It would need tapping of about 30 lakh *guggul* plants every year, if the entire annual domestic requirement of *guggul* were to be met from domestic sources!

**Reference:** Ved, D.K. & G.S. Goraya, 2008.

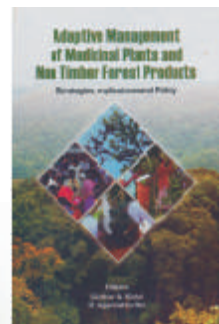
## What's in News?

- January 2009: Four training programs were held for front line forest staffs: Workshop title: "Capacity Building Training for the Front-line staff of State Forest Department, on identification and management of Wild Medicinal Plant Resources" were held at Haldwani and Sudernagar, during January 2009. This was supported by National Medicinal Plant Board, New Delhi and the training program was designed and delivered by FRLHT.
- On 12th Dec 2008: Workshop for rural students and teacher. FRLHT took part in designing and conducting a participatory workshop for students and teachers for three rural schools across Magadi Taluk (90 students, 20 volunteers and 10 teachers at SIDHA LOKA ashram. Special feature of this workshop was the participation of one local village botanist.
- On 21st and 22nd Nov 2008, Exhibition on Indian Systems of Medicine was organized at Bharatiya Vidyapeet's Nagarjuna Vidyaniktan School, Bangalore.

## New Release

ISBN: 978-81-211-0625-2

Giridhar A. Kinhal and R. Jagannatha Rao (Editors), 2008. **Adaptive Management of Medicinal Plants and Non Timber Forest Products: Strategies, Implications and Policy**, Bishen Singh Mahendra Pal Singh, Dehra Dun.



This reference is a collection of articles, papers published during various seminars, workshops related to sustainable harvest of Medicinal Plants and Non Timber Forest Products. Few chapters in this publication, which provide details on adaptive management methodologies across the country. It also presents to researchers interesting case studies on application of International Standard for Sustainable Collection of Medicinal Plants from the wild.

This book is broadly divided into following themes viz,

1. Models and systems for adaptive management
2. Documentation and application of traditional knowledge
3. Participatory action models for training and capacity building
4. Adaptive planning for sustainable management
5. Strategies and policy interventions for adaptive management

Articles presented in the publication enables researchers to understand the NTFP management issues, decision making by community, and also suggests further research and provide help in planning effective policy interventions for management of Non-Timber Forest Products.

## Quality of cultivated versus wild medicinal plants sources

K. V Krishnamurthy

We often hear in news about the various legislations/rules suggestions such as the ones contained in National Biodiversity Act of India or International Centre for Medicinal and Aromatic Plants (ICMAP) that there is a need for sustainable collection and utilization of medicinal plants from wild. Nearly 80% of the botanicals come from wild and 20% from cultivated sources (Ved et al, 2008). It is also estimated that about 3.1 lakh tons of medicinal plants are utilized by Pharmaceutical industries to cater to manage health care needs. To take the pressure off their wild populations, especially in case of high volume traded medicinal plant, collections need to be monitored and regulated for wild harvesting beyond the unsustainable levels. It is also desired to cultivate good quality selected species for industrial consumption. This write up will ponder over the quality issues pertaining to cultivated sources.

Let us broadly understand the issues pertaining to cultivation of medicinal plants viz,

1. Percentage yield of desired active ingredients from the cultivated sources that is feasible for industrial consumption
2. Consistency of percentage yield of active chemicals from the same place in the subsequent sessions/seasons
3. Effect of mono culture on the active ingredients.
4. Inadequate information on cultivation /agro techniques for medicinal plants
5. Compare the yield from cultivated or micro propagated sources for chemical properties in terms of both quantity, and quality.
6. Consistency of yield from cultivated or micro propagated sources in the successive cycles
7. Non-availability of good quality planting materials
8. Market channels and associated fluctuations.

