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Conservation of Endangered and Threatened Medicinal plants of Korea District of Chhatisgarh

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Abstract

The Korea district of Chhattisgarh is floristically rich areas where plants of various categories are growing spontaneously in thier natural habitat. This area provides an enormous range of indigenous medicinal plants that are used by the tribal and local communities inhabiting the area. The curative properties in medicine of plants are growing mainly because they are natural, cheaply available, even in the backward areas and do not have any side effect. The present paper deals with the conservation of endangered and threatened medicinal plants of Korea district of Chhatisgarh.

Key words: Korea, Endangered Medicinal plants

Introduction

Korea was carved out from Surguja District on 25th May 1998. It is located in north eastern Chhattisgarh and lies between latitude 22°56′ and 23°48′ North and latitude 81°56′ and 82°47′ East. It is bounded on the north by Sidhi District of Madhya Pradesh, on the south by Bilaspur District, on the east by Surguja District, and on the west by Shahdol District of Madhya Pradesh. The area of the district is 5977 km2, of which 59.9% is forest area. Together with Surguja, Jashpur and Raigarh, Korea forms the northern region of the State. The district is rich in forest resources and has substantial coal reserves.

The terrains of Korea comprises of the Ganga basin and partly in the Mahanadi basin. It is drained by the Hasdeo, Tej, Gopad and Gobri rivers. The ambiance is very pleasant with torrential monsoon rains and moderate summer and winter. Korea is 700 m above sea level. The temperature ranges from 32°C to 23°C.

Medicinal plants are our national heritage with global importance and India is endowded with a rich wealth of biodiversity. district is rich in plant resources used in various system of medicine as well as indigenous mode of treatment.

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Methodology

This work is result of carefully planned field trip of the study sites. Special efforts were made to visit the places rich in floristic wealth. The tribal and rural people utilize a number of medicinal plants, hence attention were paid to trace flora from these sites.

Status of Species

During the present study author tried to have some idea about the status of herbs. The status of the medicinal plants of the study area has been established as below.

Status	Occurrence of Species %
Common (C)	Above 50
Vulnerable (VU)	Between 30 to 50
Endangered (EN)	Between 20 to 30
Critically Endangered (CR)	Between 10 to 20
Rare (R)	Below 10

Conservational Strategies

Conversational strategies of biodiversity with special references to threatened herbs have been adopted as mentioned by the ethnic and rural people of the study area. The works of eminent scholars (Mc Neely *et al.*, 1990; Phillips *et al.*, 1994; Aswal, 1996, Sinha, 2001; Srinivasmurthy, 2003) have been also refereed for this purpose.

Results and Conclusion

Status of Medicinal Plants

During the field trip the author tried to have some idea of endangered, vulnerable, threatened and rare medicinal plants. The status of species has been determined as per method mentioned in Methodology. Some of these may be common in other parts of India. However, to preserve the biodiversity in the area this scarcity needs attention. The threatended species of the area are mentioned in the following table 1:

Table 1: Status of medicinal plants of Korea district

Botanical Name	Local Name	Family	Status
Abrus precatorious L	Ratti	Fabaceae	EN
* *Acorus calmus* L.	Bach	Araceae	EN
Andrographis paniculata Wall ex. Nees	Kalmegh	Acanthaceae	R
** *Bixa orellana* L.	Sinduri	Bixaceae	R
Boerhaavia diffusa L.	Punarnava	Nyctaginaceae	CR
Buchhania lanzan Sprengel.	Char	Anacardiaceae	VU
Caesalpinia cristita L.	Gatayan	Caesalpiniaceae	VU
Centella asiatica L.	Brahmi	Apiaceae	CR
* *Chlorophytum tuberosum* Bak.	Sayed -mulsi	Liliaceae	EN
Cissus quadrangularirs L.	Harjoor	Vitaceae	EN
** *Coleus aromaticus* Benth.	Patharchur	Lamiaceae	R
Cyperus rotundus L.Sp.	Nagarmotha	Cyperaceae	R
Dioscorea daemona Roxb.	Barhakanda	Dioscoreaceae	R
Gloriosa superba L.	Kalihari	Liliaceae	R
Hedychium coronarium Koen. ex. Retz.	Gulwakawali	Zingiberaceae	VU
Heliotropium indicum L.	Hanthisur	Heliatropiaceae	VU
Mucuna pruriens L.	Kemanch	Febaceae	VU
Plumbago zeylanica L.	Chitrak	Plumbaginaceae	R
Prosopis juliflora (Sw.) DC.	Shami	Mimosaceae	VU
Rauwolfia serpentina (L) Benth. ex. Kurz.	Sarpgandha	Apocynaceae	R
Santalum album L.	Chandan	Santalaceae	EN
Sapindus mukorossi Gaertn.	Ritha	Spindaceae	VU
Smilax macrophylla Roxb.	Ramdatun	Smilacaceae	EN
Soymida febrifuga (Roxb.)	Chitrak	Miliaceae	R
** *Spilanthes calva* DC.	Akarkara	Asteraceae	R
** *Stevia reabaudiana*	Stevia	Asteraceae	R
Terminalia bellirica (Gaertn.) Roxb.	Bahera	Combretaceae	R
Terminalia chebula Retz.	Harra	Combretaceae	R

