



## **The Mythological Medicinal Plant; Nyctanthes Arbor-Tritis.**

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### **ABSTRACT:**

Nyctanthes arbor-tristis Linn. (Oleaceae) is a fragrant flowering plant that has a wide range of medicinal applications in traditional systems of medicine such as Ayurveda, Homeopathy, Unani, and Siddha. The plant contains various bioactive compounds such as arbortristiside-A, arbortristiside-B, astraglin, nicotiflorin, quercetin and others that exhibit anti-helminthic, anti-pyretic, laxative, rheumatism treatment, skin cure, and sedative properties. The plant is also used in pharmaceuticals, food, cosmetics, folk medicines, textiles, and more. This review study aims to provide an overview of the plant's ethnobotany, nanosciences, industrial endeavors, and conservation in natural habitat based on the available literature.

**Keywords :** Nyctanthes Arbor-tritis, phytochemicals, pharmacological activities, toxicity .

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### **Introduction:**

Ayurveda is a science that teaches the treatment and prevention of diseases. Unlike many diseases, it is based on natural products obtained from plants. One such herb is Parijata, which is highly valued in Ayurvedic literature [1].

Nyctanthes arbor-tristis Linn. Oleaceae is a beautiful plant that blooms at night [2]. In the morning, the flowers fall to the ground, causing the plant to look dull throughout the day. The botanical name Nyctanthes means "night flower" in Greek [3], while arbor-tristis means "tree" and describes a tree seen during the day [4]. This plant has many medicinal uses in India and other parts of Asia[5].

It is also the flower of West Bengal, India and Kanchanaburi, Thailand.[6]

The leaves of this plant are single and opposite, with smooth edges, 6-12 cm long and 2-6.5 cm wide. The flowers are white, the petals are orange-red, and each flower has five to eight lobes. They come in groups of two to seven, opening at night and closing at dawn. They have a sweet scent. The fruit is a brown, flat, heart-shaped or round capsule and contains two seeds, one on each leaf [7].

In industry, food, cosmetics, folk medicine, textile, etc. plants used. Its applications in many fields make it attractive to research and business worldwide. It is a herb widely used in various medical systems such as Ayurveda, Homeopathy, Unani and Siddha. The first and most important medicine in ancient medicine is the plant [8]

The herb has been shown to be effective in treating fever, biliary tract diseases, liver diseases, rheumatism, severe sciatica, malaria, bronchitis, wound healing, skin diseases, minor stomach aches, bitter taste and bleeding. In Ayurvedic medicine, this plant has antiseptic, antibacterial, laxative, antirheumatic, skin healing and soothing properties [9].

This study shows that N. Arbor-tristis is such a plant. N. Arbor-tristis is native to the southern Himalayas and grows naturally from southern Nepal to Janabush, Myanmar, Assam, central India, Bengal, Rajasthan, Madhya Pradesh, Chotto Nagpur and Go Davari. [10].

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### **Classification :**

This Taxonomic Classification is according to the APG-IV (Angiosperm Phylogeny Group IV system) 2016

**Kingdom:** Plantae **Class:** Eudicots **Division:** Angiosperm **Order:** Lamiales.

**Family:** Oleaceae

**Genus:** Nyctanthes

**Species:** arbortristis

**Synonyms of Parijat :**

There are multiple names for Parijat in various classics. Its numerous names reflect aspects of its appearance, such as color and fragrance, as well as the utilization of flowers and foliage. **Parajataa, hara singhara, sephali, raga pushpi kalrapatruk, seplalika, pushpaka, nala-kuukkuma prajakta, and rakta kesagg** are among the various synonyms.

#### Significance of synonyms :

**Raaga-pushpi:** Its flowers have very beautiful and attractive colours.

**Shephalika:** Many honey bees reside on this tree.

**Khara-patraka:** Its leaves are rough texture.

**Naala-kukuna:** Corolla tube is orange in color.

**Hara-singhaara:** Lord Hari is decorated by Parijat pushpa.

**Rakta-kesara:** Red color corolla.[11]

#### Vernacular names :

(Ruchita Srivastava et al 2018) **English:** Coral jasmine. Night jasmine **Hindi:** Harishankar, Sihau. Seoli **Sanskrit:** Parijata. Parijath, Sephalika **Gujarati:** Jayapagyati. Panjatak

**Bengali:** Sephalika, Seoli

**Kannada:** Goli, Harsing. Parijata

**Marathi:** Kharbadi, Klaass Kluwaeli, Patutak

**Tamil:** Manjhapu. Pavala-malligai

**Telugu:** Kapilangadustu. Pagadamaile Parjat

#### Botanical description :

*N. arbor-tristis* Linn is a plant that can reach 10m in height. Its outer bark is rough and hard, with a dark grey or brown colour. The inner bark is soft and white, with a clear distinction between the collapsed and non-collapsed parts of the phloem zone (Biswas et al, 2011). The leaves are arranged in pairs, with a pointed or sharp shape and a smooth or toothed edge. The leaf stalks are long & hairy and measure 5-7 to 7 7-10 cm in length, with a hollow center. The veins are single and branched. The leaf blade is oval with a sharp or pointed tip. The flowers are small and fragrant, with thin, hairy and short branches that divide into three. The flowers have six petals that are easy to see, but sometimes they have five, seven, eight or nine petals, which is rare (Sandip Pal, 2019).

