



A Beautiful Plant *Sesbania grandiflora* (L.) Poir.

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Abstract

The August plant is very beautiful, its white flowers are very attractive, it is a small tree but has great medicinal value, it is used in Ayurveda, it has antibacterial properties, shows anti-cancer properties, shows wound healing activity, it is used in kidney stones, it is useful for TB disease, it is also given as feed to animals, it is full of properties

Key word

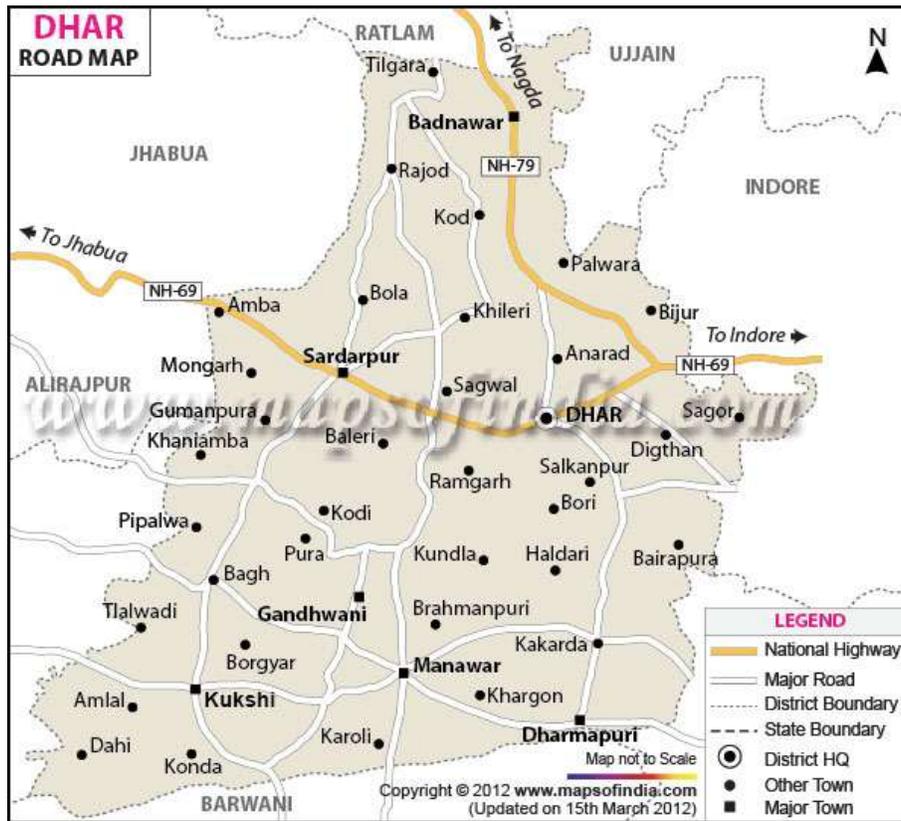
Sesbania grandiflora (L.) Antibacterial, Antiurolithiatic activity , Anthelmintic activity Anti-cancer activity

Introduction

It has been a wonderful source of natural medicines. Humans depend on forest medicines for various ailments. Around 10% of the world's population depends on medicinal plants for their health. *Sesbania grandiflora* is a subfamily of the family Fabaceae. Belonging to the Papilionaceae family, this plant is classified as an endangered species on the IUCN Red List, which was last updated in 2023. This plant is very helpful in improving soil fertility and nitrogen fixation. It is commonly used in Ayurveda for various ailments.

Study area

Dhar lies between 21°57' to 23°15' N and 74°37' to 75°37' E. The city is bordered by Ratlam to the north, parts of Indore to the east, Barwani to the south, and Jhabua and Alirajpur to the west. The city is 34 miles (55 km) west of Mhow. It is 559 m (1,834 ft) above sea level.



Dhar District Map

Classification

Kingdom: Plantae

Clade: Tracheophytes

Clade: Angiosperms

Clade: Eudicots

Clade: Rosids

Order: Fabales

Family: Fabaceae

Subfamily: Faboideae

Clade: Robinioids

Tribe: Sesbanieae

Genus: Sesbania

Species: *S. grandiflora*

Binomial name

Sesbaniagrandidiflora

(L Poiret.)

