



Andrographis paniculata NEES- A TRADITIONAL HIGH VALUE MEDICINAL PLANT

**Popular
Article**

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ABSTRACT

Andrographis paniculata Nees (Acanthaceae) is also known as 'Bhuin Neem' is one among the prioritized a medicinal plant traditionally used in treatment of dengue fever, chronic constipation, liver disease, indigestion, abdominal gas and low appetite, diarrhea, diabetes, arthritis & cancer allergies, skin disease as well as against snake bite and agricultural uses etc. The plant is widely used in ayurvedic and homeopathic systems of medicines. Because of its over exploited of forest region for medicinal use, it has become present day an endangered plant. Recently its population is very scanty in nature, so its *ex-situ* and *in-situ* conservation is necessary.

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Introduction

About 3000 plants are known in India for their medicinal use and about 6000 plant are used as traditional, folk and herbal medicine. The country has about 2500-3000 species of medicinal plants and our dependence on medicinal plants has in no way minimized by the use of modern systems of synthetic drug whose use are not without side-effects.

Kalmegh, *Andrographis paniculata* Nees, commonly known as 'King of Bitter' is a genus of herbs and shrubs and short grain bearing herbaceous plant in the family Acanthaceae. It is originally from India and is native to South East Asia region such as Sri Lanka and certain parts of Thailand and Bangladesh. It is widely distribution in the tropical and moist regions of forest areas. It comprises of about 19 plant species found in India and Sri Lanka, certain parts of Thailand and Bangladesh. It is widely cultivated in southern and southeastern Asia, where it is used to treat infections and some diseases, often being used before antibiotics were created. Mostly the leaves and roots were used for medicinal purposes. In India it is grown in Assam, Bihar, Karnataka, Karla, Madhya Pradesh, and West Bengal. It is an erect annual branched, 0.3-1.1 meters in height, extremely bitter in taste in all parts of the plant body. The slender stem is dark green, squared in cross-

section with longitudinal furrows and wings along the angles. The lance-shaped leaves have hairless blades measuring up to 8 centimeters long by 2.5 wide. Flowers are small, solitary distant, in auxiliary or terminal racemes or panicles. The fruit is a capsule around 2 centimeters long and a few millimeters wide. It contains many yellow-brown seeds. It is in leaf from June to October, and flowering and fruiting from September to May. As the seeds mature, their colors turn yellow brown. The leaf and whole herb parts contain the medicinal properties, which is used for medicinal purpose. Mostly the aerial parts and roots are specially used by tribal farmers in Chhattisgarh. The plant in Sanskrit is described as "Sarvaroganivarani," which means a cure for all disease.

Habitat

The herb plant is found in a variety of habitat viz. plains, hill slopes, waste lands, farms, dry or wet lands, and sea shore and even in the road sideregion during July-August after rainy season.

Other Names of Kalmegh (Bhuinneem):

- **Sanskrit**-Kalmegha, Mahatikta, Bhuinimb
- **Hindi**- Kalmegh, Kirayat, Mahatita
- **English** – Green chirayta, King of bitter, Creat
- **Ayurvedic**- Kalmegh, Bhunimba, Bhuminimbak

- **Oriya-** Bhuinimba
- **Chhattishgarhi-** Bhuineem, Mahaneem, Bhuileem
- **Gujrati-** Kirayato, Olikiriyat
- **Bangali-** Kalmegh
- **Tamil-** Nilavempui

Botanical name: *Andrographis paniculata* Nees

Family: Acanthaceae

Synonym: *Justicia paniculata* Burm.f., *J. stricta* Lam., *J. latebrosa* Russel ex Wall.

Chemical constraints: Kalmegh contain flavonoids, iterpenoid lactones (Andrographolides), paniculides, famesols, polyphenols, arbinogalactan, protein. Kalmegh contains bitter principles of andrographolide, a bicyclic diterpenoid lactone and Kalmegh (upto 2.5%). The leaves contain the maximum active principle content while in the stem it is in lesser amount.

Medicinal Properties of *A. Paniculata*:

- Antibacterial, antifungal
- Antiviral, antipyretic, adaptogenic, anti-inflammatory
- Improves immunity, liver protecting
- Carminative, diuretic, gastric and liver tonic
- Choleric, hypoglycaemic, hypochlosterolemic
- Bitter tonic, blood purifying

Dosage: Fresh juice - 5-10 ml, Powder - 1-3 gm, Decoction - 50-100 ml

The morphology and physiology of *A. paniculata*

Plant Description: It is an erect annual branched, 0.3-1.1 meters in height, extremely bitter in taste in all parts of the plant body.

Stem- The slender stem is dark green, much branched, nodes slightly swollen; brittle, length 50-70cm and diameter 2-6 mm with longitudinal furrows and wings along the angles.

Leaf- The lance-shaped leaves have Pinnate, acute apex, entire margin hairless blades measuring up to 8 cm long by 1-3 cm wide.

Flowers- Flowers are small, white with rose-purple spots on the petals and solitary distant in auxiliary or terminal racemes or panicles.

