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## A list of medicinally important plants of Sikkim Himalayan region, India

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### Abstract

According to report of WHO 2019 on Traditional and complementary medicine it is found that more than 80% of the world population out of total global population relies upon natural resources like plants for various formulation in order to treat several diseases. Most of the herbal and pharmaceutical industries were already using some of these plant species commercially as their formulations. These medicinally important plants are also a source for several novel therapeutic compounds and their over exploitation by commercial industries may result in extinction of various plant species which are valuable. People in Himalayan region like Sikkim are utilizing some of this medicinally important plants as part of their local tradition and traditional medicine system. As we already know all of the synthetic allopathic drugs may result in various side-effects and also may cause serious problems like microbial multidrug resistance. So plants with medicinal properties were better choice in for curing various problems of the body. So it is very important to document all these medicinally important plants from Himalayan region of Sikkim. In this article we have utilized Many previous reports about different medicinal plants found in Sikkim Himalayan region and from this list of 51 medicinally important plant species were prepared along with their scientific names, plant parts of interest, and their Ethnomedicinal application or uses which will be helpful for researchers working in related field.

**Keywords:** WHO, traditional medicine, Sikkim, over exploitation, ethnomedicinal

### Introduction

The Floral statics of India 2019 prepared by Botanical Survey of India, Kolkata, West Bengal reported about 2,68,600 flowering plants worldwide out of this only 18,386 exist in India which is about 6.84% of the world. In India many of the plants are reported with medicinal properties but only 3000 plants species are reported with medicinal properties till now <sup>[1]</sup>. Some previous reports also showed several medicinal plants which were part of Traditional or Folk medicine since ancient times and out of them only few medicinal plants were regularly utilized.

The rich biodiversity of Himalayan region is mainly due to presence of diverse geographical, physiological, topographical, ecological and Climatic zones <sup>[2]</sup>. The Indian state of Sikkim is located within 27°4' 46" to 28 ° 7' 48" N latitudes and 88 ° 58' to 88 ° 5' 25" longitudes and altitude ranging from 100 meters to 8598 meters of Mighty Mt Kanchenjunga <sup>[3]</sup>. Sikkim shares its boundaries with countries like Tibet, China, Bhutan and Nepal and also very nearest to the Siliguri corridor of West Bengal, India. Out of all medicinal plants in the world 490 medicinal plants were found in Sikkim with medicinal properties. Due to very strong belief in herb, many medicinal plant have been used in traditional medicine since ancient times by all of the ethnic groups like Lepcha, Bhutia and Nepali in Sikkim. Poor accessibility and harsh climatic conditions are the reason for people living isolated in high altitude areas like Sikkim while geographical conditions influence them to develop unique medicinal system <sup>[4]</sup>. This ancient medicinal system are also still popular and followed by the ethnic people to treat various problems of the body. While this knowledge of ancient traditional medicinal system is transferred from one generation to another generation in form of conversation instead of documenting it somewhere <sup>[5]</sup>. The ethnic community in Sikkim Himalayan region are dependent totally on wild medicinal flora to follow their own traditional medicine practices. So there is a need for proper documentation of indigenous medicinal system and diversity of important medicinal plants in a Himalayan region like Sikkim <sup>[6]</sup>. Out of all medicinal species

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found in Sikkim some are also commercially used for Ayurvedic and Pharmaceutical formulation. A useful scientific approach must be followed for the knowledge and preservation of all important medicinal plants found in Himalayan region of Sikkim<sup>[7]</sup>. This study is focused on some important medicinal plants which are native to Himalayan

region of Sikkim and believed to show promising therapeutic properties. This will also be helpful for researchers or scientist working in this field in identifying various therapeutic compound obtained from this 51 medicinally important plants listed in this study from Himalayan region of Sikkim along with their Ethnomedicinal uses.

