



## MEDICINAL PLANT RESOURCES IN KURSEONG HILL AREA, DARJEELING, WEST BENGAL, INDIA

<sup>1</sup>Rwitabrata Mallick and <sup>2</sup>Nidhi Shukla

<sup>1,2</sup>Department of Environmental Science, Amity University Madhya Pradesh, India

\*Email : rmallick@gwa.amity.edu

### Abstract

Kurseong hill area under Darjeeling district of West Bengal is the paradise of Medicinal Plants. It is characterized by the presence of umpteen number of ethnomedicinal plants with a great number of medicinal practices. The present paper showcases around 30 medicinal plants in and around Kurseong and describes the extreme value of each plant. Most of the medicines are used as folk-medicine in the study area. Due to inefficient management of these resources, medicinal plants are under great threat of extinction. Proper sustainable management of medicinal plant resources and forest resources will help the survival of all these medicinal plants. Sustainable resource management and proper conservation can be developed through more and more improvement and improvisation. This can be done by proper, scientific, systematic approach towards careful management of the medicinal plants and other plant resources. The sustainable approach towards folk medicine and other medicinal plant management can be done by tabulating and marinating primary data which will showcase optimum utilization of natural resources in a scientific manner for the betterment of man and environment.

**Keywords :** Medicinal Plants, Kurseong, Sustainable, Management

### Introduction

Forest resources are known to be naturally occurring substances that are considered valuable in their relatively unmodified (natural) form.

#### Flora

With snowcapped peaks of the mighty Himalayas lying to its north, the Bay of Bengal in the south and the rivers like the Ganga and the Teesta flowing across the State, West Bengal is India in miniature. The State can be divided into four tourism zones viz. North Bengal Tourism Zone, Central Bengal Tourism Zone, South Bengal Tourism Zone and Western Bengal Tourism Zone, each having its distinctive brand of tourist attractions. Of the four tourism zones in the State, the North Bengal Tourism Zone and specifically the Kurseong Hill area of Darjeeling district is the most picturesque.

The region comprising Darjeeling and Jalpaiguri districts of North Bengal Tourism Zone is known all over the world for tea plantation industry. But the eco-tourism potential of the uniformly trimmed tea gardens growing on undulating land surrounded by hills and forests and criss-crossed by hilly rivers and giving the appearance of lush green velvet spread across miles has not been exploited so far (Laeq, 2001).

Kurseong subdivision of Darjeeling district comprises both Plains and a Hill portion. Different climatic zones and soil condition account for the variation in forest compositions. The various forest types have been named after principal species found therein (Clarke, 1886).

### Materials & Methods

Plain forests in Kurseong Sub-division can be classified into the following types (Anonymous, 2008):

#### Grassland

This is a forest type comprising vegetation found on river-beds.

#### Khair - Sissu Forest

This is a second seral stage of vegetation succession and is found mostly in pure patches.

#### Simal – Siris Forest

This well-known forest is found in places where soil formation has progressed a little.

#### Toon – Haldu Forest

Away from the river bank, where the composition of the forest changes to one having more economically valuable species, one can find this type of forest.

#### Plain Sal Forest

Beyond the well-drained deep loamy soil, Sal (*Shorea robusta*) trees occur in abundance.

#### Dry Mixed Forest

This type of forest is a subsidiary edaphic type belonging to Northern Tropical Moist Deciduous forest.

#### Wet Mixed Forest

This Eastern Sub-Himalayan wet mixed forest is of secondary seral type. Certain local condition including bad drainage makes some areas too moist for Sal and here the composition of flora tends to be an evergreen type.

#### The Hill Forest

##### A. The Lower Hill Forest

The lower hill forests extend up to an elevation of about 2500 feet (800 meters). Sal and other valuable species, both deciduous and evergreen, prevail in this zone (Anonymous, 2008).

##### 1. Shiva Khola range

##### B. Middle Hill Forest

The middle hill forests have an elevation of about 800-1400 meters. This is a dense forest of magnificent trees rich in its florist composition. This type includes Northern Sub-

Tropical Wet Hill Forest and Bengal Sub-tropical Hill Forests (Anonymous, 2008).

1. Shiva Khola range
2. Pagla Jhora range
3. Majua range
4. Lower Babukhola range

### C. Upper Hill Forest

The upper hill forests have an elevation of about 1400-2000 meters. The gneiss rocks occurring in this zone have already affected the growth and composition in the forest crop (Anonymous, 2008).

Plant resource study was conducted in and around Kurseong Hill area. The field survey was performed by interview through questionnaire to collect information about traditional knowledge regarding use of plants and their products in folk medicine in the following ranges.

1. Pagla Jhora range
2. Majua range
3. Lower Babukhola range

## Results & Discussion

### Sustainable uses of plant resources

Plant resources found in and around Kurseong hill area have several sustainable uses from their medicinal and economical point of view. Recently 5-hectare area has been extended and demarcated for medicinal plants for conservation and propagation of available plant resources.

