

Wild Medicinal Plants of Manipur Included in the Red List

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Medicinal plants have been playing a major role in medicinal systems of India. Our traditional skills have been preserved through the medicinal systems in some form or the other. Till today, there are several thousands of herbal medicine practitioners all over the country along with conventional doctors. Human intervention in the biosphere has resulted in the widespread loss of the unique ecosystems and contributed to the extinction of biotic resources. Therefore, conservation of threatened species of plants is needed for the sustainable development of the society.

The present article highlights 14 endangered species of plants of medicinal importance available in Manipur in Northeast India (Fig. 1). The taxonomic classification, habit and habitat, parts used, active ingredients/principles, medicinal uses, threats, and IUCN (International Union for the Conservation of Nature and Natural Resources) status

of these endangered species are given in Tables 1, 2, and 3. This information will be useful in conservation of these medicinal plants.

Increased sustainable productivity is necessary and possible through the use of appropriate combinations of biological, social, technological, and economic tools for participatory land use planning, land and water conservation, water management, plant genetic resources conservation, integrated production systems, linkage among research, education, and extension programs, and land tenure reform. The Government must lead this complex process using all available means, including technology and appropriate policy instruments, to encourage farmers, markets, institutions, research industries, consumers, and others to make the development of medicinal security an environmentally sound activity.

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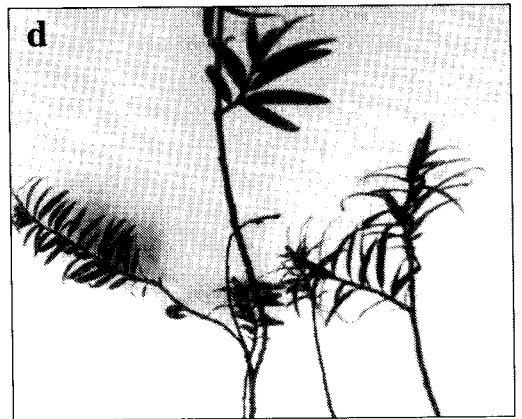


Figure 1. Some endangered species of medicinal plants in Manipur, India: (a) *Butea monosperma*, (b) *Clerodendrum serratum*, (c) *Rhus semialata*, and (d) *Taxus baccata* ssp. *wallichiana*.

Table 1. Taxonomic classification of endangered species of medicinal plants available in Manipur, India.

Botanical name	English name	Local name	Family
<i>Acorus calamus</i>	Sweet flag	<i>Ok-hidak</i>	Araceae
<i>Aquilaria agollocha</i> (syn. <i>A. malaccensis</i>)	Agarwood, eaglewood	<i>Agor</i>	Thymelaeaceae
<i>Butea monosperma</i>	Flame of the forest	<i>Panggonglei</i>	Papilionaceae
<i>Cinnamomum tamala</i>	Bayleaf	<i>Tejpata</i>	Lauraceae
<i>Clerodendrum colebrookianum</i>	–	<i>Kuthap</i>	Verbenaceae
<i>Clerodendrum serratum</i>	–	<i>Moirang khanambi</i>	Verbenaceae
<i>Curcuma angustifolia</i>	East Indian arrowroot	<i>Yaipal</i>	Zingiberaceae
<i>Curcuma caesia</i>	Black zedoary	<i>Yaimu</i>	Zingiberaceae
<i>Hedychium coronarium</i>	Common ginger lily	<i>Takhellei angouba</i>	Zingiberaceae
<i>Hedychium spicatum</i>	Spiked ginger lily	<i>Takhellei hangampal</i>	Zingiberaceae
<i>Panax schinseng</i>	Asiatic ginseng	<i>Ginseng</i>	Araliaceae
<i>Rauvolfia serpentina</i>	Rauvolfia	<i>Sarpagandha</i>	Apocynaceae
<i>Rhus semialata</i>	Wild varnish drygalls	<i>Heimang</i>	Anacardiaceae
<i>Taxus baccata</i> ssp. <i>wallichiana</i>	Common yew	<i>Thuno, yen</i>	Taxaceae

Table 2. Habitat and threat categories of fourteen endangered species in Manipur, India.

