



## Indian Medicinal plants of conservation concern

# Botanical Base of the curative commodities

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Have you ever visited a raw drug market?... That row of dingy shops with a dark interior?... With the overflowing stocks and several unfamiliar and drab looking produce strewn around, these shops might not have attracted you. But, did you know, that this is the place where different raw drugs from different places are brought and traded?... that this is the place where transaction in a day may cross several Lakhs?... that this is the place where pharmaceutical companies, farmers and raw drug collectors gather? ...that this is the ideal place where one can find all possible types of raw drugs that are in use?

You will be astonished to find the variety of produce that flows here... try to peep into one such raw drug store. You are sure to find gunnysacks of withered leaves, baskets full of fluted bark, bundles of serpentine roots, pile of dried stems, bags of amorphous tubers, bins of vitreous gum exudates, boxes of dried fruits, bowls of jewel like seeds, jars of syrups and viscous liquids, bottles of strange smelling pieces, packets of dried flowers, heap of wooden chips.... the list is amazingly long and appears to be never ending. It is indeed true. More than 1200 raw drug entities originating from

more than 880 plant species have been recorded in active trade in India. Perhaps no other category of plant produce in the market has this wide variety!

### Overview

Although there are around 8000 medicinal plant species used by different communities in India across different ecosystems, only around 10 % of them (880 spe-



cies) are in active trade.

Among these around 48 species are exported in the form of raw drugs and extracts while around 42 species are imported. The wild populations of about 100 of the traded species are known to have declined, thereby making themselves to be considered threatened. This is the situation of raw drug trade in India

### Life-form wise representation of traded medicinal plants in India

Habit	No. of Plants
Trees	226
Shrubs	147
Climbers (woody and Liana)	138
Herbs (including Grasses)	369
<b>Total</b>	<b>880</b>

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### A Happy and Prosperous 2004

*We wish you a Prosperous,  
Peaceful and Productive  
New Year 2004.*

Table 2: Class wise representation of traded medicinal plants

Class	Number of Families
Dicots	119
Monocots	17
Pteridophytes	8
Gymnosperms	5
Fungi	1
Lichens	1

Table 4: Part wise representation of traded medicinal plants

Parts	No. of Entities
Root	326
Whole plant	167
Fruit	161
Seeds	141
Leaves	122
Bark	100
Flower	72
Stem	59
Gum	30
Others	22

that unfolds.

Before ascertaining the reasons for this, let us try to understand the “what”, “where” and “how much” of these raw drugs.

### How many Herbs?

Habit wise analysis of these 880 medicinal plants, indicates that these are well distributed across different life forms with the majority belonging to the herbaceous category. The highest proportion of herbs (41%), including grasses, is followed by trees (26 %), shrubs (17 %) and climbers (16%). (See fig. 1 & table 1)

### Botanical base

It is interesting to note that these 880 traded plants are distributed across 151 families. Of these 79% belong to the Dicots while the Monocots constitutes 11% followed by Pteridophytes with 5% and Gymnosperms 3% and one percent each from Fungi and Lichens. This indicates that a very small proportion of raw drugs belong

to the category of lower classes in the plant kingdom. (See fig. 2 and table 2)

Family wise representation of these species is also quite interesting to note. The major share is from 10 families- Bean family (Fabaceae), Aster family (Asteraceae), Castor family (Euphorbiaceae), Tamarind family (Caesalpiaceae), Coriander family (Apiaceae), Basil family (Lamiaceae), Tomato family (Solanaceae), Cucumber family (Cucurbitaceae), Coffee family (Rubiaceae) and Hibiscus family (Malvaceae) (see table 3).

### Parts Used

These 880 plants yield a wide range of produce / parts that go as raw drugs. These include Roots (including tubers and rhizomes), Whole plants, Barks, Stems (including wood), Fruits, Seeds, Flowers, Leaves, Gum

(including resin) and Others. There are 1200 such botanical items (plant parts and products) which, are obtained from these 880 species. (See fig.4a and 4b)

As most of these raw drugs are obtained from wild collections, this table also gives you an idea of the extent of "destructive" collection inherent in medicinal plants trade. About 66 % of these plant entities are harvested for their roots, bark, wood, stem and the whole plant.