**Table 1:** A List of Selected Medicinal Plants of with their Ethnomedicinal uses from Sikkim Himalayan Region

S. No.	Botanical Name (Family)	Local name	Parts Used	Ethnomedicinal uses
1.	<i>Abrus Precatorius</i>	Lalgeri	Fruits and Roots	Leaves used for cough, cold and fever. Roots used for jaundice, abdominal pain and also for snake bite remedy <sup>[8]</sup> .
2.	<i>Acorus calamus</i>	Bojho	Roots and Rhizome	Rhizome used for epilepsy, memory disorders, chronic diarrhea and flatulent colic <sup>[9]</sup> .
3.	<i>Hymenodictyon sp.</i>	Latikaran	Bark	Bark used for fever, tumors <sup>[10]</sup> and Hemorrhoids (Piles) <sup>[11]</sup>
4.	<i>Hypericum sp.</i>	Urila	Seed	Act as antidepressant <sup>[12]</sup> anti-cancer <sup>[13]</sup> anti-viral <sup>[14]</sup>
5.	<i>Kaempferia rotunda</i>	Bhui champa	Tubers	Act as bone settlers <sup>[15]</sup>
6.	<i>Leea macrophylla</i>	Bulyettra	Seed, Root and Leaves	Leaves used for gastric tumor, body ache and sexual disability <sup>[16]</sup>
7.	<i>Litsea citrate</i>	Siltimur	Fruits	Used for stomachache, gastroenteritis, diabetes and traumatic injury <sup>[17]</sup>
8.	<i>Lycopodium clavatum</i>	Nagbeli	Roots and Leaves	Used against kidney stones and urinary tract infections <sup>[18]</sup>
9.	<i>Melia azadirach</i>	Bakaina	Root	Used against malaria <sup>[19]</sup> and thypoid fever <sup>[20]</sup>
10.	<i>Mesua ferrea</i>	Nageeswari	Bark	Used as antipyretic, cardiotoxic and diuretic agent <sup>[21]</sup>
11.	<i>Marsdenia roylei</i>	Baahuni Lahara	Entire plant	Stem juice for peptic and gastric ulcers <sup>[22]</sup>
12.	<i>Myrica esculenta</i>	Katusi	Bark	Paste of bark used for paralysis, joint pains and for wound healing <sup>[23]</sup>
13.	<i>Nardostachys jatamansi DC.</i>	Jatamansi	Whole plant including roots	Used to treat hysteria, seizures and epilepsy <sup>[24]</sup>
14.	<i>Podophyllum hexandrum</i>	Bankankari	Fruit, Root, whole plants	Used for jaundice, liver disorders, syphilis <sup>[25]</sup>
15.	<i>Panax pseudoginseng</i>	Mangan	Roots	Used against Dyspepsia, asthma and palpitation <sup>[26]</sup>
16.	<i>Pteri biaurita</i>	Thado unew	Stem	Used against Dysentery and body pain <sup>[27]</sup>
17.	<i>Polygonum viviparum</i>	Ratnaula	Root	Used as antidiabetic, anti-inflammatory, and antitumor agent <sup>[28]</sup>
18.	<i>Rubus ellipticus</i>	Aiselu	Fruit and Roots	Used for bacterial infection, fracture bones, stomachache etc <sup>[29]</sup>
19.	<i>Rumex nepallensis</i>	Halhaley	Root	Used for treating syphilis, colic ulcer and skin sores <sup>[30]</sup>
20.	<i>Rhus semialata</i>	Bhakimlo	Fruits	Used for gastrointestinal and urinary related problems <sup>[31]</sup>
21.	<i>Rubia cordifolia</i>	Majito	Fruits and Root	Used to treat inflammation, Haematuria and ulcers related problems <sup>[32]</sup>
22.	<i>Rhododendron anthopogon</i>	Sunpati	Whole plant	Used to treat Headache, Rheumatism and Inflammation <sup>[33]</sup>
23.	<i>Rhododendron arboreum</i>	Laligurans	Flowers and young leaves	Used to cure heart problems and stomach ache <sup>[34]</sup>
24.	<i>Rauwalfia serpentina</i>	Sarpghanha	Roots	Used to cure high blood pressure, sleep disorder and mental agitation <sup>[35]</sup>
25.	<i>Selinum tenuifolium</i>	Bhut Kesh	Leaves and Fruit	Act as antibacterial, antispasmodic, Insect repellent <sup>[36]</sup>
26.	<i>Swertia chiraita</i>	Chiraita	Whole plant	Used for liver disorders, gastrointestinal infections and intestinal worms <sup>[37]</sup>
27.	<i>Sapindus mukrossi</i>	Ritha	Fruits	Used for excessive salivation, migranes and chlorosis <sup>[38]</sup>
28.	<i>Saussurea costus</i>	Kapisful, Kuth	Fruit, Leaves and Root	Used as anti- cancer, anti-ulcer and hepatoprotective activities <sup>[39]</sup>
29.	<i>Solanum nigrum</i>	Kalobehi	Fruit, Root and Leaves	Used as anti convulsant and Hepatoprotective problems <sup>[40]</sup>