Over couple of decades, observations from a number of commercial cultivators of Medicinal and aromatic plants, is that mono culture results either in abrupt or gradual reduction in medicinally important chemicals from cultivated source in comparison to plants collected

from wild. For instance, *Gloriosa superba*, seeds collected from wild has 2% colchicine content in comparison to cultivated sources. As the latter has as low as 0.2% colchicine due to repeated mono culture. Similar experience is seen in *Gloriosa superba* where plants raised in vitro under laboratory conditions which did not contain even nanogram quantities of any of the 24 or so alkaloids listed (including colchicines and colchicoside) that the wild plants have been recorded to possess. Hence, enthusiastic cultivators engaged in mono culture of medicinal plants should be cautious because of huge investments such ventures entail, leading to produce, with poor and unacceptable.

However cultivators need not be disappointed or frustrated by the above quality situation since there are good solutions to this problem. We have developed adequate technologies and farming methodologies through our research efforts to overcome this problem both under large scale cultivation and under micro propagation. It should be however realized that this problem is invariably met with, only in plants where the medicinal chemicals/ modules are the products of secondary metabolic pathways; such pathways are often switched off in conditions of the absence of biotic and abiotic stresses that operate under wild growing conditions and are absent under farm cultivation (especially under monoculture conditions) and under micropropagation. We have therefore, to identify the necessary elicitors (i.e triggering molecules/substances/conditions) that are required to switch on the production of secondary metabolites and involve the use of them under cultivation and micro propagation. Since the nature of the elicitors and the dosage of their application vary with the MAP, our job is to first identify the required elicitors and then standardize their dosage, time of application and operating conditions. These aspects must first be addressed before embarking on the cultivation of the various MAP's, to start with at least for those MAP's prioritized for cultivation in India by the National Medicinal Plant Board.

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- On 13 & 14th November 2008: Participatory workshop on neighbourhood medicinal plants was organised at Visveshwaraiah Industrial and Technology Museum, Bangalore. This was jointly done by FRLHT-UNDP and Museum. There were twenty schools, 120 students and 20 teachers from various schools across Bangalore. This workshop gave scope for students to interact with traditional healers too. Simultaneously, essay and drawing competition were also held in the same venue.
- From 13th to 18th Nov 2008: Exhibition on Indian Systems of Medicine was organised at the VITM, Bangalore.
- October 17th 2008: Workshop for 50 biology teachers, at Bharatiya Vidyapeet's Nagarjuna Vidyapeeth School, Bangalore was held. In this teachers' training workshop, participants were sensitized on the medicinal plants and traditional knowledge. This workshop was jointly supported by school, FRLHT, SDTT and UNDP-CCF2 project.



## Conservation Concern

### *Coscinium fenestratum*(Gaertn.)Coleb. (Daruharidra)

**Family:** Menispermaceae

**Vernacular names:** Hindi- Jhar-haldi; Kannada- Maradrashina. Arasina balli; Malayalam- Maramanjil; Marati- Jhade-halade; Sanskrit- Darvi, Daruharidra; Tamil- Maramanjil-Telgu-Manu-pasupu

**Threat status:** Critically Endangered in Kerala, Karnataka, Tamilnadu

**Trade information-** Local, regional, national and global. In southern India the stem/stem bark of *Coscinium fenestratum* is the accepted source of Daruhaldi/Daruharidra. It is traded under the name Maramanjil. In Northern India, *Berberis chitria* is the primary source of Daaruharidra.

**Distribution-** Global- Indo-Malaya (Southern India, Sri Lanka, Cambodia and West Malaysia). National- Western Ghats of Karnataka, Kerala and Tamil Nadu.

**Regional-** In Karnataka, occurs in dense semi-evergreen forests of Coorg, Udipi, Dakshina and Uttara Kannada districts. In Kerala, found in semi-evergreen and evergreen forests of Thiruvananthapuram, Thrissur, Wynad, Idukki and Palakkad districts. In Tamil Nadu, it occurs in Kaniyakumari, Thirunelveli and Nilgiri districts. Altitude- 350-1200m.

