

A REVIEW ON NYCTANTHES ARBORTRISTIS

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ABSTRACT

Nyctanthes arbortristis is one of the most useful traditional plants in India. It is native to India and distributed wild in Sub-Himalayan regions. Its different parts are known to possess different pharmacological activities in Indian system of medicine. The plant contains various Phytochemical like flavonol, glycosides, oleanic acid, essential oil, tannic acid, carotene, friedline, lupeol, glucose, benzoic acid present in various parts of plants which have significant hepatoprotective, antiviral, antifungal, antipyretic, antimalarial, antibacterial, anti-inflammatory, antioxidant activities. The article reviews on is an attempt to compile and documented information on different aspect of *Nyctanthes arbortristis* pharmacological properties

and highlights the need for research ant their potential development.

KEYWORDS: *Nyctanthes arbortristis*, Phytochemical Constituents, wound healing jasmine, antimicrobial.

INRODUCTION

Nyctanthes arbortristis is popularly known as the “Night Jasmine” or Harsingar due to the fact that its flowers emit a very strong and pleasant fragrance during the whole night. The specific name arbortristis means “sad tree” is supposedly derived from dull looks of the tree during day time. *Nyctanthes arbortristis* is a large shrub or a small tree widely cultivated in tropical and subtropical regions all over the world. Leaves, fruits, flowers, stems and barks have pharmacological activity. *Nyctanthes arbortristis* plant have been screened for anti-malarial activity, anti-histaminic activity, anti-arthritis activity, anti-hypnotic activity, analgesic, anti-ulcer, antipyretic, antidepressant, anti-leishmaniasis, anticancer activity, anti-

larvicidal, anti-allergic, anti-viral activity, immunomodulatory activity, anti-helminthic, antioxidant, anti-diuretic and CNS modulators.^[1]

Taxonomical Classification

Kingdom	Plantae
Order	Lamiales
Division	Magnoliophyt
Class	Magnoliopsida
Family	Oliaceae
Genus	<i>Nyctanthes</i>
Species	<i>Arbortristis</i>

NAMES IN DIFFERENT LANGUAGES

Hindi Name: Harsingar

English Name: Coral jasmine, Night Jasmine

Bengali Name; Sheoli, Shefalika

Gujarati Name: Harshanagar

Kannada Name: Parijata

Marathi Name: Parijatha

Telugu Name: Parijatam



Fig: 1 *Nyctanthes Arbortristis*.

Geographical Distribution

Nyctanthes arbortristis is native to Southern Asia, stretching across northern Pakistan and Nepal through Northern India to Southern Thailand. It is found on rocky ground in dry hillsides and as undergrowth in dry deciduous forests. In India it grows in the outer Himalayas and is found in tracts of Jammu and Kashmir, Nepal to East Assam, Bengal, Tripura extended through the Central region upto Godavari in the South. *Nyctanthes* prefers a semi-shady place to grow.^{[2][3]}

Propagation

Rapid shoot multiplication of *Nyctanthes arborescens* was achieved from axillary meristems. Basal medium supplemented with 1.0-1.5 mg 6-Benzylaminopurine (BA), 50 mg Adenine Sulphate (Ads) and 3% (m/v) Sucrose. Inclusion of 3-Indole-3-acetic acid (IAA) in the medium along with BA+Ads promote a higher rate of shoot multiplication. The elongated shoots rooted within 13-14 days on half strength MS medium supplement.^[4]

CHEMICAL CONSTITUENTS

Leaves: Leaves contain D-mannitol, beta-sitosterole, flavonol, glycoside, Astragaline, Nicotiflorin, Oleanolic acid, Nyctanthic acid, Tannic acid, Ascorbic acid, Methyl salicylate, Amorphous glucoside, Resin, traces of volatile oil, Carotene, Friedline, Lupeol, Glucose, Fructose, Iridoid glycosides, Benzoic acid.^[5]

Flowers: Flowers contain essential oils, nyctanthin, D-mannitol, tannin, glucose, carotenoid, glycosides, beta-monoglucosides ester of alpha-crocetin (crocin-3), beta-D-monoglucoside ester of alpha-crocetin-digentiobioside ester of alpha-crocetin (crocin-1).^[6]

Seeds: Seeds contain arborescenside A&B, glycerides of linoleic acid, oleic acid, lignoceric acid, stearic acid, palmitic acid, myristic acid, nyctanthic acid, 3,4-secotriterpene acid, water soluble polysaccharides composed of D-glucose and D-mannose.^[7]

Bark: Barks contain glycosides and alkaloids.