30.	<i>Stephania glabra</i>	Taubarkey	Root Bulb	Used against asthma, analgesia and arthritis <sup>[41]</sup>
31.	<i>Xanthoxylum acanthopodium</i>	Bokey timbur	Fruit	Used against bleeding of gums and toothache <sup>[42]</sup>
32.	<i>Terminalia ballerica</i>	Barra	Fruit Bark	Used in hepatitis, piles, bronchitis, asthma and cough <sup>[43]</sup>
33.	<i>Toona ciliata</i>	Tooni	Flower Bark	Used in leprosy, blood infections and used as cardiotoxic <sup>[44]</sup>
34.	<i>Trichosanthes bracteata</i>	Indreyni	Fruit root	Used in wounds, boils and ulcers <sup>[45]</sup>
35.	<i>Tupistra nutans</i>	Nakima	Flower	Used as Anti- diabetic and also prevents anemia and osteoporosis <sup>[46]</sup>
36.	<i>Nephrolepis cordifolia</i>	Pani-amla	Tubers	Used as Hepatoprotective and natural contraceptive agent <sup>[47]</sup>
37.	<i>Urtica dioica</i>	Sisnu	Whole plant	Used as blood builder, anti-hemorrhagic and diuretic agent <sup>[48]</sup>
38.	<i>Viscum articulatum</i>	Harchur	Whole plant	Used against arteriosclerosis, arthritis and settling of fracture bones <sup>[49]</sup>
39.	<i>Valariena jatamansi</i>	Nakali jatamansi	Root	Used in blackening of hairs and to remove foul smell due to toothache <sup>[50]</sup>
40.	<i>Woodfordia fruticosa</i>	Dhayeroo	Flower, Bark	Used against dysentery, bowel complaints and haematuria <sup>[51]</sup>
41.	<i>Xanthoxylum allatum</i>	Bokey timbur	Fruits	Used as anti-diabetic agent <sup>[52]</sup>
42.	<i>Taxus baccata</i>	Dhengre salla	Leaf and Bark	Used for cold cough and hypertension <sup>[53]</sup>
43.	<i>Picrorhiza kurooa</i>	Kutki	Roots	Used to cure cough, fever, bile flow related problems <sup>[54]</sup>
44.	<i>Abies wabbiana</i>	Gobre salla	Leaves and Gum	Used against cough, Indigestion and tuberculosis <sup>[55]</sup>
45.	<i>Asparagus racemosus</i>	Kurilo	Tuberous	Used in Indigestion, tumor and bronchitis <sup>[56]</sup>
46.	<i>Astilbe rivularis</i>	Buriokathi	Leaves, Root and Rhizome	Used against inflammation and peptic ulcer <sup>[57]</sup>
47.	<i>Adatoda vasica</i>	Asuru	Bark, Flower and Root	Used in scabies, upper respiratory tract infections and rheumatic fever <sup>[58]</sup>
48.	<i>Aesandra butyraceae</i>	Chewri	Fruits	Used for liver protection, gastritis and urination tract infection <sup>[59]</sup>
49.	<i>Alstonia scholaris</i>	Chatiwan	Bark, Flower and Latex	Used for malarial fever, urticaria and skin disorders <sup>[60]</sup>
50.	<i>Berginia ciliata</i>	Pakhanbed	Root and Rhizome	Used to treat pulmonary infections, piles and dissolving stones in kidney and bladder <sup>[61]</sup>
51.	<i>Artemisia vulgaris</i>	Titaypati	Leaves	Used as antiseptic, stops nose bleeding, and also used as liver and spleen protective agent <sup>[62]</sup>

### Medicinal Plants and their uses

A total of 51 medicinal plants species from the Himalayan state of Sikkim have been listed in table with their medicinal properties based upon previous research data. All of the botanical information of these 51 plants species were evaluated and also confirmed using various online database site of Medicinal Plants.

### Conclusion

Medicinally important plants are one of the valuable part of traditional medicinal system practiced in the Himalayan region like Sikkim. Where people have huge belief about the potential of this medicinally important herb or plants which are easily available without causing any side effects. The overexploitation of natural resources including plants may also results in extinction of this valuable plant species and the

same way the transfer of traditional medicinal knowledge practiced by different ethnic groups may also get stopped. So it is very important to explore this medicinally important plants and to document the Ethnomedicinal value or uses of this medicinally important plants.

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