

**Endangered medicinal plants of westren ghat Neglected national treasure****Dattatray S.Katkar<sup>1</sup>, Aagatrao Aoughade<sup>\*2</sup>, Deshmukh Supriya<sup>3</sup>**

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3. Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod, Wardha, DattaMeghe Institute of Medical Sciences, (Deemed to be University), Maharashtra, India. email id:- [dr.deshmukhsupriya@gmail.com](mailto:dr.deshmukhsupriya@gmail.com)

**\*Corresponding author:** email id-aagatraoaoughade@rediffmail.com**ABSTRACT**

Ayurveda is one of the most refined and respected forms of alternative medicine originated thousands of years ago in India. Ayurveda highly depends on medicinal plants as a source of drug. However the 21<sup>st</sup> century has seen practice explode in to a lucrative global business unfortunately the modern market has had its share of negative effects on Ayurveda Endangering the environment and threatening livelihoods. Around 70% of India medicinal plants are found in tropical forest these are spread across the Western Ghat and Eastern Ghat as well as in the north east of India. Around 95% of the medicinal plants used by the Indian industry today are collected from the wild.

Western Ghats spread over an area of 20,000 Sq km and it is notable for its rich biodiversity. About 700 Species of medicinal herbs are found here and are used in indigenous system of medicine such as Ayurveda. Plants like lemon grass, *Poutcholi*, and the *Vetivera Spp* have originated from this area only.

Unfortunately, about 586 Species from the Western Ghats region are endangered and are featured in Red data book. Among them 20-30 Species of important medicinal plants, which are used extensively in Ayurveda, are at the verge of extinct. These include *Saraca indica*, *Crateva*, *Embilia ribes*, *Holarrhena pubescens* etc. So in this paper tried to through a lime light on some of the Endangered Species of medicinal Plants with special reference to Ayurvedic medicinal importance and necessity of conserving them to protect the neglected National Treasure.

**Keywords:** - *Ayurveda, Western Ghats, Endangered medicinal Plants*

**INTRODUCTION:**

The Western Ghats in southern India are a series of hill ranges lying between 80°- 22° and 73°-77° E Stretching from Maharashtra state in the north to *Tamilnadu* in the south.

It covers an area of about 0.1M square Kms , Traversing over a length of nearly 1300 km. An estimated 38.2M people live in about 16,000

settlements of varying sizes, the density ranging from 77 persons per square km in Goa to 382 in Kerala. Western Ghats are an important source of water, energy and biological diversity. The region is also rich in iron, manganese, and bauxite ores. About 30 per cent area is covered with forest and maintenance of ecological balance of these hill ranges is essential for maintaining the life-support systems of peninsular India.

The entire plant kingdom consisting of more than 200,000 species originated in 12 centers around the world. One of them falls within the Indian subcontinent, in the Western Ghats.

It is notable for its rich bio-diversity. The Silent Valley in the Western Ghats preserves the true bio-diversity of the region. About 700 species of medicinal herbs are found here and are used in indigenous systems of medicine such as Ayurveda. Plants like lemon grass, patchouli and the vetiver species have originated in this area. The natural forests of WG region are the source of 900 plants used in Ayurveda and Siddha

In recent years, the growing demand for herbal products has led to a quantum jump in the volume of plants traded. This happened within India as well as in the country's exports sector. Around 95 percent of the medicinal plants used by the Indian industry today are collected from the wild. Less than 20 species of plants are under commercial cultivation, while a total of more than 4,000 species are used by the industry.

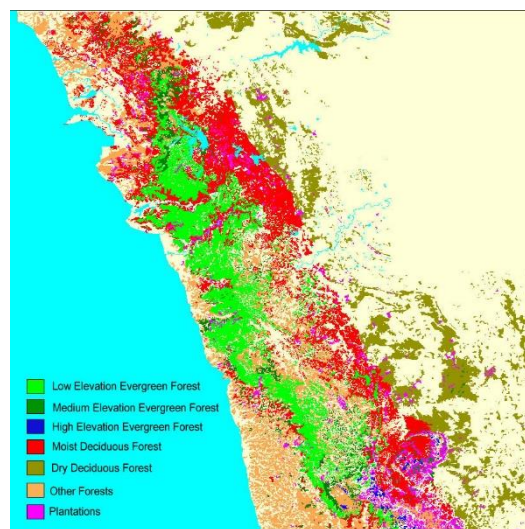
A threat assessment exercise has put 74 species as rare, endangered, or threatened. Estimates suggest that over half a million tons of dry raw material are collected from the wild each year in India. These collections happen to be unselective and mostly destructive. To make it clearer, this implies that over 165,000 hectares (more than 400,000 acres) of forest

A study by the Export-Import Bank of India states that over 70 percent of plant collecting involves destructive harvesting. This is due to

the use of parts like roots, bark wood, stems, or even the whole plant. This presents a definite threat to the number and diversity of medicinal plants.