### Medicinal uses

The tubers of Sungurey are given to sheep for colic and to cattle to remove worms. The juice extract of Titapati leaves is dropped into nose to check excess nose bleeding. The seeds of Titapati are used as appetizer, aphrodisiac, anthelmintic (Burman, 2003). The root of Satmuli with milk is used for curing diarrhea. The seed of Bharla possesses tonic and aphrodisiac properties. The root bark of Sanu Kapasi is an emmenagogue and uterine tonic. The drug is used in dysmenorrhea, diabetes and rheumatic pains. Leaves

extract of Charchare applied on boils and septic inflammations and roots are used for stomach disorders (Burman, 2003).

Amlahas multifarious uses, commonly being applied for digestive interventions. Common myrobalans are used as laxatives such as Bahera, Haritaki. All the species of Timur have medicinal value particularly Bale Timur is being used against gastrointestinal problems. Species of Bhadrare used against hypertension. The dried seeds particularly are effective. Very important homoeopathic medicine is prepared from Bhalayo and is applied against various diseases. It is very effective against high fever (Biswas, 1956). All species of *Rhododendron* can be used, particularly their dried flowers and leaves against dysentery. 'Direx Plus' is the trade name for *Rhododendron* medicine against dysentery. Himalayan Drug House prepares medicine out of *Rhododendron*. Gineri bark reduces cholesterol level to a great extent. Crushed seeds of Jamun are used as anti-diabetic. *Cinnamomum* is used to fight against indigestion. Totola which is a mammal pollinated plant has great value as antepar (Biswas, 1956).

Plantation of *Taxus baccata*, the plant which yields 'Taxol' the anticancer drug also forms local attraction. The precursors of chemotherapy drug 'Paclitaxel' can be derived from the leaves of Dhengre Salla. Another medicine 'Docetaxel' can be obtained by semi-synthetic conversion from the precursors.

### Economical uses

*Betula* is used as timber and plywood. *Phoebe*, *Michealia*, *Artocarpus*, *Gmelina*, *Abies*, *Terminalia*, *Lagerstroemia*, *Dysoxylum*, *Amoora*, *Cinnamomum*, *Tsuga*, *Cedrela* are used as timbers. *Ailanthus* is used in preparing matchwoods. *Schima* is used in making plywood. *Cryptomeria* is used as soft timber and in making news prints. Acer timber (Maple) is used in making Piano. Morus (Mulberry) is a timber and used in preparing sports equipment, its fruit is also edible. *Tetrameles* is used in making packing boxes (Santapau, 2005).

In addition to the detailed discussions on some of the medicinal plants as above, we give below a table (Table 1) depicting other medicinal plants and their uses.

**Table 1 :** Medicinal Plants and Their Uses

Sl. No.	Local Name	Scientific Name	Parts Used	Ailment
1	Pakhanbed	<i>Bergenia ciliate</i>	Roots	Tonic, cough, diarrhea, pyorrhea teeth
2	Pani amla	<i>Nerphrolepis cordifolia</i>	Bulb	Diabetes
3	Bikhuma	<i>Aconitum ferox</i>	Bark & leaves	Yield poison and preparing medicine
4	Satamuli	<i>Asparagus racemosus</i>	Root	Treatment of stomach
5	Buro okhati	<i>Astible rivularis</i>	Leaves, roots and rhizome	Dysentery, menstrual disorder
6	Bojho	<i>Acorus calamus</i>	Root & rhizome	Insect repellent, emetic, carminative
7	Bhutkesh	<i>Selimum tenuifolium</i>	Leaves & fruits	Skin diseases
8	Chimphing	<i>Heraculum wallichii</i>	Fruits & inflorescence	Influenza & body ache
9	Dhungre Jhar	<i>Hydrocotyle nepalensis</i>	Leafy shoots	Throat infection, pneumonia & tuberculosis
10	Kalo Dhatura	<i>Dhatura fastuosa</i>	Fruits & roots	Rheumatic swelling, fruits used in dog bites
11	Thotne	<i>Polygonum molle</i>	Young shoot	Use as an astriger
13	Mutu jhar	<i>Dicentra scandens</i>	Leaves	Heart/cardiac lower palpitation
14	Buhari jhar	<i>Mimosa pudica</i>	Roots & leaves	Piles & scorpion sting
15	Jhandi phool	<i>Degitatis purpurea</i>	Leaves	Cardiac tonic
16	Lalgeri jhar	<i>Hemiphragma heterophyllum</i>	Fruits	Tonsillitis
17	Chua	<i>Phlogacanthus thyriflorus</i>	Leaves & flowers	Diabetes, gastric

