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Review Article

A Review on *Nyctanthes Arbor-Tristis* Linn: Medicinal Plant

Nalini Paswan*

Department of Pharmacy, Institute of Technology and Management, GIDA, Gorakhpur, Uttar Pradesh, India, 273209.

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ABSTRACT

Nyctanthes arbor-tristis Linn. (Oleaceae) is frequently used in Indian traditional medicine. It goes by the names Night Jasmine, Parijat, and Harsingar as well. The shrub can be found in tropical and subtropical areas of the world. A small sacred ornamental tree known as *Nyctanthes arbor-tristis* Linn is well-known across the country for its wonderful aroma and white orange blooms. This plant can be used profitably because each part has a distinct medical benefit and value. It is used in the medical practises of Ayurveda, Siddha, and Unani. According to Ayurveda and modern science, *Nyctanthes arbor-tristis* Linn has anti-oxidant, antimicrobial, hepatoprotective, anti-allergy, anti-leishmanial, anti-diabetic, immune-stimulant, antiviral, sedative, anti-inflammatory, anti-pyretic, and antinociceptive properties.

INTRODUCTION

Since prehistoric times, medicinal plants have been employed as distinct sources of medicine all across the world. Interest in medicinal and aromatic plants has increased recently due to their safe and efficient active principles. 'Night Jasmine' or 'Harsinghar' (Hindi) are common names for the Oleaceae plant *Nyctanthes arbor-tristis* Linn. [1,2] The Greek words "Nykhta" (night) and "anthos" (flower) are the source of the name *Nyctanthes*.

[3,4] The shrub can grow up to ten meters tall. The plant has simple leaves with a complete border that is 6-12 cm long and 2-6.5 cm wide, and it has a lifespan of 5–20 years. The sweet-smelling flowers are arranged in clusters of two to seven and feature a five to eight lobed corolla with an orange-red core. The white-powder petals are covered in dewdrops. The fruit is a flat, brown, heart-to-spherical capsule that is divided into two pieces, each of which has a single seed and measures about 2 cm in diameter. [5]

***Corresponding Author:** Nalini Paswan

Address: Department of Pharmacy, Institute of Technology and Management, GIDA, Gorakhpur, Uttar Pradesh, India, 273209.

Email ✉: paswannalini@gmail.com

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Botanical Description:-

Kingdom: Plantae

Class: Eudicots

Division: Angiosperm

Order: Lamiales

Family: Oleaceae

Genus: Nyctanthes

Species: arbor-triti

English : Night jasmine

Hindi : Harsingar

Bangali : Sephalika

Sanskrit : Parijatha

Kannada : Parijatha

Malayalam : Parijatakam

Marathi : Parijathak

Gujarathi : Javaparvati

Name of the plant in different languages as below: [6]

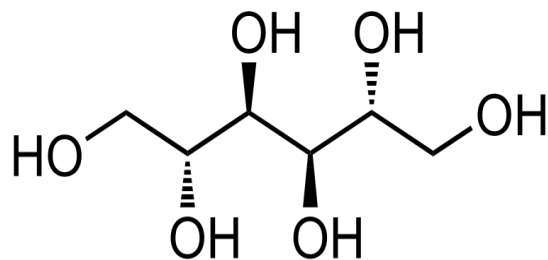
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Phytochemical Constituents

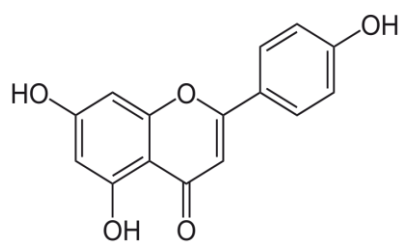
Plant part	Chemical Constituents	References
Leaves	D-mannitol, beta-amyrin, beta-sitosterol, hentriacontane, benzoic acid, astragalin, nicotiflorin, oleanolic acid, nyctanthic acid, friedelin and lupeol, Arborside-A, Arborside-B, C and D, Tannic acid, Glucose and fructose.	[6,10,11,12,13,14]
Seeds	Arbortristoside A&B, Glycerides of linoleic oleic, lignoceric, stearic, palmitic and myristic acids, nyctanthic acid, 3-4 secotriterpene acid.	[4,7,8,9]
Flowers	Essential oil, Carotenoids, glycosides viz β -monogentiobioside ester of α -crocin (or crocin-3), β -	[15, 16, 4]

