

Garlic Vine- A Creeper with The Aroma of Garlic Cloves

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The crushed leaves of garlic vine species are traditionally highly recognized for their strong garlic scent. This species is a member of the genus *Mansoa* (Bignoniaceae), and because of their smell, which is similar to garlic's, mansoa leaves are often used as a spice or to treat colds. The Amazon, Brazil's Atlantic coastal forests, and the tropical rainforests of Central America are home to the greatest diversity of mansoa. Five of the eighteen species described—*Mansoa alliacea*, *Mansoa difficilis*, *Mansoa hirsuta*, *Mansoa hymenaea*, and *Mansoa standleyi*—have been the focus of extensive scientific research. These plants have been found to contain secondary metabolites such as triterpenes, flavonoids, phenolic acids, naphthoquinones, saponins, and essential oils. Nevertheless, the phytochemical components of these species have the presence of organosulphorated compounds.

Garlic creeper, commonly called false garlic, is native to Amazon forests. The leaves of the garlic vine have several pharmacological properties. The plant constituents diallyl disulphide, allicin, and propyl allyl are reported to be antimicrobial, antifungal, anticancer, and antiplasmodial. The powdered leaves can be a substitute for garlic cloves. Generally, garlic creepers in India are grown as ornamental plants.

Common name – Garlic vine

Scientific name - *Mansoa alliacea*

Family- Bignoniaceae

Synonyms- *Adenocalymma alliaceum* (Lam.) Miers

Adenocalymma sagotii Bureau & K.Schum

Bignonia Alliaceae

Pachyptera alliacea

Vernacular names

English- False garlic. Wild Garlic

Hindi – Lahan Bel

Malayalam- Veluthulli chedi

Tamil- Vellullipachai

Kannada- Bellulli balli

Bengali- Lata parul

Manipuri- Chanameli

Origin- Amazon rainforest

Economic important parts- leaves, flowers and bark

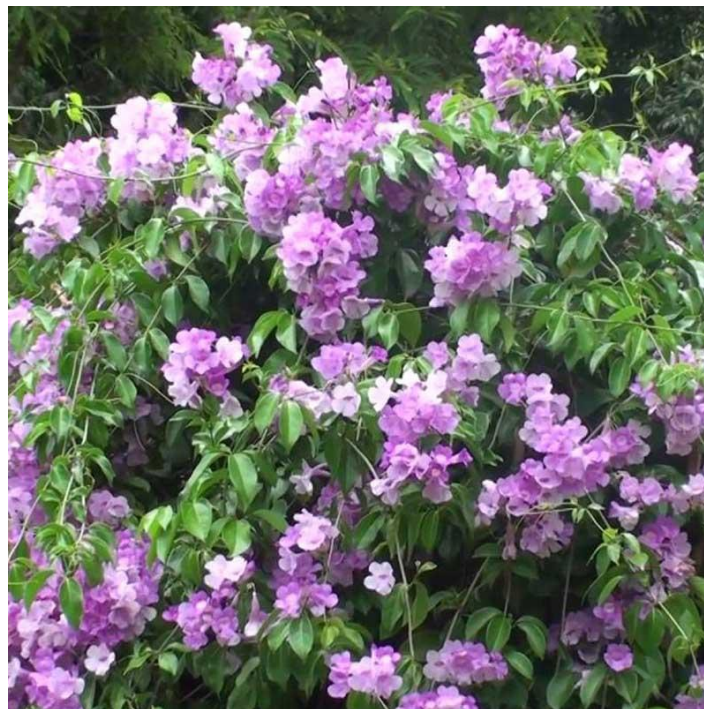


Fig. 1. Garlic creeper as an ornamental plant

Plant description



Fig. 2. Close view of garlic creeper leaves

This evergreen tropical shrubby vine is indigenous to the Amazon rainforest. It is widespread throughout the tropical regions of South America. It can be categorised as either a vine or a shrub because it

produces numerous woody vines from the root that are only 2-3 m tall and resemble shrubs. It has bright green leaves up to 15 cm long and beautiful deep lavender flowers with a white throat that fades to pale lavender and finally almost white. The plant simultaneously displays all three of the flower colours.

The vine *Mansoa alliacea* grows at a moderate pace. It can be grown in pots, and when the flowers fade, it needs to be trimmed. Plants in pots measuring 12–20 cm (5-8 inches) should be kept to a maximum height of about 90 cm (35 inches); training new growth around an inverted hoop made of wire or rattan cane is one way to keep them within reasonable bounds.

Habit- Evergreen climber

Climate- The plant requires bright light and direct sunlight, with temperatures around 24 to 30 degrees Celsius.

Chemical constituents

The plant is reported to be rich in allyl sulfides, allin, 24Ethyl-cholest-7-en-3-beta-ol, 3- beta -hydroxy-urs-18-enoic acid, alpha-4-hydroxy-9-methoxy-lapachone, alpha-9-methoxy-lapachone, apigenin, aspartic acid, beta-sitosterol, beta-amyrin, beta-peltoboykinolic acid, cosmosiin, daucosterol, diallyl sulfides, dithiacyclopentene, dotriacontan-1-ol, fucosterol, glutamic acid, glycyrrhetol, hentriacontanes, hexacosan-1-ol, hexatriacontans, leucine, luteolin, n-nonacosane, oct-1-en-3-ol, octacosan-1-ol, pentatriacont-1-en-17-ol, scutellarein-7-O-beta-d-glucuronide, stigmasterol, triacontanol-1-ol, triallyl sulfides, trithiacyclohexene, n-tritriacontane and ursolic acid (1–3).