### Representation of Traded Medicinal Plants across Medical Systems

The Medical system wise representation of these 880 medicinal plants is another interesting point to note. It is found that the species are used widely across different medical systems- Ayurveda, Siddha, Unani,

Top Ten Families of Traded Medicinal Plants

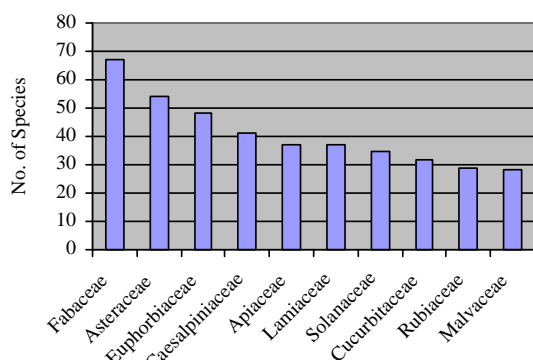


Table 3: Family wise representation of Traded Medicinal Plants

Family	Species
Fabaceae	67
Asteraceae	54
Euphorbiaceae	48
Caesalpiaceae	41
Apiaceae	37
Lamiaceae	37
Solanaceae	35
Cucurbitaceae	32
Rubiaceae	29
Malvaceae	28

Tibetan, Folk, Homeopathy and Modern. Majority of these plants (82%) are used in Ayurveda system of medicine while the lowest share (7%) is by Modern system. Similarly Siddha accounts for 58%, Unani for 53%, Homeopathy for 16% and Tibetan for 25%.

### Geographic distribution

The natural occurrence of traded species is another element of interest here. It is found that these species are distributed across different bio-geographic zones, diverse habitats & landscape elements. About 18 % of these species are confined to Himalayan and Trans Himalayan zone including North East India while around 4 % are restricted to Western Ghats and 0.5 % are found only in the Desert zone. The rest of the species (around 77 %) have a wide range of distribution across the other bio-geographic zones of the country. Table 6 illustrates this typical distribution pattern.

### Origin and source

Of these 880 species, nearly 538 (61 %) species occur only in the wild (with no known cultivation), while 88 (10%) are recorded only under cultivation in India. However 212 species (25%) are recorded both in wild and under cultivation.

The remaining 42 (4%) are not recorded in the wild or under cultivation in India and therefore inferred to be originated in other countries.

This scenario in India is not very different, from that of China. According to a TRAFFIC International report, 80% of the plants in trade in China are also sourced from the wild .

### Status Of these traded plants

The status of the natural populations of these plants is however not that encouraging. A Rapid Assessment of selected Medicinal plants of Peninsular India & North India for their threat status as per IUCN guidelines has revealed that the wild populations of 100 species are facing different degrees of threat.

Of these 14 are threatened globally as these are endemic to India and deserve immediate conservation attention . (See table 7)

The alarming situation of the involvement of “Threatened” species, in trade, is not peculiar to India alone. The Chinese Red Data Book lists 388 plant species, of which 69 are found to be in trade.

### Medicinal plants imported into India

Of the 880 species about 42 species are imported. These include species like *Glycyrrhiza glabra* (Jeshtimadhu), *Panax pseudoginseng* (Ginseng), *Commiphora myrrha* (Hirabol), *Boswellia frereana* (African elemi), *Uncaria gambier* (Kath), *Salvia haematodes* (Behman) amounting to 4.7 % of the total traded species. Some of these imported species are semi processed in India and are further exported as extracts. The imported species are sourced from countries like Afghanistan, Bangladesh, Bhutan, Cameroon, China, Ghana, Indonesia, Iran, Morocco, Nepal, Pakistan, Singapore

