

CONSERVATION OF A FEW THREATENED CATEGORY PLANTS OF NALLAMALAIS (EASTERN GHATS A.P. INDIA)

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Nallamalais, a reserve forest in the central part of Eastern Ghats covering 9102 Kms² considered as a Biodiversity hot spot in Andhra Pradesh, covering, four districts viz, Kadapa, Kurnool, Mahaboob Nagar and Prakasam is situated between Eastern longitudes of 76°58'-78°56' and Northern latitudes of 14°54' - 16°-14'. The flora consist of 900 spp of vascular plants, of which 353 are potential medicinal plants. The threatened category of plants (According to IUCN 2004) listed are critically endangered (10) endangered (21) and vulnerable (27). Of all, the exploitation of important potential medicinal plants like *Costus speciosus* (Koenig) sm. *Entada pursaetha*, DC. *Decalepis hamiltonii* Wight and Arn. *Pterocarpus santalinus* Linnf are worthy of mention and attracted the attention of authors. Conservation of these plants is the need of the hour.

Keywords : Conservation; Endangered; Threatened plants.

In 1994, IUCN - WWF has recognized 250 centres of plant diversity in the world. India covers 18 of them including Nallamalais and Tirupati- Kadapa hills in A.P. Hot spots are the areas with high species richness and exceptionally high levels of endemism under immediate threat of habitat destruction. Nallamalais comprises of various types of forests with luxuriant growth of vegetation showing gigantism is note worthy.

It is observed many times during the survey and field trips to Rollapenta forest that the populations of *Entada pursaetha* DC. is diminishing. The reason attributed may be the tribals and other traditional medical practioners who collect the seeds are found selling the same in Kurnool city at many places and also in other towns. The seeds being larger in size with hard seed coat remain dormant for a long time and the rate of germination is also less naturally. Seeds are anti-tumor and anti-arthritis and useful in bronchial asthma due to presence of certain special chemicals like entanine and entadamide A. It is a liane which is subjected to stress from many factors. Hence became an endangered plant. It needs conservation, other wise it will become extinct totally.

Costus speciosus (Koenig) sm. is a vulnerable category of plant occurs in Bairlutu and Rollapenta forest. It is an alternative plant to *Digitalis purpurea* Linn. useful in cardiotoxic activity. The rhizomes are medicinally important due to certain chemical components like saponins. The intervention of pharmaceutical companies

through tribals and others in search of this may exploit it. Hence need more attention to conserve the same.

Another critically endangered plant of this area is *Decalepis hamiltonii* Wight & Arn. The roots being utilized in the preparation of a famous local drink called. "Nannari"² and the extensive use of root powder in diabetes made this plant a threatened category. It occurs both in Srisailam and Ahobilam Forests which attracted the attention of tourists and saints from different states due to presence of two famous temples of south India in the same forests. The forest authorities have taken initiative to retain it inspite of its exploitation. Lastly the most important plant of our country in general and Andhra Pradesh in Particular is "The red gold of A.P." the red sanders *Pterocarpus santalinus* Linn.f a global endemic plant which occurs only in Kadapa, Kurnool districts of A.p. and North Arcot district of T.N. of our country in the entire world. It has also become a threatened category i.e., endangered due to its smuggling to Japan and other countries. It is nearly lost in Kurnool district and now its exploitation is at a faster rate in Kadapa District, Which is actually the seat of red sanders. As reported by local news papers every day, it may vanish very soon. The heart wood which contain terpenoids is useful in diabetes and oedema.

Conservation : A number of conservational measures suggested by institutions and individuals as *in-situ* and *ex-situ* may be productive but practical measures in the

Table 1. Occurrence, chemical constituents and medicinal value of threat category of plants.