Medicinal uses

The plant is used against arthritis, rheumatism, colds, and flu and as a pain reliever. The plant also acts as an anti-inflammatory, antihistamine, antioxidant, antispasmodic and diuretic, and muscle relaxant.

Anti-inflammatory activity

The leaves of garlic creeper show anti-inflammatory activity due to the release of inflammatory mediators like serotonin, and prostaglandin in edema-induced albino rats(4).

Anti-oxidant and anti-cancer activity

High levels of flavonoids and phenols indicate potent antioxidant properties. Because of their hydroxyl group, phenolic compounds can scavenge and are therefore considered powerful chain-breaking

antioxidants. They also directly contribute to the anti-oxidative action of plants. The water extracts of garlic leave at lower doses show anti-cancer activity at very lower doses. The extract targets T3-HA cancer cells, and the allicin and diallyl sulfide show anti tumor suppression effect (5,6).

Anti-helminthic and anti-fungal activity: Insilco studies have shown that four phytochemicals apigenin, lutein and ursolic acid are against beta tubulin. Leaf extract of 4% has significantly reduced the *Colletotrichum acutatum* (7,8). The garlic creeper leaf extract exhibited the maximum inhibition zone of 18 mm at 25% concentration against *Colletotrichum musae* (9). An aqueous extract of garlic creeper leaves (*Adenocalyxmna alliaceum* Miers.) was tested against a variety of fungi to determine its antifungal activity. As determined by spore germination inhibition, the extract exhibited a wide range of fungitoxic properties. The spore germination of *Alternaria brassicae* (Berk.) Sacc. was found to be 72% inhibited after 5 minutes of extract exposure, and 100% inhibited after 10 minutes. The extract's inhibitory principle exhibited a robust shelf life at 10°C and demonstrated thermostability after being stored at 60°C for one hour and boiling at 100°C for three minutes. However, after boiling for five minutes, the extract's inhibitory activity dropped to 70% and vanished entirely after ten minutes(10). The ethanolic extracts of the garlic creeper are reported to have an anti-nociception effect in the inflammatory pain model, this might be because of the presence of ferulic chlorogenic acids. The chloroform leaf extracts of garlic creeper were found effective against the spore germination of *C. gloeosporioides* and *B.theobrame* followed by methanol extract in mango.

Zimmu (*Allium cepa* X *Allium sativum*) and garlic creeper (*Allium alliaceum*) were tested for their ability to inhibit the growth of *Colletotrichum musae* (Berk. & M. A. Curtis) arx, which causes banana anthracnose. The Agar well diffusion test was used to screen for antifungal activity in the botanicals. The test efficacy of the botanicals was obtained by utilizing cold and hot water, leaf extracts, and solvents such as acetone, chloroform, hexane, methanol, and petroleum ether at varying concentrations. In comparison to hot water extract, which showed maximum inhibition zones of 17 and 16 mm, respectively, cold water extract of Zimmu and Garlic creeper showed maximum inhibition zones of 18 mm at 25% concentration. The highest inhibition was seen in the methanol extract of both plant extracts

(9). The antifungal activity of an aqueous extract from the leaves of the garlic creeper (*Adenocalymma alliaceum* Miers.) against eighteen different fungal organisms was studied. The extract showed broad range fungal toxicity. After five hours, the test fungal spores' germination was reduced by 70–80%, and after ten hours, there was a complete inhibition. The extract's inhibitory active principle remained stable after one hour at 60°C and four minutes of boiling at 100°C. Nevertheless, after boiling for six minutes, the extract's inhibitory activity dropped to 70% and vanished entirely after ten minutes(11).

Propagation- Cuttings, semi-hardwood cuttings with 3 to 5 nodes are preferred for propagation.

Hydro distillation of essential oils

The oils from the garlic creeper leaves can be extracted using the Clevenger apparatus (Hydro distillation). The finely chopped leaves are added into a round bottom flask and water with 1:5 (leaf: water) is taken. The initial temperature of 80 degrees Celsius and the final temperature of 50 degrees Celsius were maintained.

Duration – 3 to 4 hrs.

Conclusion

Mansoa alliacea (Lam.) A.H. Gentry, sometimes known as "false garlic" or "garlic vine," is a member of the Bignoniaceae family. The taxonomy, morphological characteristics, chemical constituents, traditional uses, phytochemical and pharmacological properties, habit and habitat, and other aspects of *M.alliacea* are covered in this short article. The plant is extremely valuable medicinal, the plant parts are widely used in folk medicine to treat colds, aid in fertility, feverish conditions, flu, body aches, cramps, fatigue, repel mosquitoes and snakes, epilepsy, uterine disorders, etc. They are also frequently added to baths. Dialyl disulfide, diallyl trisulfide, divinyl sulfide, diallyl sulfide, dimethyl sulfide, daucosterol, and alliin are among the chemicals that make up the plant. This article will serve as an eye-opener regarding the potential of *M. alliacea* and promote additional research on the

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