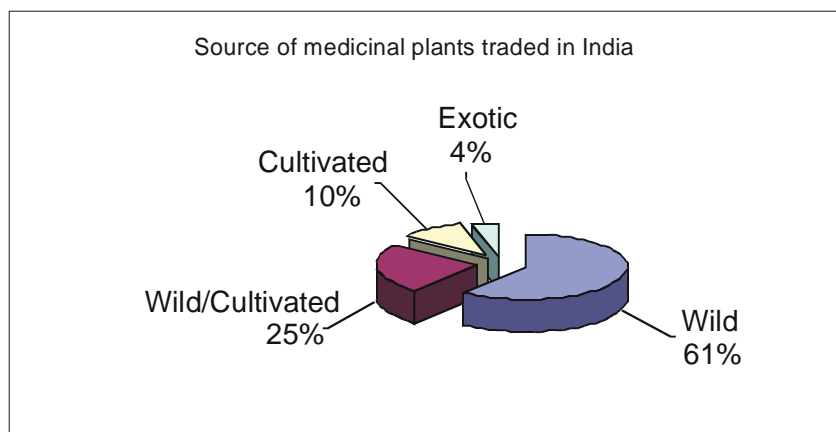


Table 5. Representation of traded medicinal plants across different Medical Systems

	Ayurveda	Folk	Homoeo	Modern	Siddha	Tibetan	Unani	Medical system wise Proportion (%) of Traded Species
<b>Ayurveda</b>	<b>719</b>	462	126	49	475	215	449	82
<b>Folk</b>	462	<b>607</b>	99	44	408	178	343	69
<b>Homoeo</b>	126	99	<b>140</b>	40	105	63	115	16
<b>Modern</b>	49	44	40	<b>65</b>	40	20	45	7
<b>Siddha</b>	475	408	105	40	<b>508</b>	193	366	58
<b>Tibetan</b>	215	178	63	20	193	<b>218</b>	190	25
<b>Unani</b>	449	343	115	45	366	190	<b>469</b>	53

and Sri Lanka. It may be noted that majority (16) of the imported drugs are from tree species. Fourteen drugs are from herbs while 9 are from shrubs and 3 from climbers.

Thus, the picture of raw drug trade that unfolds is quite complex. Fortunately, it is only 10% of the me-

dicinal plants known to the people of India that are in active trade. There is no commercial pressure on the majority of the traditionally known species. It is important in the near future to make a shift from the current scenario of 86% wild harvest to a more sustainable regime, wherein perhaps 20-30%

of the requirement may still be sourced from the wild while 70-80% should be from cultivated source.

This clearly opens up a huge challenge for conservationist, policy makers, researchers, industry and farmers to manage and use our natural resources wisely

Table 6: Examples of Traded species that occur in different Bio-geographic zones

Sl.No	Biogeographic zone (Biotic provinces)	Examples of the species
1	Trans- Himalayan - 1 (Tibetan - 1A)	<i>Ephedra gerardiana</i> , <i>Hippophae rhamnoides</i> , <i>Physochlaina praealta</i> , <i>Arnebia euchroma</i> , <i>Ferula jaeschkeana</i>
2	Himalayan - 2 (North West Himalaya - 2A And West Himalaya - 2B)	<i>Aconitum heterophyllum</i> , <i>Arnebia benthamii</i> , <i>Dactylorhiza hatagirea</i> , <i>Podophyllum hexandrum</i> , <i>Picrorhiza kurroa</i> , <i>Pistacia chinensis</i>
3.	Himalayan - 2 (Central Himalaya - 2C and East Himalaya - 2D)	<i>Nardostachys grandiflora</i> , <i>Rubia sikkimensis</i> , <i>Coptis teeta</i> , <i>Polygonatum cirrhifolium</i> , <i>Swertia chirayata</i> , <i>Valeriana jatamansi</i> , <i>Rhododendron anthopogon</i> , <i>Taxus wallichiana</i>
4.	Desert - 3 (Kutch - 3A, Thar - 3B)	<i>Tecomella undulata</i> , <i>Tribulus rajasthanensis</i> , <i>Citrullus colocynthis</i> , <i>Commiphora wightii</i> , <i>Acacia nilotica</i>
5.	Semi - Arid - 4 (Punjab - 4A, Gujarat-Rajwar - 4B)	<i>Balanites aegyptiaca</i> , <i>Withania coagulens</i> , <i>Tribulus alatus</i> , <i>Commiphora wightii</i> , <i>Boswellia serrata</i> , <i>Canscora Decussata</i> , <i>Acacia nilotica</i>
6.	Western Ghats - 5 (Malabar coast - 5A; Western Ghats mountains - 5B)	<i>Myristica malabarica</i> , <i>Garcinia indica</i> , <i>Coscinium fenestratum</i> , <i>Hydnocarpus pentandra</i> , <i>Garcinia gummi-gutta</i> , <i>Vateria indica</i> , <i>Nilgirianthus ciliatus</i>
7.	North East India - 8 (Brahmaputra valley -8A And Assam hills - 8B)	<i>Aquilaria malacensis</i> , <i>Smilax glabra</i> , <i>Ambroma augusta</i> , <i>Hydnocarpus kurzii</i> , <i>Vetivaria zizanioides</i>
8.	Deccan peninsula - 6 (6A to 6E)	<i>Embelia tsjeriam-cottam</i> , <i>Caesalpinia digyna</i> , <i>Schrebera sweitenoides</i> , <i>Decalepis hamiltonii</i> , <i>Pterocarpus santalinus</i>