**Habitat:** Moist deciduous to evergreen forests.

**Description:** A large woody climber, dioecious. Bark is thin, grayish

and occasionally with irregular vertical fissures. The sap of the stem is watery and deep yellow. Young stems cylindrical with minute dense brown hair. Leaves are alternately arranged, sub-peltate to peltate, broadly egg-shaped with acuminate apex, hairless above, white shiny tomentose below with prominent 5-7 nerves arising at the junction of leaf stalk 8-15cm long, conspicuously swollen at both ends. Flowers are stalk less, minute; yellow, about 2mm long, many, seen in clustered heads. The heads are about 7mm across, borne on 5-12 cm long racemes, 5-7 in number. The fruits are said to be drupes, globose, about 3cm across, greenish brown turning yellow when ripe with dense, minute brown hairs. Seeds white.

**Medicinal uses:** Stem is anti-inflammatory and antiseptic. Used to treat tastelessness, bleeding piles, cough, wounds, ulcers, skin diseases, abdominal disorders, jaundice, liver disorders, intrinsic haemorrhage, diabetes, snake bite, fever and general debility.

**Mode of Propagation:** By seeds and stem cuttings.

**Special characteristics:** The leaves are sub-peltate to peltate with a striking white colour beneath. The cut stems show unique wheel-like medulary rays, deep yellow in colour. Flowers and fruits are always seen on the older stems.

**Reference:** 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.

(Images in page 8)

## Digital Inventories of Medicinal Plants of India

*Tabassum I.F. Sharraf and Kavitha M*

To enable field based action research programs on medicinal plants conservation, foremost step is preparing checklist of species in wild and cultivation through referring to publications, floras and botanical survey. In this direction, FRLHT have been digitizing medicinal plants information in the form of databases, knowledge products like CDRoMs, websites, books etc.

### State-wise digital inventories:

Inventories are available in the form of CDs- all India wise, state wise, city wise, etc. This is a repository of information related to habit (life form), geo-distribution, images, medical systems recorded, botanical names including synonyms and vernacular names (in different Indian languages). These are built based on existing floristic publications, field surveys, ethno botanical references, and classical medical literatures. This is a useful reference material for serious researchers,

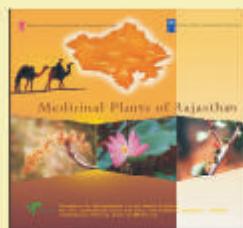
foresters, resource managers, educational and research institutes, who are engaged in conservation and management activities related to medicinal plants. Following list provides information on the inventories published so far:

### Name of the CDs, Number of species

- Medicinal Plants of Karnataka: Version.1, (1956 Species)
- Medicinal Plants of Kerala: Version.1, (1864 Species)
- Medicinal Plants of Tamilnadu: Version.1, (1793 Species)
- Medicinal plant of Rajasthan: Version.1, (1146 Species)
- Medicinal plant of Orissa: Version.1, (1643 Species)
- Medicinal plant of West Bengal: Version.1, (2800 Species)
- Medicinal plant of Chhattisgarh: Version.1, (1525 Species)
- Neighbourhood Medicinal Plants of Bangalore: Version 1 (305 Species)

Shortly being  
released 2009

CD ROMs on  
Indian Medicinal Plants





## Herbal Stone Crushers: The Pashanabheda

SN Venugopal

*Pashanabheda* is a plant which literally means, one that breaks stone (Pashana = stone, bheda = that which breaks) preferably with reference to urinary stones in the body. There are 40 Sanskrit synonyms attributed to *Pashanabheda* nearly in different Ayurvedic texts.

The plant name *Pashanabheda* and *Asmabheda* are considered to be synonymous and perhaps refer to the same plant species. (*Asma*=stone, *Bheda*= that which breaks). There are around 50 bibliographical citations in Ayurvedic texts. Clinical application of *Pashanabheda* is linked with many formulations recommended for difficult micturition and urinary calculi in general.

Presently more than seven plants are being used as *Pashanabheda* across India. They are *Aerva lanata* as *Pashanabheda*, *Tribulus terrestris* as *Gorakha Ganjo* (in Gujarati name), which is extensively used as *Pashaanabheda*. Kerala vaidyas use *Ammania baccifera*. Ayurveda practitioners of Mangalore use *Rotula aquatica* as *Pashanabheda*. *Bergenia ligulata* is known as *Pashanabheda* in Gujarat and, also in North India as *Patharahura* in Kashmir. *Coleus aromaticus* and *Bryophyllum calycinum* are used as *Pashanabheda* by Bengali Kavirajas.