	monogentiobioside- β -D monoglucoside ester of α -crocetin, β -digentiobioside ester of α -crocetin flavonoids including quercetin, kaempferol, apigenin. Cardiac glucoside, nymphalin.	
Stem	Glycoside-naringenin-4'-O- β -glucapyranosyl- α -xylopyranoside and β -sitosterol.	[5, 6,17,]
Bark	Glycosides and alkaloids	[3,4,5]
Stem	Glycoside-naringenin-4'-O- β -glucapyranosyl- α -xylopyranoside and β -sitosterol	[5,16,19]
Roots	alkaloids, tannins, glycosides, beta-sitosterol and oleanolic acid	[4,20,21]
Flower oil	α -pinene, p-cymene, 1- hexanol methyl heptanone, phenyl acetaldehyde, 1-deconol and anisaldehyde.	[16,22]

Leaves

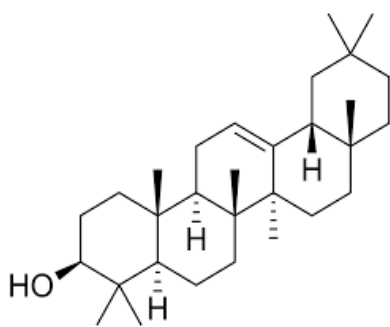


Structure-1 D- manni

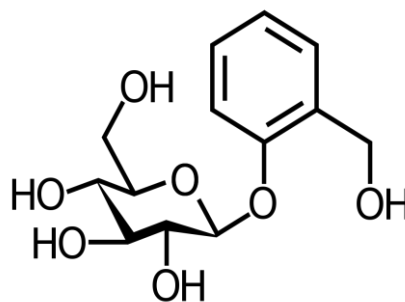


Stru.3- Apigenin

Bark



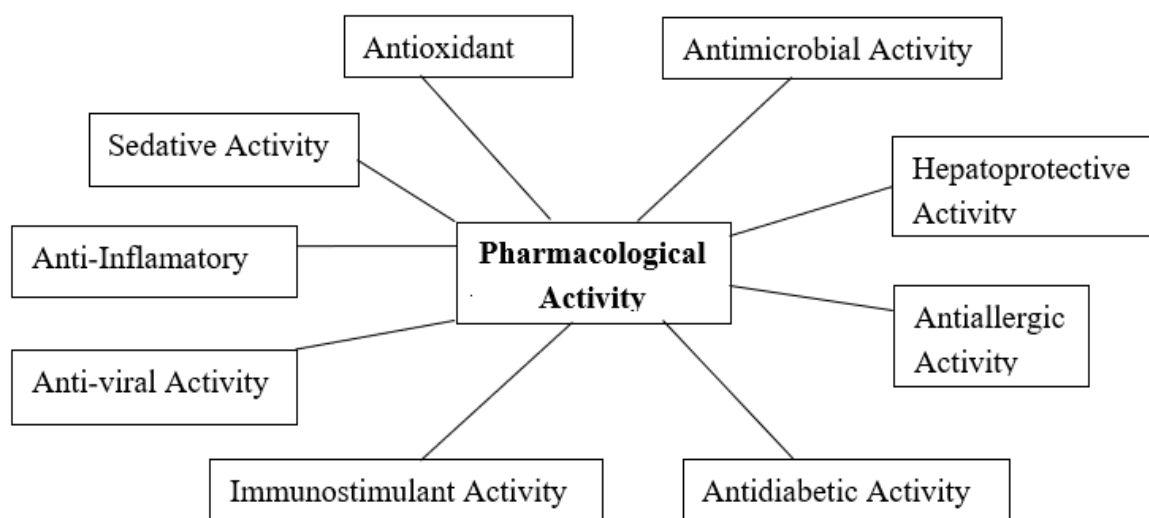
Stru. -2-beta- amyrin



Stru.4-Glycoside

Flower

Pharmacological Activity



Antioxidant

Nyctanthes arbor-tristis has been utilised in traditional medicine from prehistoric times. Flavonoids, tannins, saponins, glycosides, alkaloids, steroids, and phenolic substances were found in the ethanolic extract of Nyctanthes arbor-tristis Linn leaves, stems, and roots. Phenolic substances have long been known as antioxidants and free radical suppressors. [15, 23-26]. Free radicals are formed as a result of the body's regular metabolic activity in a live organism. Antioxidants fight pathological disorders like ischemia, anaemia, asthma, rheumatoid arthritis, inflammation, neurodegeneration, Parkinson's disease, mongolism, the ageing process, and maybe dementias by acting as free radical scavengers. [5,25]. The antioxidant activity of Nyctanthes arbor-tristis Linn. was assessed using the DPPH test, free radical scavenging activity, reducing power assay, and total antioxidant capacity in a previous work. As an auspicious plant derived from natural plant sources, Nyctanthes arbor-tristis Linn has a high level of antioxidant activity. [25, 27, 28]

Antimicrobial Activities

People nowadays rely on allopathic treatments more often, however microorganisms are developing resistant to these drugs. As a result, natural ingredients are increasingly being used as antibacterial agents. The oil extracted from the leaves, seeds, and bark has a broad spectrum of antibacterial activity against both gram-negative and gram-positive bacteria. The antibacterial activity of oil containing eugenol and its derivatives was tested using the disc plate technique against *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* and the agar well diffusion method against *Fusarium oxysporum*. The essential oil has the greatest antibacterial activity against *K. pneumoniae* and *P. aeruginosa*, with inhibition zones of 23.8 and 26.3 mm at 1000 g/ml, respectively. At 2500 g/ml, 5-allyl-2-hydroxy-3-methoxybenzenesulfonic acid (3) was the most efficient against *F. oxysporum*, with a maximal inhibition zone diameter of 29.5 mm. Harsingar essential oil, eugenol, and its derivatives may be useful antibacterial agents, assisting in the creation of natural antimicrobials to replace synthetic counterparts. [3,28]