Tribulus terrestiris L.	Gokhru	Zygophyllaceae	R
Wendlandia exserta (Roxb.)	Tilia	Rubiaceae	R
Withania somnifera (L.) Dunal.	Ashwagandha	Solanaceae	EN

* Endangerd in wild state but abundant in cultivation

** Not found in wild state/found only in cultivation

VU= Vulnerable, EN=Endangered, CR = Critically Endangered, R = Rare

Conservational Strategies

Native biodiversities are source of economic wealth and pride of each counrty, composing it does a shining part of the national heritage. Obviously, our national food and medicinal requirements depend on ability to conserve all biological resources. Government support for conservation and supervision of medicinal plant development are often weak and ineffective. In some countries public sector agencies exercise and processing of such plants and other forest products, fostering in effeciencies, commercial development and preventing fair pricing for collectors. But even when they maintain such controls, exporting nations generally reap low return. It is therefore, essential to develop and adopt our own traditional technology for the conservation of biodiversity.

The World Commission on Environment and Development (WCED) constituted by the General Assembly of United Nations published its report in 1987, which provide a major boost and endorsement to the need for conserving worlds rich biodiversity, particularly that of the tropical regions.

Despite conflicting views among nations, a broad consensus was reached and 170 countries signed the Biodiversity Convention. One of the prerequisite tasks as expressed by article 7 of the convention is the identification and monitioring the components of biological diversity. Article 12 calls for research and training and suggest programmes for ideitification, conservaion and sustainanble use of biodiveristy. In context of our country conservation of threatened species is essential not only to maintain the ecosystem but also to ensure the sustainable utilization of the species.

Each vegetation has a particular form of species and each form is specially adapted to a particular site where it grows. Differences between them can be identified and used for better management. Korea District of Chhattisgarh is a tremendous storehouse of potential resources not only for taxonomical or ecological reserches but also as a source of yet less known medicinal plants.

Some of the conservational strategies followed by the inhabitants of the study area are as below :

***In-situ* conservation:**

Biodiversity at genetic, species and ecosystem level can be conserved on a long-term basis only in the nature. Unless plant population are conserved in the wild, that is in natural habitats, in variable breeding population, they run the risk of extinction.

Medicinal plant populations have large and often disjunct area of distribution, while some species are confined to a few pockets. Conservation of these species a is being done by the forest department with the participation of local people by raising stone wall fencing. By this process the naturally generated plant population would be increased. However, for a long term conservation and management of medicinal plants *in-situ* network need to be integrated into regular forestry and wild life management. Essential training should be given to the local people to involve them in protection and management of the biodiversity.

***Ex- situ* conservation:**

Domestication or *ex- situ* conservation is an essential step towards the protection of biodiversity. The tribal and rural people of Korea district adopted following ways for the conservation of medicinal plants:

Home gardens:

Ethonomedicianl gardens are more favourable for the *ex-situ* conservation of medinicinal plants. Though there are several botanical gardens in our country, the natural genetic wealth including wild relatives of cultivated plants, rare and threatened species are not given priority over ornamental plants and other exotic flora in these gardens. Such types of gardens are not available in the study area. However, the inhabitants raised their own home gardens where they grow and protect some valuable medicinal herbs viz., *Acorus calamus* (Bach), *Allium sativum*, (Lahsun),