Sl. No.	Local Name	Scientific Name	Parts Used	Ailment
18	Pudina	<i>Mentha viridis</i>	Leaves & seeds	Fever, bronchitis
19	Nase jhar	<i>Plantago erosa</i>	Leaves, roots & seeds	Fever, tonic & dysentery
20	Bhui champa	<i>Kaemferia rotunda</i>	Roots	Mumps, wound and stomach disease
21	Tite/sano nakima	<i>Compylandra aurantiaca</i>	Inflorescence	Diabetes, blood pressure
22	Halhale	<i>Rumex nepalensis</i>	Whole plant	Purgative
23	Ghrit kumari	<i>Aloe saponaria</i>	Leaves	Brain tonic
24	Ghrit kumari	<i>Aloe barbadensis</i>	Leaves	Purgative, carminative, skin cooling & cosmetic
25	Gurbu	<i>Arisaema speciosum</i>	Plant	Fruits & leaves
26	Ganja	<i>Cannabis sativa</i>	Leaves	Blood dysentery, gastric
27	Banhaldi	<i>Curcuma aromatica</i>	Rhizome	Appetizer
28	Citronella	<i>Cymbopogon nardus</i>	Leaves	Leprosy, insecticide
29	Dhotisara	<i>Curculigo orchoides</i>	Fruits & flowers	Asthma, piles & jaundice
30	Elaichi	<i>Elettaria cardamomum</i>	Seeds	Piles, kidney, urinary bladder

### Conclusion

Kurseong hill area is blessed with several medicinal plants having local use which can be systematically exploited aided with some in situ processing. Kurseong is the connecting point of hill stations like Darjeeling and Kalimpong and forests like Sukna and Duars. Kurseong hill area is blessed with a weather having suitable temperature, huge rainfall to help the extensive growth flora and fauna along the mountainous terrain.

The three tier forests, plenty medicinal plants, hundreds of orchids and some unique species of wildlife will beckon the nature and wildlife loving people all over India and abroad, all over the years, if these natural resources are utilized through proper scientific methods.

The eco-tourism efforts apply these methods which utilize natural resource management with the involvement of local people, government and non-government organizations in a sustainable manner. The information presented in this chapter may be taken as tools for implementation of the above scheme.

### References

- Agarwal, S.C. and Garg, K.P.; Text Book on Remote Sensing In Natural Resource Monitoring and Management, Wheeler Publication
- Akao, K.I. and Farzin, Y.H. (2007). When it is optimal to exhaust a resource in a finite time?, Ecological Society of Japan, Ecol Res., 22: 422-430.
- Anonymous (2006). North Bengal Tourism Circuit, WEBCON
- Anonymous (2008). Annual Report, Divisional Forest Office, Kurseong, West Bengal.
- Anonymous (2008). Database, Block Development Office, Kurseong
- Anonymous (2008). Database, Soil Conservation Office, Kurseong
- Association for Conservation of Tourism (2003). Community tourism initiatives of East & North-east India
- Banerjee, R. (2003). The Wonder of Darjeeling,

- Bhagat, R.C. and Singh, N.; Natural resource development in the Himalayas, J K Book House
- Bigsby, H. (2009). Carbon banking: Creating flexibility for forest owners, Journal of Forest Ecology and Management, 257: 378-383
- Biswas, K. (1956). Common Medicinal Plants of Darjeeling and Sikkim Himalayas, Kolkata, Supdt. Govt. Press.
- Clarke, C.B. (1986). Botanical notes from Darjeeling to Tonglo, J. Linn. Soc. Bot., 15: 116-159.
- Ghosh, A., Natural Resource Conservation and Environment, APH Publishing Corporation, New Delhi.
- Lundmark, R. (2009). Factor demand and price sensitivity of forest-based biomass in the European Energy and Forest Sectors, Journal of Natural Resources Policy Research, 1(3): 229-239.
- Mallick, R. (2008). Prospects of Eco-tourism. Banabithi, Aranya Saptaha Issue, Forest Department, Govt. Of West Bengal, 18-22.
- Mallick, R. (2008). An approach towards Natural Resource Management in Kurseong Hill Area. Banabithi, Wildlife Issue, Forest Department, Govt. Of West Bengal, 18-22.
- Menzies, C.R. (2006). Traditional ecological knowledge and natural resource management – Social Science, University of Nebraska Press.
- Rao, B.R.M. (2003). Management of Natural Resources with Special Reference to Soil Resources, 7-10.
- Rao, N. and Suresh, K.T. (1997). Ecotourism and Sustainable Development, Ecotourism Prospects & Problems.
- Roy Burman, J.J. (2003). Tribal medicine. Mittal Publications, New Delhi .
- Roy, S.B. (2004), Systemic Approach to Sustainable Joint Forest Management, Indian Journal of Landscape Systems and Ecological Studies, 27(2): 181-185.
- Santapau, H. (2005). Common Trees, National Book Trust, New Delhi.
- Sharma, M.K. (1986). Remote Sensing & Forest Surveys, International Book Distributors
- Sinha, S. (2003). Natural Resource Management – A call for rectification.