Ayurveda One of the most refined and respected forms of alternative medicine originated thousands of years ago in India. Ayurveda is deeply sewn into Hindu religion and philosophy. However, the 21st century has seen this practice explode into a lucrative global business. Unfortunately, the modern market has had its share of negative effects on Ayurveda, endangering the environment and threatening livelihoods.



**Geographical area of Western Ghats**

Important Endangered Medicinal plants of Western Ghat and their Ayurvedic Importance<sup>(1,2,3,4)</sup>

***Saraca indica* Linn:**

- Status-Endangered Globally
- No of formulations used in Ayurveda-5
- *Ashokarista, Ashoka gritha*
- Part used- Stem bark, Seeds, Flowers and leaves
- Chemical composition-*haematotoxilin, Tannins, Calcium,  $\beta$  Sitosterol*
- Properties-Antispasmodic, Antimicrobial,
- Used in Gynecological disorders
- Propagation-Seeds,

***Asparagus racemosus* Willd:**

- Status-Vulnerable due to high demand and
- large-scale exploitation
- No of formulations used in Ayurveda-67
- *Shatavari gritha, Narayana taila, Bramha rasayana*
- Part used- Tuberous Roots
- Chemical composition-Shatavarin1-5,
- *Sapponins, Sarsapogenin*
- •Properties-Lactogenic, Estrogen mimic,
- Anti oxytocic activity, Anticancer, Antifungal
- Propagation-Seeds,

***Rauwolfia Serpentina* Linn:**

- Status- Endangered
- No of formulations used in Ayurveda-10
- Sarpaganda ganavati
- Part used- Roots
- Chemical composition-Reserpine
- Properties-Antihypertensive, Antianxiety, Sedative

- Propagation-Seeds

***Coscinium fenestratum* Gaertn. Coleber:**

- Status-Critically Endangered
- No of formulations used in Ayurveda-70
- *Nishaamalaki, Rasanjana,*
- Part used- Bark and Stem.
- Chemical composition-Berberine
- Palmitic and oleic acids
- Properties-Antimicrobial, *Chologoue,*
- Anti-helminthic
- Propagation-Seeds

***Embilia ribes* Burm.F:**

- Status-Near threatened globally
- No of formulations used in Ayurveda-75
- *Vidangasava, Vidangarista, Abhayarista, Pippalyasava*
- Part used- Fruits, Roots, Leaves
- Chemical composition-*Embelin, Quercitol, Christembine*
- Properties-Antimicrobial, Antifertility
- Propagation-Seeds and Vegetative means

***Holarrhena pubescens* Buch.Ham:**

- Status- Vulnerable due to high demand and
- large scale exploitation
- No of formulations used in Ayurveda-42
- *Kutajarista, Chavikasava, Lodrasava, Tiktaka kasaya*
- •Part used- Stem bark, seeds, leaves
- Chemical Composition-Alkaloids *conessine,*
- *Kurchine, Hollarhine*
- Properties-Antispasmodic, Antiprotozoal,

- *Antidiarrhoeal*, Anticancer.
- Propagation-Seeds, Vegetative

### ***Pterocarpus santalinus* Linn:**

- Status-Endangered
- No of formulations used in Ayurveda-15
- *Chandanasava*, *Chandanabalalakshadi taila*
- *Chandana vati*
- Part used- Heartwood
- Chemical composition-
- *Santalin*, *Pterocarpin*, *Pterostilbene*
- Properties-Antiemetic, Collant,
- Antidiarrhoeal, Antipyretic, Hepato protective
- Propagation-Seeds

### ***Aegle marmelos* (L). Corr:**

- Status-Vulnerable due to high demand and
- Large-scale exploitation
- No of formulations used in Ayurveda-77
- *Bilvadi avalehya*, *Dasamoolarista*, *Asanabilwadi taila*
- Part used- Fruits, leaves, root
- Chemical composition-Maemelosin,
- Tannic acid, *Umbeliferon*
- Properties-Antimicrobial, *Antidiarrhoeal*, Antiemetic
- Hypoglycemic, Antipyretic
- Propagation-Seeds, Stem cuttings

### ***Celastrus paniculatus* Willd**

- Status-Vulnerable due to high demand and
- large scale exploitation
- No of formulations used in ayurveda-15
- *Jyotismati taila*, *Moolakadyarista*
- •Part used- Seeds,Bark, Leaves