Description according to Ayurvedic classical texts: A general clue about the word *Pashanabheda* in these texts is that it refers to a plant that probably grows in the mountains and it comes out by breaking the stones. It has synonyms like *ashmabhith*, *parvatabhid* etc which can corroborate the above statement.

The drug is used for managing various health conditions such as diabetes, cardiac care, spleen enlargement, abdominal distention, piles, difficult micturition, urinary stones, ulcers, excessive thirst, burning sensation, lower abdominal pain and diarrhoea.

An eminent Ayurveda Physician, Prof.P.V.Sharma conducted detailed study on identity of *Pashanabheda*. He was of the view that *Bergenia* species is the real *Pashanabheda* and *Aerva lanata* is a reliable substitute for the same.

This group of drug envisages special attention for resource management. There are several species with synonymous uses as mentioned in the article. One among them is *Bergenia* species, from NW Himalayas which is categorised as threatened species through Conservation Assessment Management Prioritizations workshops. Hence, users are suggested to look for other species which have similar clinical efficacy and reduce pressure on *Bergenia sp.*, which is endemic and has limited population.

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### Properties of Pashana bheda according to Ayurveda

Taste profile: Bitter, astringent, sweet

Property: Heavy, unctous; Action: Cold in potency

Systemic action: It is tridosha hara.

(Next issue: Which is real *Daruharidra* ?)

### Simple Home Remedy:

*Pashanabheda* flowers and roots are mostly used for managing urinary complaints and urinary stones in Ayurveda. Here are selected simple home remedies that can be practiced.

Part used: Root

- Cold infusion : Soak flowers in water for few hours, filter, consume medicated water to treat Urinary stone.
- Decoction prepared of its roots is given, in case of dysuria (sparse urination with burning sensation)
- Root is rubbed in milk and given in case of children for purification of urine.
- Application of root paste helps in alleviation of boils.

Dose: Powder: 3-5 gm; Decoction: 50-100 ml/dose

**Shilpa Naveen**  
Ayurveda Physician

### Awards and Recognitions

- Anchor Better Interiors Excellence Award - 2007, for gardening and landscaping
- Citizen Extra Ordinaire - 2007, by Rotary Club of Bangalore for traditional medicine and environment consciousness
- Cultural Stewardship -2003, the Rosenthal Centre for Complementary & Alternative Medicine, of the Medical Schools in Columbia University, New York.
- Equator Initiative prize, United Nations - 2002
- Normans Borlaug Award - 1998, contributions to the conservation of medicinal plants



FRLHT Campus, ENVIS Centre



## Photo profile

## *Coscinium fenestratum* (Gaertn.) Coleb. (Daruharidra)

MENISPERMACEAE



Leaves



Flowering twig



Flowers and fruits



Trunk &amp; hipped

Just double click: [www.envis.frlht.org](http://www.envis.frlht.org)

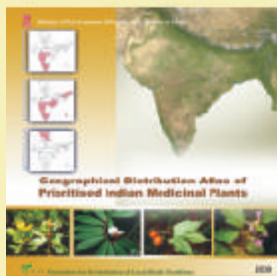


Explore a well referenced, unique one-stop-information house on medicinal plants of India. This exclusively website gives information on conservation concern species, traded species, latest reports/ publications/ directories. User friendly search, enables us to access range of information related to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



Fruits

Photo graph by: K. Ravikumar, FRLHT



### Atlas CDRoms

1. Geo-distribution maps version, specially designed for students/ researchers/ industries.

2. Eco-distribution maps version\*. This is a restricted version, available for State Forest Departments on request.

### Neighbourhood Medicinal Plants of Bangalore CDROM for High School Students



We invite readers to send their responses/views/ features of interest etc. through e-mail: [envis@frlht.org](mailto:envis@frlht.org) (Please note: Articles for subsequent issues should not exceed more than 1000 words. It can be accompanied with images in jpg format)

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