#### Philology :

Philology of Parijat is "Paarinaha Samudrath jaatho va parijatah":- it's referred to as "The ocean gave birth to Parijata after a deep search." [12]

#### Name of Parijata in different Ayurvedic literatures:

Sl. No	Name of Literature	Name of verga (group)
1	Hridaya-deepika Nighantu [13]	Ekakapada verga
2	Shaligram Nighantu [14]	Pushpa verga
3	Bhavaprakasha Nighantu [15]	Guduchayadi verga
4	Nighantu Aadarsha [16]	Jatyadi verga
5	Priya nighantu [17]	Hartiakyadhi verga

#### Used part, dose and dosaghnata :

Usually leaf, root, flower and seed of Parijata are used in different dosage form, like juice, powder, decoction etc. For various diseases conditions. It is specifically used to pacify the diseases occurring due to vitiation of vata and kapha

Dose of Parijata is different as per the different dosage form like; For swarasa (juice): - 10-20ml

For chuma (powder) – 1-3 gm

For kyatha (decoction): - 50-100 ml [18]

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### TRADITIONAL USES:

- I. Flowers have many medicinal properties such as improving digestion, reducing mucus, healing wounds and ulcers, preventing hair loss and premature graying. The flowers contain a yellow pigment called crocin, which is the same as crocetin found in saffron. In the past, flowers were used for dyeing, sometimes in combination with sunflower or turmeric. Flowers can also use to treat infertility in women, relieve muscle tension, and cure skin diseases. These flowers are good for oral health and can get rid of mouth ulcers. Flowers may also reduce gas, increase appetite, and help relieve inflammation. These flowers will also help treat gout. Flower water applied to the hair can prevent baldness and gray hair [19,20].
- II. The leaves of this plant are especially useful for relieving cough. A mixture of leaf juice and honey is taken three times a day to reduce cough. Leaves and honey are also used to treat fever and high blood pressure [21].
- III. The stem bark of this plant has many medicinal uses. It can help relieve joint pain from rheumatism as well as malaria and cough. It also cures snake bites and breath. To cure malaria, boil bark, ginger and shepherd's purse in water and drink it for two days [22].
- IV. The seeds of this plant have many medicinal properties. They can treat vitamin C deficiency, hair loss and worm infections. They also help to reduce bile and clear the lungs, and are beneficial for people with fever caused by bile. The seeds in powder form can heal scalp and skin problems, as well as hemorrhoids [22].

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### Chemical constituents of *Nyctanthes arbor-tritis* :

#### Leaves

The leaves have many phytochemicals that are used in Ayurveda for treating various ailments. Some of these are D-mannitol, B-sitosterole, Flavanol glycosides, Astragaline, Nicotiflorin, Oleanolic acid, Nyctanthic acid, Tannic acid, Ascorbic acid, Methyl salicylate, resinous substances, Amorphous glycoside, Amorphous resin. Trace of volatile oil, Carotene, Friedeline, Lupeol. Mannitol, Glucose, Fructose, Iridoid glycosides, Benzoic acid. These compounds have been reported to have anti-inflammatory, antipyretic, analgesic, and laxative properties [23].

#### Flowers

The flowers have many phytochemicals that are related to jasmine [18]. Some of these are modified diterpenoid nyctanthin, flavonoids, anthocyanins and an essential oil. The flowers also have modified essential oil, Nyctanthin, d- mannitol, Tannin, Glucose, Carotenoid, Glycosides, monogentiobioside ester of a-crocetin (or crossing-3),  $\beta$ monogentiobioside, i-D monoglucoside ester of a-Christian, B- digentiobioside ester of a-crocetin [24].

#### Stem

B-sitosterol, Glycoside-naringenin-4-0-1-glucapyranosyl-axylopyranoside and Flower oil are some of the plant chemicals in the stem. The flower oil contains p- cymene a-pinene, 1- hexanol methyl heptanone, phenyl acetaldehyde, I-deconol and anisaldehyde among other substances. The stem also contains B-Amyrin, arbortristoside-a, oleanolic acid, nyctoside-a, nyctantic acid and 6. B- hydroxyloganin [25].