- •Chemical composition-Beta *Sitosterol*, *Celastrin*,
- *Celastrine*
- •Properties-Antihistaminic,
- *Anticonvulsent*, *Sedative*, *Antipyretic*, *Antiemetic*
- •Propagation-Seeds

### ***Oroxylum indicum* (L). Vent:**

- Status-Vulnerable due to high demand and
- Large-scale exploitation
- No of formulations used in Ayurveda-50
- *Dasamoolarista*, *Lodrasava*, *Danvatari taila*,
- *Narayana taila*
- Part used- Roots, leaves, Fruits, seeds
- Chemical Composition-Flavonoids,
- *Linoleic*, *Myristic*, *Stearic acids*
- Properties-Diuretic, Anti-inflammatory, Antifungal
- Propagation-By seeds

### ***Gloriosa superba* Linn:**

- Status-Endangered
- No of formulations used in Ayurveda-5
- *Langali gritha*, *Nirgundi taila*
- *Langali rasayana*
- Part used- Tuberous Roots
- Chemical composition -*Superbine*, *Colchicine*
- Properties-*Abortifacient*, *Rejuvenate*, *Anti gout*
- Propagation-Tubers

### ***Andrographis paniculata* Linn:-**

- Status-Vulnerable due to high demand and Large scale exploitation

- No of formulations used in Ayurveda-10
- *Bhunimbadi khada*,
- Part used- Leaves
- Chemical composition-*Kalameghin*, *Andrographolid*
- Properties-Antiviral, Hepatoprotective, Antipyretic
- Propagation-Seeds

#### ***Dioscorea alata* Linn:-**

- Status-Endangered
- No of formulations used in Ayurveda-8
- Part used- Aerial tubers
- composition-Aluminides,
- Carbohydrates, Phytoestrogens
- Properties-Estrogen mimic,
- antimicrobial, Used in PMS, Seminal disorders
- Propagation- tubers

#### ***Hemidismus indicus* Linn:**

- Status-Vulnerable due to high demand and large scale exploitation
- No of formulations used in Ayurveda-30
- *Sarivadyasava*,
- *Aravindasava*, *Chandrakala rasa*
- Part used- Roots, Leaves, Stem
- Chemical composition-*Phytosterols*, *Saponins*,
- *Tannins*, *Triterpines*
- Properties-Antifungal, Antiviral,
- Anticancer, Hypotensive, Antilithic
- Propagation-Seeds

#### ***Rubia cardifolia* Linn:**

- Status-Endangered globally
- No of formulations used in Ayurveda-60

- *Manjistadi khada*, *Manjistadi gritha*, *Lepa*,
- *Kumkumadi taila*
- Part used- Roots
- Chemical composition-*Manjistin*,
- *Rubiadin*, *Saponin*, Glycoside
- Properties-Blood purifying agent,
- Haemostatic, Antiseptic, Antimicrobial
- Propagation-Branch having 4 nodes, seeds unsatisfactory

#### ***Crateva magna* (Loh) DC:**

- Status-Vulnerable due to high demand and Large-scale exploitation
- No of formulations used in Ayurveda-13
- *Varunadi kasaya*, *Chandrapraba vati*,
- *Varunadi gritha*,
- Part used- Stem bark, leaves
- Chemical composition-Lauric, stearic, oleic acids. *Quercetin*
- Properties-*Lithotriptic*, Diuretic, Antiarthritic, Antipyretic
- Propagation-Seeds

#### **Other Red Listed Plants:**

- *Chorophytum Sps*
- *Dioscoria Sps*
- *Myristica malabarica*
- *Andrographus paniculata*
- *Cassia angustifolia*
- *Garcinia*
- *Aconitum heterophilum*
- *Trichosanthes lobata* Roxb.
- *Rotula aquatica* Lour
- *Kaempferia rotunda* Linn
- *Nervilia aragorana* Gaud

#### **Conclusion and Discussion:**



Biodiversity Conservation is one of the important step towards conserving endangered medicinal plant that can be achieved by following methods:

- The Research on propagation Techniques
- Establishment of facilities for Mass production of planting material and their distribution
- Development of on –Farm and in – Forest model plantations to determine and demonstrate Techno-Economic feasibility of cultivation
- Linking producers to traders, consumers and domestic and international markets through improved understanding and implementation of production-to-consumption and marketing system (PCMS) Model

#### Conclusion:

- Non-availability of the Medicinal plants to full fill the requirements of the herbal industry Results in Substitution and adulteration.

- Substitution and adulteration have a effect over the clinical efficacy of the formulations
- It is a serious threat to the Practice of systems like Ayurveda which mainly depend on Medicinal plants as a source of Medicine
- Hence it is a need of today to conserve both Neglected national treasures Ayurveda and Medicinal Plants

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