Table 7: Endemic medicinal plants in trade

SL.NO.	BOTANICAL NAME	RED LIST STATUS GLOBAL
1	<i>Adhatoda beddomei</i>	CR
2	<i>Butea monosperma var. Lutea</i>	EN
3	<i>Chlorophytum borivilanum</i>	VU
4	<i>Cinnamomum macrocarpum</i>	VU
5	<i>Decalepis hamiltonii</i>	EN
6	<i>Garcinia indica</i>	VU
7	<i>Gardenia gummifera</i>	VU
8	<i>Heracleum candolleianum</i>	VU
9	<i>Hydnocarpus pentandra</i>	VU
10	<i>Myristica malabarica</i>	VU
11	<i>Nilgirianthus ciliatus</i>	EN
12	<i>Pterocarpus santalinus</i>	EN
13	<i>Trichopus zeylanicus</i> Subsp. <i>Travancoricus</i>	EN
14	<i>Vateria indica</i>	VU

IUCN Red list status: CR- Critically Endangered, EN-Endangered, VU-Vulnerable

## Manjanati

Erkattuthal is one of the famous festivals of Tamil Nadu, which falls during the month of Adi (July-Aug), according to the Tamil Traditional Calendar. On that auspicious day, the farmers clean up their agricultural implements, apply sandal and kumkum on them and perform the pooja. After the pooja is over, the farmers distribute Kapparici (a mixture of rice soaked in water, grated coconut and jaggery) and as a tradition the farmers plough their field.

As a custom, farmers in Tamil Nadu get the Err or Nukatthati (Tamil name for Yoke) invariably made of heartwood of a small tree. Many elders in Tamil Nadu agree that if the agricultural implement is made from this wood, it will not cause any skin irritations like Scars, Ulcer, and Itching to the farmers and animals.

This preferred plant by the farmers is also an important medicinal plant. Several elderly women in Tamil Nadu find this plant to be useful in curing mantham (digestive disorders, especially in children). Besides this, the plant finds its clinical application in several other cases. This is Manjanati, botanically *Morinda tinctoria*, variety pubescens, which belongs to the family Rubiaceae, the coffee family.

Manjanati or Nuna is a popular medicinal plant among the Siddha practitioners of Tamil Nadu. It is equally familiar in other parts of our country as a locally available medicinal plant. People call it Al in Hindi, Ach in Bengali, Surangi in Gujarati, Bartundi in Marathi, Maddi, Togaru in Telugu, Ainshi, Tagase, Maddi in Kannada, Katta pitavam, Mannanati in Malayalam and Achu, Pindra in Oriya.

Manjanati is a small tree, also known as Yellow Pavata and Turmeric Timber Tree. Its leaves are thin, arranged in pairs alternately at right an-

gles, oblong to lanceolate in shape. Flowers are white and fragrant, and appear in small bunches. Fruits are fleshy and amorphous to appear in deformed shapes. During its flowering



period, the plant looks very attractive and has a jasmine like fragrance. Anyone passing by the plant during that time finds it very pleasant. But during the fruiting period no one prefers to go near the plant as the fruits, when they fall on the ground make the place quite untidy, because of their colour.