Hepatoprotective Activity

Hepatic problems have become important roadblocks for medicine in the twenty-first century. Hepatic tissue has a high capacity for regeneration, and damage is generally significant before it becomes apparent. Hepatic disorders present itself when hepatocyte regeneration does not keep up with damage, resulting in hepatocellular failure. In a previous study, alcoholic and aqueous extracts of *Nyctanthes arbor-tristis* leaves were found to protect the liver from the toxic effects of carbontetrachloride by lowering serum glutamate pyruvate transaminase, glutamate oxaloacetate transaminase, alkaline phosphatase, and serum bilirubin levels. At a dosage of 200 mg/kg body weight, both the alcoholic and aqueous extracts demonstrated considerable hepatoprotective effect by lowering high levels of biochemical markers. The findings were backed up by histological analyses of liver samples, which revealed that the extracts regenerated hepatocytes. A methanolic extract of *Nyctanthes arbor-tristis* leaves revealed remarkable hepatoregenerative capacity in acetaminophen-induced liver damage, according to another study. It worked by protecting against membrane fragility and prevented glutathione levels from dropping. [11-13, 29,30]

Anti-allergy activity

The use of a water soluble component of the alcoholic extract of *Nyctanthes arbor-tristis* leaves as a pretreatment for guinea pigs exposed to histamine aerosol provided significant protection against the onset of hypoxia. 32 *Nyctanthes arbor-tristis* contains anti-allergic compounds arbortristoside A and arbortristoside C. [15]

CONCLUSION

The current study focused on the *Nyctanthes arbor-tristis* plant. It's a fragrant and beautiful plant with a variety of medicinal properties.

Pharmacological effects may be found in every section of the plant. *Nyctanthes arbor-tristis* is widely available, and its collection and cultivation do not necessitate any specific circumstances. The plant *Nyctanthes arbor-tristis* has long been in high demand due to its efficacy in treating a variety of chronic and acute disorders. This study aims to highlight *Nyctanthes arbor-tristis* and its components' therapeutic potential in the prevention and treatment of illness. We may infer from this study that the reviewed studies are intended to pique the interest of researchers looking for novel medications derived from *Nyctanthes arbor-tristis* and its chemical components. The extracted chemicals will likely be examined in the future for further clinical studies and possible use as a supplement to present treatments.

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