S.No.	Botanical Name	Family	Place of Occurrence	Useful Part / parts	Chemical Constituents	Medicinal Value	IUCN Status
1	<i>Costus speciosus</i> (Koenig) Sm Wild ginger	Costaceae	Rollapenta RF Gundlabrahm Eswaram (WLS)	Rhizome	Saponins- Dioscin Gracillin and Beta sitosterol Beta D. glucoside	Anti- inflammatory Anti- arthritis	Vu
2	<i>Decalepis hamiltonii</i> Wight & Arn. Nannari	Asclepiadaceae	Ahobilam RF Sunnipenta RF	Roots Powder	Quercetin Kaempferol Coumarin, Rutin, Alpha amyrin Lupeol	Anti- diabetic Blood purifier, Appetizer	CR
3	<i>Entada pursaetha</i> DC Elephant creeper	Mimosaceae	Rollapenta RF RF	Seeds	Saponins - Entagenic acid, Entanin, Beta Sitosterol, Quercetin, Alpha-amyrin, Lupeol, Entamide-A.	Anti- Tumour, Anti- Inflammatory, Bronchial Asthma	EN
4	<i>Pterocarpus santalinus</i> Linn.f Red Sanders	Fabaceae	Ahobilam RF	Heart wood, Bark	Terpenoids- eudesmol Ptero carpol Beta-ampyrone, Lupenone, Lupeol derivatives	Anti- Diabetic, Anti- convulsant	En

CR = Critically endangered, EN = Endangered, Vu = Vulnerable.

field are more effective than measures on papers. The suitable and specific conservational measures are as follows :

The intervention of pharmaceutical companies through tribals to exploit medicinal plants should be dealt with seriously by providing tribals with sources of income like establishing Mushroom cultivation units, vermicompost units with subsidy. So that poverty which has involved them in such acts will be stopped totally. Grazing by herds of animals in protected areas should be prevented by providing subsidy to cultivate forage crops for their cattle, which are a source of income for them to maintain their families. Forest fires which destroy the

flora and fauna should be dealt with strictly. The reason for this type of heinous act is to get fresh grass every year for their cattle and to procure coal for selling to small scale units in nearby towns. Social forestry should be encouraged as an alternative by giving subsidy for domestic fuel and agriculture implements may prevent felling of trees.

Poor villagers who collect dry wood for domestic and agriculture purpose may not resort to smuggling. Smuggling of red sanders should be dealt with seriously. In spite of special squads already appointed for this purpose exclusively by forest department along with regular forest protection force and temporary protection force involving

tribals and VSS (Vana samraksha samithies) still there is a pilferage. It is all due to failure to implement laws strictly. Keeping in mind to save billions of rupees of forest wealth of our country, effective measures should be taken on a war footing by involving government and non-Government agencies. Non bailable cases should be booked against smugglers, shoot at sight orders issued by authorities should be implemented by forest personnel. Special cases against those who exchange fire with forest force should be booked and imprisoned. Deployment of additional forces like grey hounds and para military forces in more dangerous areas may control the problem.

Educating villagers about the significance of endangered, global endemic plants in tribal and nearby villages may control exploitation to some extent. The concept of sacred groves should be popularized by including these plants into sacred groves category. Fencing in case of herbs is more useful than other type of measures and appointment of tribals to look after these important medicinal plants in unprotected areas be done keeping placards and boards specifying area and other details may also help in reducing exploitation. Entry in protected areas may be allowed to take photographs and collection of vegetative parts only, but not fruits and seeds. Waste land allotment to tribals for agriculture purpose by providing water facility may stop them from exploitation of forest.

Afforestation is the soul of forest development. Plantation of rare, endemic and endangered plants should be developed and afforestation should be done regularly to achieve the target of lost species number. Biotechnological approaches such as tissue culture, Genetic engineering methods should be used for producing off springs of endangered, endemic plants though their seeds are hard and dormant. Gene banks should be established in areas where there are much varied

populations. Similarly germ plasm banks of plants should also be established with cryo preservation. Parks and gardens of medicinal plants and economically potential, endemic and endangered category should be established with the help of ministry of forest and IUCN.

Development of Eco-tourism which is an indirect conservational measure should be developed keeping in mind the conservational safety by implementing foreign rules formulated and already followed in Kerala and appreciated by Central Govt. The aim of which is to provide employment opportunities to tribals and to divert their attention towards nature for better protection.

Hence, to conserve the threatened category, of plants prior planning and implementation of the laws formulated in conventions and strategies with the involvement of Government and non government agencies, tribals and villagers make it a success with the aid of national and international funding agencies.

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