Stem: Stems contains glycosides naringenin, 4-O-beta-glucopyranosyl-alpha-xylopyranoside and sitosterol.^[8]

Flower Oil: Flower oil contains alpha-pinene, p-cymene, 1-hexanol methyl heptanone, phenyl acetaldehyde, 1-deanol and anisaldehyde.^[9]

PHYTOCHEMICAL CONSTITUENTS

Phytoconstituents From Leaves: The new benzoic esters of Loganin namely Arborside-A, Arborside-B and C are found to be present in the leaves. From leaves 10-Benzoylnyctanthoside named as Arborside-D were isolated. A phenyl propanoid glucoside Desrhamosylverbascoside was reported from the leaves. Leaves also contains alkaloid, nyctanthine along with Amyrin and hentriacontane.^[10]

Phytoconstituents From Seeds: Seeds give water soluble polysaccharides contains D-Glucose and D-Mannose indicates that the polysaccharide is a Glucomannan. Further examination of seeds lead to the isolation and identification of two minor Iridoid glucoside Arbortistoside D and E. Other glycosides reported are Nyctanthoside and Nyctoside – A^[11]

Phytoconstituents From Flowers: Ethanolic extract from the flowers led to the isolation of an antiplasmodial cyclohexylethanoid, rengyolone, a new iridoid glucoside 6-O-trans-cinnamoyl-7-O-acetyl-6-beta-hydroxyloganin.

Phytoconstituents From Roots: The root part of the plant composed of alkaloids, tannins and glycosides. From the chloroform extract of the root beta-sitosterol and oleanic acid has been isolated.^[12]

MICROSCOPY OF PLANT

Leaves: Leaves are opposite 5-10 by 2.5 to 6.3 cm, ovate, acute or acuminate, entire or with a few large distant teeth, short bulbous hair rounded or slight acuminate; main nerves few, conspicuous beneath, petiole 6 cm long, hairy. The lamina is ovate with acute or acuminate apex. The margin entire or serrated, somewhat undulated near the base. The upper surface dark green with dotted glands and lower surface pale green and soft pubescent. *Nyctanthes arbortristis* venations is unicostate, reticulate with an average of 12 lateral veins leaving a midrib. The petiole are about 5-7 to 7.7-10mm long with axial concavity.

Flowers: Flowers are small, delightfully, fragrant, sessile in pendaculate bracteates fascicles of 3-5; peduncles 4 angled, slender, hairy, auxiliary and solitary in terminal short trichotomous chymes; bracts broadly ovate 6-10 mm long, apiculate, hairy on both sides. Calyx 6-8 mm long, narrowly campanulate. Carolla glabrous rather more than 13 mm long; tube 6-8 mm long, orange colour, about equaling the limb; lobes white, unequally obcordate, cuneate.^[13]

Fruits: Fruits are a capsule of 1-2 cm diameter, long and broad, obcordate, compressed, 2-celled, separating into 2 flat 1- seeded carpels, reticularly veined and glabrous.

Macroscopic Character of Fruit

The fruit is flat, brown and heart cordate shaped, around 2 cm in diameter with two celled openings transversely from the apex, each containing a single seed. Microscopically, in the epicarp epidermal cells were compactly arranged, polygonal cells with slightly anticlinal

walls covered by a thin cuticle followed by 1-3 layers of collenchyma, spongy parenchymatous tissue, sclerenchymatous fibers and oil glands.

Seeds: The seed is compressed and is one per cell. Seeds are exalbuminous, testa thick; the outer layer of large transparent cells and heavily vascularised. Phytosterols, phenolic compounds, tannins, flavonoids, cardiac glycosides, saponins and alkaloids all are found in seeds of *Nyctanthes arborescens*

Bark: Bark of *Nyctanthes arborescens* plant is dark grey or brown in colour, rough and firm. Bark surface is dippled due to scaling off of circular barks and patchy due to grey brown colour regions. Scaling off the bark by circular flakes. Inner bark is creamy white, soft and collapsed and non-collapsed phloem zone distinctly visible.^[14]

MEDICINAL AND THERAPEUTICAL USES

- ☐ Coral Jasmine is antibacterial, anti-inflammatory, expectorant, bitter tonic, mild purgative.
- ☐ Night Jasmine is useful in treating constipation in children.
- ☐ The flowers are bitter astringent, ophthalmic, stomachic and carminative.
- ☐ The leaves are used in treatment of arthritis, fever, rheumatism and various painful condition.
- ☐ The fresh leaves are boiled in mustard oil and used externally for treating ringworm.
- ☐ The leaf juice is used with common salt to treat intestinal worms.
- ☐ Coral Jasmine is used in the treatment of fungal skin infection, dry cough and bronchitis and as antidote for snake bite.
- ☐ Seeds are useful in treatment of piles, baldness and scurvy.
- ☐ The decoction of Night Jasmine flowers is used in treating gout.
- ☐ Coral Jasmine is used to treat restlessness, headache, gastritis, hepatitis, diarrhea, vertigo and dysmenorrhoea.
- ☐ The decoction of seed is used as hair tonic in treatment of dandruff.^[14]

CONCLUSION

It is concluded from this review that *Nyctanthes arborescens* is unique source of metabolites such as alkaloids, phytosterols, phenolics, flavonoids, tannins, glycosides which are obtained from crude extract of various parts of plants are reported to possess antibacterial, anti-

inflammatory, antimalarial, anticancer, antioxidant, antifilarial, antiviral activities and offers promise for further investigation.

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