### Properties according to Siddha

Manjanati is used in Siddha medicine. The classical texts of Siddha mention its properties.

Pattai karappanotu paracci  
leshma curam

Otti ninra punkiranti ottunkan-  
Mattalarai

Entununavin ilai mantam terthu nalla  
Kanthi taru meka matun kan.

- Agasthiyar gunavakatam

According to this verse, Manjanati has deobstruent and emmenagogue properties. It is also a tonic, and a febrifuge besides being a Stimulant and Cathartic. It is Pungent in taste (Karppu suvai), Hot in potency (Veppathanmai) and Pungent in digestion (Karppu pirivu). The bark is indicated in eczema (karappan), fever due to primary complex (Iya curam), Ulcer (Pun) and Glandular swellings (Kalalai). The leaves are indicated in digestive disor-

## Plant of the issue

ders especially in children (Mantham) and in venereal diseases (Mekam).

Because of its easy availability near the human habitation and good medicinal properties (especially for mantham), Manjanati has found place in many household remedies in Tamil Nadu. Some of them are indeed simple self help measures.

### Self help

Nuna pattai thylam  
(Thannanthiri  
thylam 500)

Take 1 part of crushed bark. Add 8 parts of water and boil to reduce the decoction to 1/8 and filter. Add equal quantity of Tender coconut water, Lemon juice, Gingelly oil. Boil on a mild fire till the froth in the oil disappears to attain a taila consistency. Filter and apply externally. It is quite useful for fever, intermittent fever, ulcer, Venereal abscesses and Goitre.

Special medicine for mantham (Digestive disorders especially in children)

For Otu Manthan (type of infantile indigestion)

Take equal quantity of Nochi (*Vitex negundo*, Nigunti), Nuna, Potutalai (*Lippia nodiflora*), and Velipparruthi (*Daemia extensa*, Cotton Plant) leaf juice and mix well. One teaspoon (5ml) of leaf extract is recommended for 7 days.

Mantha karukku kudiner

Take equal quantity of Nuna leaves, Nochi (*Vitex negundo*, Nigunti), Potutalai (*Lippia nodiflora*), Omam (*Carum roxburghianum*, Ajwain), Velai root (*Clemone viscosa*, Dog Mustard), Puntu (*Allium cepa*, garlic), Vasampu (*Acorus calamus*, The

sweet flag). Cut it in to small pieces and Deep fry. Add 8 parts of water and boil to reduce the decoction to 1/8 and filter it. Take 10-15ml twice for 7 days. This is usually given to infants and children for the treatment of digestive disorders.

For Por mantham (type of infantile indigestion)

Take equal quantity of Nuna, Nochi (*Vitex negundo*, Nigunti), Mango (*Mangifera indica*), Puli (*Tamarindus indica*, tamarind), Vempu (*Azadiracta indica*, neem), Kodiveli (*Plumpago zeylanica*), Potutalai (*Lippia nodiflora*) 35gms, Puntu (*Allium cepa*, garlic) and Tippali (*Piper longum*, Long Pepper) 10-15gm. Add 8 parts of water and boil to reduce the decoction to 1/8 and filter it. Take 1/2 teaspoon of the decoction twice a day for 3days.

Mantha kana ennai (fever due to primary complex)

Take 500ml of Nuna leaf juice and add 1 litre of Castor oil and Venkayam (*Allium sativa*) juice 360gm. Then add venthayam (*Trigonella foenum gracum*, fenugreek or methi) 20gms. Boil on a mild fire till the froth in the oil disappears to attain a taila consistency. Filter it and can be given

in a dose of 10 gm for 7 days especially to those children with indigestion associated with fever. This is administered either for 7 days starting from no moon day or 7 days starting from full moon day.