Names in different Indian languages :

English : Agati Sesban, Swamp Pea

Hindi : Agasti, hathya, hadga

Kannada : Agasi

Malayalam : Agasti, akatti, akatti chira

Sanskrit : Agastyah

Tamil : Agatti, attikkirai

Telugu : Avesi, avasinara

Synonyms

Agaticoccinea (L.f.)Desv., Agatigrandiflora (L.)Desv., Agatigrandiflora var. albiflora Wight & Arn, Agatigrandiflora var. coccinea (L.f.)Wight&Arn. Coronillacoccinea (L.f.)Willd., Coronillagrindiflora (L.)Willd., DolichosarboreusForssk., Emerusgrandiflorus (L.)Kuntze, Resupinariagrindiflora (L.)Raf. Robiniagrindiflora L., Sesbancoccinea (L.f.)Poir., Sesbangrandiflora (L.)Poir., Sesbangrandiflorus (L.)Poir., Sesbaniacoccinea (L.f.)Pers.

Commen name

Sesban, Humming bird tree

Vernacular name

Agasti, Basna, Hatiya (Hindi); Netti, Tentua, Agathi (Tamil); Agise, Avasinana, Avesi (Telugu); Agasthi, Buko, Avise (Oria); Agathicheera, Agathi, Agasthi, Argathi, Basna, Rudramaram (Malayalam)

Methodology

From time to time I visited various areas of Dhar district. I collected information about this plant from people. I studied various research papers. I took pictures with my mobile camera. I did literature search in Springer Link, Pub Med, Google Scholar, Semantic Scholar electronic databases. I got some important information by visiting various websites.



Sesbania grandiflora (L.) Poir. Seed

Plant description

This plant is very beautiful. Agati is a small erect quick-growing short-lived soft-wooded tree, growing up to 10 m tall. Bark is light gray, corky and deeply furrowed. Leaves are pinnate, 15–30 cm long, with 16–30 pairs of

linear oblong leaflets. Flower racemes arise in leaf axils, 2-4 flowered, up to 6.5 cm long. Flowers, white to pink, are pendulous. Each flower is 7–9 cm long. Pods are 50–60 cm long. It is believed to have originated either in India or Southeast Asia and grows primarily in hot and humid areas of the world. The flowers of Agati are eaten as a vegetable in Southeast Asia. The young pods and leaves are also eaten.

S. grandiflora leaves are highly nutritious and have been shown to contain significant amounts of proteins, fat, carbohydrates, fiber, and minerals such as iron, calcium, and phosphorus. The young leaves are edible and are quite *S. grandiflora* leaves are highly nutritious and have been shown to contain significant amounts of proteins, fat, carbohydrates, fiber, and minerals such as iron, calcium, and phosphorus. The young leaves are edible and are quite often used to supplement meals. often used to supplement meals.

Traditional uses

S. grandiflora is traditionally used for anti-inflammation, antimicrobial activities, anticancer, antidiabetic activities, anti-ulcer activity, an immunomodulatory activity, and associated diseases such as hepatic diseases, respiratory diseases, and renal diseases. *S. grandiflora* leaves and pods were reported palatable and non-toxic to cattle. Another report mentions that while the white flower variety of *S. grandiflora* found to be non-toxic

Digestive system

Vegetable of flowers and leaves is useful in constipation. The juice of the bark is used in chronic intestinal disorders with honey. Juice of flowers is used in purification of silver. It is also used in loose motions.

Antibacterial

Phytochemical screening of flowers yielded alkaloid, flavonoid, glycoside, reducing sugar, phenolic compound, steroid, terpene, saponin, and tannin. Various extracts were tested for antimicrobial activity against *Bacillus subtilis*, *B. pumalis*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Candida albicans*. The EtOH extract of flowers showed higher antimicrobial activity compared to other extracts.