Seed: The fruit of seed is a capsule linear-oblong, acute at both ends sub quadrate, numerous around 2 centimeters long and a few millimeters wide. It contains many yellow-brown seeds.

Phenology- It is in leaf from June to October, and flowering and fruiting from September to May. As the seeds mature, their colors turn yellow brown.

Parts used- Whole parts used.

Health Benefits and Therapeutic uses of *A. Paniculata*:

It is medicinally important

Plant and its major uses are as follow-

For all kinds of Fever: Kalmegh is an effective herb natural antibiotic that can be used to treat all kinds of fever, though it is best known for its use in treating dengue fever (malaria) and Viral fever affects liver badly. In such cases kalmegh protects liver and helps in faster recovery. For treating fever, make a decoction by pounding a tiny bit of turmeric, 4 to 5 peppercorns and 10 kalmegh leaves coarsely in a mortar and pestle and then boiling it in a cup of water till it is reduced in half. This decoction can be given to the children around 2 tbs and for adults around 3 -4 tbs will work well. Drink this decoction twice a day.

Liver related problems, Infection in intestine:

Kalmegh is especially useful in treating liver related diseases. Kalmegh decoction is a liver tonic. Many things affect the liver like too much alcohol consumption, powerful medications, eating foods sprayed with pesticide and consuming kalmegh is one of the best ways to keep the liver functioning properly. It exists hepatoprotective and hepatostimulative property. In traditional medicine system aqueous extract of kalmegh leaves is given for jaundice. For treating liver problems and jaundice, take leaves of Kalmegh (1 gm), Bhumi amla (1-2 gm powder), mulethi/liquorice (2 gm) in 200 ml water. Boil till to reduce water to 50 ml. After that filter it and drink.

Chronic constipation, Indigestion, abdominal gas:

Take amala powder (2 gm), kalmegh (2 gm), mulethi (2gm) and make decoction by boiling in 400 ml water till reduces to 100 ml. Filter it and can be used for drink.

Diarrhoea, gas and low appetite in children: Take leaves of kalmegh and cook in water till it thickens. Then add jiggery. When it cools down make small pills. Give these pills to children in diarrhoea, gas and liver related problems.

Skin problems: Kalmegh has blood purifying property. It removes toxins from bloods and helps in treatment of skin diseases. For treating skin diseases, soak amla/Indian gooseberry (2 gm) and kalmegh (3 gm) in a glass of water at night. Next morning filter it and drink.

For Diabetes, Arthritis & Cancer: Kalmegh is one of the most important herbs that is a 'sarvaroganivarani' meaning cure for all diseases. It decreases the blood sugar levels and is excellent for treating diabetic patients. Kalmegh prevents cancer cells from forming and it is a powerful cancer preventive medicine. Kalmegh has got anti-inflammatory properties making it ideal for treating arthritis and gout. A simple decoction made by boiling 15 to 20 leaves of fresh or dried kalmegh leaves in a cup of water till it is reduced in half can be used for treating all the above said diseases.

For allergies: Fresh kalmegh leaves are ground in a mortar and pestle along with very little water to get a smooth, thick paste. Take a pea sized amount of paste and make a ball and swallow it along with water. The bitterness might linger in the tongue for some time, if you find it very uncomfortable; just take a tiny amount of honey. This has to be taken in an empty stomach for 3 days continuously.

For Dengue Treatment: Take 1 part of a single papaya leaf, 10 kalmegh leaves, 5 peppercorns and 1 tbsp of palm candy powder, pound it once in a mortar and pestle and boil till it is reduced to half a cup. Drink it for 3 days in an empty stomach, for children reduce it by half. Both kalmegh and papaya leaves are very effective in treating dengue fever and this decoction works very well.

For Cold: Kalmegh can be used for treating all cold related problems. The fresh juice when taken internally is the best remedy for treating cold related problems. For treating cold, collect fresh leaves, wash them well and take them in a blender along with little boiled water, grind well and strain. It can also pound it in a mortar and pestle to get the syrup. For adults 1 tbsp can be taken and for children 1 to 2 tbsp will work well.

Uses for snake antidote: The whole plant has been used as anti-dote for snake-bite and poisonous stings of some insects.

Other uses:

Uses for anti-microbial activity:

Aqueous extract, andrographolides and arabinogalactan proteins isolated from the dried herb of *A. paniculata* were screened for anti-microbial activity. The result showed that the aqueous extract and arabinogalactan proteins have antibacterial activity against *Bacillus subtilis* (*B. subtilis*), *Escherichia coli* (*E. coli*) and *Pseudomonas aeruginosa* while andrographolide was only active against *B. subtilis*.

Uses for Insect control in Agriculture:

The ovicidal and larvicidal activity of the crude leaf extracts of *A. paniculata* is used against for the control of leaf eating caterpillars, borers, sucking pest

and beetles in vegetables and other crops. For this decoction 3 to 5 % of *A. paniculata* or *Sidaspinosais* used.

Conclusion

Andrographis paniculata is an important medicinal plant used to cure various diseases like leprosy, paralysis, rheumatism, diabetes, debility etc. Because of its over exploitation for medicinal use, its population continues to decline in nature. So it needs to conserve for future use.

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