#### **Leucoderma**

Wash the leaves and grind it into a fine paste without adding much water. Take equal part of the paste and Gingelly oil. Boil on a mild fire till the froth in the oil disappears to attain a taila consistency. Filter and apply externally. It will be more effective for leucoderma if this paste is taken internally.

#### **Nuna manappaku (Syrup)**

Take 1 part of Fruit juice; add 2 parts of palm jaggery. Mix both by heating them, till the water evaporates and a syrup consistency is attained. Use this 10-15ml twice a day with twice the volume of water. It is one of the most effective medicines for Tonsillitis.

#### **Tooth powder**

Take equal part of fruits and salt in a mud vessel and close the vessel and seal and calcine (pudam, heat) for 10 varatti (cow dung). Grind it in to a fine powder and use it for

relieving toothache and curing oral ulcers. This also reduces the swelling in swollen gums.

#### **For uterine disorders**

Take 1 part of fruits, 4 parts of water and boil to reduce the decoction to 1/4 and filter it. It is used internally for uterine disorders. It also acts, as a blood purifier and is particularly helpful in pre puberty period.

#### **Kalpa Medicine**

Manjanati is also considered to be a potential kalpa medicine. This kalpa medicine freshly prepared or prepared in advance can be used daily.

“Nunavina lurukai nukarave tanaiyelang

Kanatavi poivitung kaya nanrakume”

- Theran kappiyam

Take 1part of Fruit and cut into pieces. Add common salt (Sodium chloride) in sufficient quantities in a fresh mud pot for 48 days (close airtight). The Nunakkai urukai(so called pickle) is taken in place of conventionally used pickles for 48 days. It is said that this is a preventive as well as curative medicine for all diseases

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## Headlines from newspapers

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### **Columbia University recognises FRLHT for its role in promoting traditional systems of medicine**

Mr Darshan Shankar, Director of Foundation for Revitalisation of Local Health Traditions (FRLHT), Bangalore, has been awarded an international recognition by the Columbia University College of Physicians and Surgeons, Department of Rehabilitation Medicine, The Rosenthal Centre for Complementary and Alternative Medicine, USA, for his and the foundation's "crucial role in promoting traditional systems of medicine in India." The award was presented on November 20, on the occasion of the 10th anniversary of the centre.

Darshan Shankar, Director of FRLHT is recognised for International Cultural Stewardship for pioneering work and unique approach to the conservation of medicinal plants and local health cultures in India. The others who received this recognition are Dr. Bruce Pomeranz for elucidating the relationship between acupuncture and endorphins; Mary Ann Liebert, Inc. for her family of publications in the area of CAM; Senator Tom Harkin for his leadership in Congress to initiate the NIHOAM and see it through to becoming a Center; Prince Charles, HRH, the Prince of Wales, for facilitating in the UK the implementation of integrated health-

care, combining the best of modern and ancient approaches to health and healing.

This recognition is for the foundation's outstanding contributions towards revitalisation of traditional health care systems, conservation of medicinal plants in India and the development of extensive databases on the Materia Medica of Indian medicinal plants. The Center has also commended FRLHT for establishing a quality control and product development laboratory which is attempting to interpret traditional knowledge with the aid of modern tools and also for initiating the development of a national herbarium of medicinal plants.

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### **Indigenous medicines sector set for a boost**

The development of manufacturing of indigenous medicines has assumed top priority for the Jharkhand state government, and it would soon be setting up a separate directorate in the health and family welfare department to aid this process.

Use of indigenous medicines and treatment systems were popular among users but central and state governments had neglected the sector for so long in the public health system. Worldwide, indigenous systems of medicine and treatment were undergoing a revival, with the Chinese leading the world in this. (Times of India, January 1, 2004)

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### **White coats educate army jawans on medicinal plants** (Times of India, India - 19 Dec 2003)

It is difficult to envisage gruff men in khaki and the always-on-alert and tough as nails men in olive (army personnel) taking on a more mundane and 'soft exercise' of re-acquainting themselves with their green thumb. However, on a visit to the Central Institute of Medicinal and Aromatic Plants (CIMAP) be prepared to see the city cops as well as the army jawans diligently scribbling in their notebooks as they learn the latest techniques in medicinal and aromatic plants from the white coats or scientists at the CIMAP.