Boerhaavia diffusa (Punarnaba), *Centella asiatica* (Brahmi), *Eclipta prostrata* (Bhringraj), *Mentha arvensis* (Pudina), *Leucas cephalotes* (Gumma), *Ocimum sanctum* (Tulsi), *Piper longum* (Kali-pipal), *Phyllanthus niruri* (Bhuamla), *Rauwolfia serpentina*, (Sarpgandha), *Solanum nigrum* (Makoya), *Tridax procumbens* (Ghawa-patti), *Withania somnifera* (Ashwagandha). In addition to spice and vegetable plants, it is a sincere step towards the conservation of medicinal diversity by the rural people.

Nurseries :

The most urgent task in order to ensure immediate availability of plants and planting materials to various uses groups like farmers, plant breeders, industry and to conservation organisation is to promote and develop the network of medicinal plants nurseries which will multiply all the regional specific plants that are used in current practice of traditional medicine. Moreover, these nurseries should be source of supply of plant materials.

The forest department, agricultural extention agencies, non-government organizations and some private enterprises are playing vital role in establishing these nurseries. These are store-house of many valuable medicinal herbs. Short-term loans are also offered by the rural and nationalized banks to establish the nurseries.

Cultivation and agriculture production:

Due to over exploitation, greedy treders and urgent needs, the natural sources of medicinal plant are decreasing while the demand is gradually increasing in recent years. The demand so far has been met mainly from wild sources. Hence, to meet the growing demand, commercial cultivation of medicinal plants is urgently needed.

Cultivation of medicinal plants, however, is inversely linked to prevalence of easy and cheap collection from the wild forms. Lack of regulation in trade concerning of the profits from the wild collection by a vast net work of traders and middlemen and absence of industries interest in providing buy bank gurantees to growers. Moreover, cultivation of medicinal plants is also not easly due to lack of standardized agronomic practices. However, the field cultivation is equally economic as compared to other crops.

In addition to cultivating traditional medicinal herbs like *Allium sativum* (Lahsun), *Asparagus racemosus* (Satawar), *Phyllanthus emblica* (Amla), *Foeniculum vulgare* (Saunf), *Mentha arvensis* (Pudina), *Nigella sativa* (Karayal), *Zingiber officinale* (Adarakh) etc., They are very much interested in the cultivation of some threatened species viz., *Andrographis paniculata (*Kalmegh), *Chlorophytum tuberosum* (Safed-musli), *Coleus aromaticus* (Patharchur), *Gloriosa superba* (Kalihari) and *Mucuna pruriens* (Kemanch). It is important step towards the conservation of diversity of medicinal plants of the study area.

Traditional conservation:

The people of Korea district are very religious and they prefer tradition mode of conservation as cited below.

Faith, tradition and religious aspects:

The tribal and rural people do not know well difined conservational strategy of the kind we understand in modern terms like *ex-situ* and *in-situ*. However, they do conserve plants that are medicinally, socially, culturely and economically significant to them. Their mode of conservation is depending upon faith, tradition and religious aspects. No body cut nor destroyed the plants like *Aegle marmelos* (Bel), *Azadirachta indica* (Neem), *Ficus benghalensis* (Bargad), *Ficus racemosa* (Umbar), *Ficus religiosa* (Peepal), *Madhuca indica (*Mahua), *Ocimum sanctum* (Tulsi), *Prospis juliflora* (Shami) etc. They marked these plants and protect them. The plants used in religious ceremonies like *Butea monosperma* (Palas), *Cynodon dactylon* (Doob), *Ficus racemosa* (Umbar), etc. have also been protected by the inhabitants.

Other aspects:

The rural people mostly have open space around their home, which is protected by fencing of plants and hedges. They planted some twinners and climbers like *Abrus precatarious* (Gughuchi), *Cissus quadrangularis* (Harjor), *Clitoria ternata* (Aparajita), *Diplocyclos palmatus* (Shivalingi) *Jasminum arborecens* (Chameli), *Mucuna pruriens* (Kemanch), *Tinospora cordifolia* (Giloya) etc. on their field boundaries. Besides, they also allow these plants to climb on house roofs. Most of these plants are seasonal require rain water and are shade loving. Hence, they grow well in such condition. This is an excellent

conservation stretegy, which has been observed in each villages of the study area.

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