Local name	Habit and habitat ¹	Threats ²	IUCN status ³
<i>Ok-hidak</i>	Herb, wild, grows in swamp, marshy wetlands, at 2000 to 3000 m altitude, F/F August to September	2, 1, 5	VU/R
<i>Agor</i>	Tree, mostly wild, sometimes cultivated, grows wildly in Moreh in Chandel district at 100 to 1000 m altitude	2, 1, 7, 6, 5	CRN
<i>Panggonglei</i>	Tree, grows in dry deciduous forest, at 300 m altitude	4, 2, 1, 5	DD/R
<i>Tejpata</i>	Tree, wild, sometimes cultivated, grows at 1000 m altitude, marketable	2, 4, 5	LRNT/R
<i>Kuthap</i>	Shrub, wild, sometimes cultivated, grows at 800 to 1500 m altitude, F/F April to February	2, 4, 1, 5	VUN

continued

Table 2. *continued*

Local name	Habit and habitat ¹	Threats ²	IUCN status ³
<i>Moirang khanambi</i>	Shrub, wild, grows in tropical moist deciduous forest, foothills, at 800 to 1500 m altitude, marketable, F/F May to September	2, 4, 1, 5	VU/R
<i>Yaipal</i>	Herb, wild, grows in dry deciduous forest, at 500 to 800 m altitude, marketable, F/F March to July	4, 2, 3, 5	LRNT/R
<i>Yaimu</i>	Herb, wild, sometimes cultivated, grows at 500 to 800 m altitude, F/F March to May	1, 4, 5	CR/R
<i>Takhellei angouba</i>	Perennial herb, grows in moist tropical forest, near streams, canals, wild, sometimes cultivated, grows at 700 to 1000 m altitude, F/F round the year	4, 1, 5	EN/R
<i>Takhellei hangampal</i>	Perennial herb, wild, sometimes cultivated, mostly grows in moist and shady places, at 1500 to 2500 m altitude, F/F round the year	4, 5, 2	VUN
<i>Ginseng</i>	Small tuberous herb, wild, mostly grows in shady areas, at 2000 to 4000 m altitude, marketable, F/F May to September	1, 2, 5	CRN
<i>Sarpagandha</i>	Herb, mostly grows in moist to dry deciduous forest, 100 to 300 m altitude, F/F April to June	2, 4, 3, 1, 5	EN/R
<i>Heimang</i>	Tree, wild, grows in subtropical evergreen forest, at 800 to 1000 m altitude, F/F August to March	2, 1, 5	VUN
<i>Thuno, yen</i>	Tree, grows in temperate mixed forest, at 1500 to 3000 m altitude, marketable, F/F June to September	1, 5	CR/R

1. F/F = Flowering and fruiting period.

2. Threats evaluated on a 1 to 11 scale, with the rating of the fourteen medicinal plants ranging between 1 and 7. 1 = Harvest for medicine; 2 = Loss of habitat; 3 = Human interference; 4 = Overexploitation; 5 = Trade; 6 = Harvest for wood; 7 = Edaphic factor; 8 = Harvest for food; 9 = Trade for parts; 10 = Trampling; 11 = Not known.

3. CR = Critically endangered; CRN = Critically endangered in nature; R = Rare; EN = Endangered; VU = Vulnerable; VUN = Vulnerable in nature; LR = Lower risk; NT = Near threatened; LRNT/R = Lower risk but near threatened or rare; DD = Data deficiency. (Other IUCN status categories are: LRCD = Lower risk but conservation dependent; NE = Not evaluated.)

Table 3. Common medicinal uses of fourteen endangered species in Manipur, India.

Local name	Parts used	Active constituents	For treatment of ailments
<i>Ok-hidak</i>	Rhizome	Essential oil (1.8%)	Cough, stomach ulcer, fever, biliousness, itching
<i>Agor</i>	Wood	Essential oil (0.08%)	Dizziness
<i>Panggonglei</i>	Leaves, bark, gum, roots, seed	Butin, leucocyanidin	Diarrhea, dysentery, snakebite
<i>Tejpata</i>	Leaves	Essential oil (0.3 to 0.6%)	Cough, headache, dizziness
<i>Kuthap</i>	Leaves, roots	Clerodin, triacontane, clerodolones	Skin diseases, cough, dysentery
<i>Moirang khanambi</i>	Leaves, flowers, stem, roots	Sapogenin	Cough, fever, dysentery, asthma, bronchitis
<i>Yaipal</i>	Flowers, rhizome	Starch	Cough, dysentery, worm infection
<i>Yaimu</i>	Rhizome	Essential oil (1.6%)	Cough, sprains, bruises, dysentery
<i>Takhellei angouba</i>	Rhizome	Essential oil (4%)	Cough, liver complaints, vomiting
<i>Takhellei hangampal</i>	Roots/tubers	Saponin (1%)	Headache, high blood pressure, dizziness, vomiting
<i>Ginseng</i>	Roots/tubers	Saponin (1%)	Headache, high blood pressure, dizziness, vomiting
<i>Sarpagandha</i>	Leaves, roots	Reserpine	High blood pressure, bowel disorders, opacity of cornea
<i>Heimang</i>	Fruit, tender leaves	Tannin (50 to 80%)	Intestinal worms, dyspepsia, stomach ulcer, hair care, kidney and urinary complaints due to stone
<i>Thuno, yen</i>	Leaves, bark	Taxol (1.3%)	Wounds, cancer

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