According to Dr SPS Khanuja, director, CIMAP that there is a growing interest in acquiring knowledge about herbal plants. Most of these institutions, particularly the army, has a lot of land that can be used for cultivation of these plants for commercial purposes. The army personnel are using this medicinal and aromatic plant (MAP) technology on military farms to generate an additional income for philanthropic purposes. The

### **Exploitation may weed out medicinal plants** (Business Standard, December 8, 2003)

Over exploitation is raising serious threat to the existence of several medicinal plants including the "safed musli" (better known as the Indian Viagra) found in the jungles of Gujarat which have good export demand. If steps are not taken on time, Gujarat may lose this virtual treasure trove. According to a study conducted by A P Singh, an Indian Forest Service officer, "Over 50 flowering plants are threatened and need immediate conservation. Among these plants are harde, arjun sadad, nirmali, gol, ambadi, sardol, bhilamo, mokho, khadingi, chamoli, varing, kodaro, bothi, vaivarno, ragat-rohido and patla. Similarly the medicinal plants which are under the threat of overexploitation and need immediate conservation are harde, kadaya, arjun, kachnar, ragat rohido, patla, tetu, kapilo, bhilamo, arduci, gugal, mardasing, vavding, arni, kanther, galo, satavari, dodi, vidarikand, somlata, malkagni, ashwagandhi, mamejavo, chitrak, kalmegh and safed musli," the study notes.

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money is being used to provide financial help to war widows and for the welfare funds for jawans. Dr SPS Khanuja added: "We are transferring and providing the processing technology to these personnel as an alternative to agricultural crops.

The army has shown considerable interest and is growing aromatic plants like mint, geranium, aromatic grasses like lemon grass and even shade loving patchouli. The idea is not just growth of these plants but harvesting a molecule that has immense financial and medicinal value in the market." He said that Rs 60,000 per hectare could be easily generated by the army or the police through this process. As a cash crop with a short cropping cycle of 6-7 months these MAPS can be grown with other crops.

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Reviewed by **B S Somasekhar**

The several sacks full of Pepper and other spices that used to be gathered from the hilly terrain of the Western ghats in Kerala and Karnataka around the 15th century were so strong in their aroma that they literally grabbed the attention of the Portuguese, the Spanish and the Dutch in Europe, with each one vying to find a sea route to India with the intention of establishing a monopoly over the spice trade here. However it was only when Vasco da Gama set sail from Portugal, and reached Calicut on the west coast of India in 1498 A.D., after crossing the Cape of Good hope at the southern tip of Africa, a sea route to India was established.

What followed later was History that witnessed the arrival of the European merchants establishing their factories at many places in South India, entering into trade agreements with the local chieftains and rulers and finally facilitating the expansion of the British rule on to India.

While the Indian history of European rule in India profusely speaks about the atrocities, bloodshed and brutality of the invaders, little is spoken about the contribution to the Indian Literature and Science made by the different Soldiers, Colonels, Governors and other Residents of the European army of those days. These selected individuals who pioneered the perambulations of the hilly terrain of South India, engineered a massive and monumental compilation of the knowledge about the resource and culture of the land.

There was a sudden spurt in the availability of information. Different lexicons and dictionaries were

compiled for the first time; several textual criticisms of oriental texts and palm leaf manuscripts were done; thousands of inscriptions scattered across the land were for the first time



discovered, read and interpreted; several native tribes were first studied and the details documented. Not only in the field of literature and culture were there such attempts, but also in the field of natural sciences. Several inventories of the local resources were prepared; different field guides to the local flora and the fauna were developed; many maps and survey sketches of the terrain were drawn. All were monumental chronicles and first-of-its-kind treatises.

One such noteworthy chronicle prepared during 1678-1693 by the Dutch Governor of Malabar at Cochin, Hendrik Adrian Van Rheedee, was Hortus Malabaricus. It is similar to a present day's, field guide to the different plants of the Malabar Garden (Hortus Malabaricus).