#### Seeds

The seeds contain plant chemicals such as Arbortristoside A&B, Glycerides of linoleic acid, oleic acid, lignoceric acid, stearic acid, palmitic and myristic acids, nyctanthic acid, 3-4 secotriterpene acid, a water soluble polysaccharide consisting of D-glucose and D mannose [25].



Img.(1) Parijat Leaves.



Img.(2) Parijat Flowers



Img.(3) Parijat stem



mg.(4) Parijat seeds

**Therapeutic effects of *Nyctanthes arbor-tristis* :**

Img.(5) Parijat therapeutic effects

Joint pain:	Parijat oil can help to reduce bone and joint pain. According to Ayurveda, bones and joints are considered a site of Vata in the body. Pain in the joints is mainly caused due to an imbalanced Vata. Applying Parijat oil helps to reduce joint pain due to its Vata-balancing property [26].
Anti-Allergy Activity	According to Rathee et al. (2007), <i>Nyctanthes arbor-tristis</i> contains the antiallergic compounds arbortristoside A and arbortristoside C [27].
Anti-Oxidant activity	The ability of various <i>Nyctanthes arbor-tristis</i> leaf extracts to scavenge free radicals was assessed in vitro [28].

Antipyretic	Parijat can reduce fever by acting on the hypothalamus and lowering the body temperature [29].
Anti-inflammatory	Parijat can inhibit the production of inflammatory mediators and reduce swelling and pain [30].
Anthelmintic	Parijat can kill or expel parasitic worms from the intestines by affecting their nervous system or metabolism [31].
Sedative	Parijat can induce sleep or calmness by modulating the activity of the central nervous system [32].
Laxative	Parijat can stimulate bowel movements and relieve constipation by increasing the peristalsis of the colon [33].
Expectorant	Parijat can facilitate the expulsion of mucus from the respiratory tract by increasing the secretion of bronchial glands [34].

Hepatoprotective	The plant has the ability to safeguard the liver against harmful substances and medications. It also enhances the performance of the liver and avoids liver disorders such as inflammation and scarring [35].
Antimicrobial	The plant can fight against various microorganisms such as bacteria, fungi, viruses and parasites. It can also prevent infections and boost immunity [36].
Anticancer	The plant can stop the increase and spread of cancer cells. It can also cause cell death and block the movement of cancer to other parts of the body [37].
Anti-Diabetic activity	Root extract of <i>Nyctanthes Arbortristis</i> is used in diabetics. The extract has effective and safe anti-diabetic properties. The extract was made by using a hot continuous extraction method to extract 50g of root powder for 18 hours with 400ml of methanol [38].
Membrane Stabilizing Activity	<i>N. Arbortristis</i> was used as a source for the isolation of a carotenoid aglycone, Ag-NY1, which was found to be crocetin. This compound was extracted from the orange-colored tubular calyx of the flowers and, when compared to the glycoside crocin, showed a higher membrane stabilizing activity [39].

Table. (1) Therapeutic effect

### SIDE EFFECTS:

Parijat plant with many medicinal benefits, but it also has some potential side effects that you should be aware of. According to some web sources, some of the side effects of using Parijat are,

Stomach irritation, nausea, vomiting, and liver damage	These can occur if you consume large amounts of Parijat leaves, which contain tannic acid. Tannic acid can irritate the lining of your stomach and cause digestive problems. It can also affect your liver function and cause damage to your liver cells [40].
Nose or throat cancer	This is a rare but possible risk of using Parijat leaves regularly. The high levels of tannin in the leaves can increase the chance of developing cancer in the nose or throat, especially if you smoke or chew tobacco [40].
Gastric lesions	These are ulcers or sores in your stomach that can cause pain and bleeding. They can be caused by the presence of methyl salicylate in Parijat leaves, which is a chemical that has anti-inflammatory and pain-relieving properties. However, too much methyl salicylate can damage the protective layer of your stomach and cause lesions [41].

### Conclusion:

As per the traditional materia medica, because of tikta rasa, ushna virya and laghu gunait's employed in kapa vitiated diseases, because of ushna viryait's employed in vata diseases, conjointly because of tikta rasa it causes sassausive of the amadosa and excess jathara-pitta (gastric acids), successively vital sign is reduced. Curlicue is generally used for industrial functions compared to different components of the plant. On chemical and phytochemical analysis, it's found that, the plant contains several active principles additionally as completely different bio-markers. B- Sitosterol *Nyctanthes* acid, tannin, linoleic acid, D-mannitol and oleic acids square measure richly found in leaves, is also answerable for its high effectivity. Multi active ingredients gift in several components of the plant is also the reason behind it's broad-spectrum therapeutic use. It's established that linoleic acid which is an essential fatty acid have medicament result. Over all Night Jasmine (*Nyctanthes arbor-tristis*Linn.) may be a vital flavoured drug currently and so.

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