Ayurveda

fruits are used for anemia, bronchitis, fever, tumors; flowers for gout, bronchitis, nyctalopia. In Ayurvedic literature, pacifies vitiated vata. Leaves are utilized for treatment of epileptic fits. Juice of leaves considered anthelmintic and tonic, and used for biliousness, itching, and night blindness. (Lakshmi, T. 2011)

*Sesbania grandiflora* Plant*Sesbania grandiflora*

leaf

Flowering twing

Sesbania grandiflora (L.) Poir. Flower

Fruit



Cytotoxicity / Antioxidant / Thrombolytic / Leaves and Stem Bark

Crude methanolic extracts of leaf and bark demonstrated strong antibacterial activity against *Bacillus megaterium* and *Aspergillus niger* as compared to standard kanamycin and ketoconazole. On cytotoxicity assay using brine shrimp and tamoxifen as standard, methanol extract of bark showed highest lethality compared to leaf extract. The ethyl acetate extracts of leaf showed moderated antioxidant activity using DPPH assay. The EA and ME of leaves exhibited significant thrombolytic activity compared to Streptokinase. (Afrin et al. 2019)

Anti-cancer activity

A flower extract from *Sesbania grandiflora* inhibits cell proliferation in lymphoma and colon cancer cells, induces apoptosis, and decreases tumour volume

Anti-Cancer: Study in Ehrlich ascites carcinoma-bearing Swiss albino mice showed the ethanol extract of *S. grandiflora* was effective in inhibiting the tumor growth in ascitic models that is comparable to 5-fluorouracil. (Sreelatha et al. 2011)

Wound healing activity

The healing activity of 2%w/w and 4%w/w of ethanolic flower extract as a mild ointment base was compared with 0.2% w/w of Nitrofurazone ointment. Notable activity was observed for flower extract from the 4th day onward in the excision and incision wound models in Wistar rats. Phytoconstituents like tannins in the flower extract help with the tissue rejuvenation (Sheikh et al. 2011)

Antiuro lithiatic activity: *Sesbania grandiflora* leaf juice was evaluated for median lethal dose, antiuro lithiatic and antioxidant activities. In that the antiuro lithiatic activity was evaluated by a calculi-producing diet model, in rat gentamicin and 5% ammonium oxalate used for to induce calcium oxalate-type stones for evaluation of antiuro lithiatic activity (Doddola et al. 2012)

Kidney stone disease or often also known as nephrolithiasis is caused by a buildup of minerals and salts in the kidneys. Urinary tract stones generally contain elements: calcium oxalate, calcium phosphate, uric acid, magnesium-ammonium phosphate (MAP), xanthin and cystine (Hasanah, U. 2016).

Tuberculosis: Extract and isolate compounds from the root of *Sesbania grandiflora* that possessed activity against Mycobacterium tuberculosis H37Rv. The methanol extract exhibited moderate activity, while the isoflavonoid compounds showed good anti tubercular activity. (Hasan et al. 2012)

Analgesic activity

The antipyretic activity of flowers of *Sesbania grandiflora* was reported by the three different extract that was petroleum ether, ethyl acetate and ethanol as solvent were tested on albino rats and for analgesic activity tested using Tail Flick methods. The ethyl acetate extract of flowers of *Sesbania grandiflora* showed better analgesic and antipyretic activities with respect to petroleum ether and ethanol extract.

Anthelmintic activity

Sesbania grandiflora plant extract was reported for anthelmintic property against the organism like Pheritima pashuma. The seed oil used for study in that three different concentrations were used (10, 50, 100 mg/ml) which involved the determination of time paralysis and time of death of the worm. (Jalalpure et al. 2008)

Fodder

Sesbania grandiflora is valued as a fodder in many regions. In south-central Lombok, Indonesia, it is grown on bunds around paddy fields, provides up to 70 percent of the diets of cattle and goats during the annual eight-month dry season. The leaves contain as much as 25-30 percent crude protein. Leaves and pods are valued for fodder. The tree produces leaves for fodder within 4 months of establishment. The leaves also contain 9600 IU vitamin A in every 100 g. For fodder production, the tree is cut when 90-120 cm tall (1.8 kg) and fed to animals mixed with rice straw.

Conclusion

This plant is very beautiful; its white buds look very beautiful. It is grown in gardens for its beauty. It performs the important function of nitrogen fixation in the soil. It also provides food to animals. It is also useful in the treatment of various diseases like TB. It exhibits wound healing activities, kidney stone anti-cancer activity and antibacterial activities, that is, considering its usefulness, it is important to preserve it in nature and it should be planted in gardens for its beauty so that the plant remains useful for the welfare of humanity.

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