Spread over 12 volumes, Hortus Malabaricus provides a detailed and a first hand account of 742 plants belonging to 691 species of trees, climbers,

shrubs and herbs of Malabar. While doing so it registers the indigenous knowledge of the hereditary medical practitioners of the Malabar region in Kerala.

Complete in itself, it describes these plants along side their medicinal and other uses, supported by appropriate line drawings of the plants. The original compilation which was in Latin, spread over 1595 pages of text and with 791 plates was not available in its entirety, although there were many incomplete attempts to translate it into Dutch and English. However, after about 325 years, the University of Kerala has brought out an unabridged English edition with annotations and modern botanical nomenclature appended by Prof. K S Manilal.

Perhaps, Hortus Malabaricus marks the first comprehensive attempt in the pre patent period to document the native knowledge pertaining to the rich resources of the tropics. The earlier attempts by many Italian and Portuguese travelers during the 15th and 16th centuries, only documented the availability and uses of many such plants albeit in a fragmented form. Pietro della valle, Garcia da Orta, are two such European travellers who meticulously recorded their observations on the flora and the fauna of Western Ghats.

But, Hortus Malabaricus is colossal. It is colossal because it documented with precision the descriptions and morphological features of 742 native medicinal plants, when the social and cultural arena of the country was completely unaware of the importance of such a scientific task. Hortus Malabaricus is an amazing amalgamation of insights from the native knowledge, farsighted scientific vision of the west

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and a shrewd attempt to prospect the knowledge and the resources.

The native knowledge of the local traditional medicine men was provided by Itti Achudem, a Malabari Doctor, Chego by race and born in a family of physicians at Carrapuram in Kerala. Three Konkani Priest-Physicians Renga Batt, Vinayak Pandit and Appu Batt supplemented the information based on their “local observations and long experience”.

This native knowledge of enormous value is reflected in the form of identification features of plants, understanding of the morphology and life form of plants, their morpho variants & varieties, their growth and development pattern, medicinal properties and medicinal uses of these plants, methods of preparation of the medicines, clear and distinct local names of these plants in Malayalam and Konkani.

Each of the 12 volumes of Hortus Malabaricus exclusively deal with specific life forms of plants and further grouping based on the types of fruits. For instance, all the trees which yield pods, are clubbed under one volume, while all the fruit bearing trees are clubbed under another volume. Similarly the shrubs, climbers and herbs are allocated into different volumes, thereby making the consultation easy.

All the volumes make a treasure house of different local names of plants. Collectively Hortus Malabaricus lists out 764 Malayalam names and 520 Konkani names besides about 300 each of Portuguese and Dutch names. It is interesting to note that some of the exotic plants brought to India by the Portuguese are covered in Hortus Malabaricus. Papaya, Pineapple, which had failed to enter several orthodox Indian households till the recent decades are such exotic plants, figured in Hortus Malabaricus, 300 years ago.

Hortus Malabaricus is colonial too. Perhaps it marks the beginning of

the unassuming interests of the Europeans in the astounding attributes of the traditional knowledge of the resource rich countries like India.

Although it acknowledges the services rendered by Itti Achudem, the Malabari Doctor, and the Konkani Priest-Physician trio who supplemented the information provided by Itti Achudem, the immense knowledge and the insights of these 4 men which was instrumental in shaping the core of this chronicle is overshadowed by the authoritative stamp put by Van Rheede. Thus, Hortus Malabaricus is recognized all over as the masterpiece chiseled by Van Rheede, who more or less remained only as a shrewd administrator all through the assignment. What is amazing is the fact that this happened about 300 years before the days of IPRs and Patents.

Nevertheless, the latest unabridged English version published by the university of Kerala is a precious piece that denotes this rare combination of a chronicle being colossal and colonial.

The Annotations and the botanical descriptions appended by Prof. K S Manilal have enhanced the user friendliness of this chronicle. His three decade long obsession to bring out the English version of Hortus Malabaricus is oozing out on all the pages. Hortus Malabaricus definitely contributes to our understanding of the cultural and historical roots of the indigenous plants and their usage in India.

**Van Rheede's Hortus Malabaricus**  
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