WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 3, 87-99. Review Article ISSN 2277–7105

A REVIEW: EVALUATING HAIR-TONIC AND SEDATIVE ACTIVITY OF EXTRACT FROM FLOWER AND SEED OF NYCTANTHUS ARBORTRISTIS LIN(NAT)

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Article Received on
10 Dec. 2024,

Revised on 31 Dec. 2024,
Accepted on 21 Jan. 2025

DOI: 10.20959/wjpr20253-35334

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ABSTRACT

Nyctanthus arbortristis lin. (NAT) is one of the most beneficial traditional medicinal plants, with a variety of applications.(grow in subtropical; southern India, the Himalayas of Nepal. Numerous names for it are well known, including Night Jasmine, Jasmine, coral jasmine, queen of the night, Harishinghar, Parijata, and Night Blossoming Jasmine. Plant parts such as seeds, leaves, flowers, bark, and fruits contain a variety of phytochemicals, including flavonoids, glycoside, oleanic acid, essential oil, tannic acid, carotene, friedeline, cupeol, glucose, and benzoic acid. Sedative, hair tonic, hepatoprotective, anti-leishmaniasis, antiviral, antifungal, antipyretic, antihistaminic, antimalarial, anti-inflammatory, antibacterial, antioxidants, rheumatic disorder, relaxant, analgesic, appetite loss, liver disorder, biliary disorder, chronic fever, skin conditions, anticancer expectorant, anti-arthritis, and immunomodulatory properties are just a few of the benefits exhibited by Nyctanthus arbortristis. However, the primary focus of this review is on parijata's **sedative and hair-tonic** properties.

➢ **KEYWORDS**: *Nyctanthes Arbor-tritis, Hair-tonic, Sedative.*

➢ INTRODUCTION

Nyctanthes arbortristis is a member of the oleaceae family.[4] It has been used for healing purposes since the oldest times.[6] The plant is known as the "Tree of Sadness" since it

completely loses its brightness during the day.[10] Nyctanthes arbortristis is a member of the oleaceae family. It has been used for healing purposes since the oldest times.

The name "Tree of Sadness" comes from the plant's loss of all its leaves during the day.
Parijata is a medicinal plant that has a significant therapeutic predominance in the treatment of a number of diseases, including sciatica, warm infections, chronic fever, hepatoprotective, anti-leishmaniasis, antiviral, antifungal, anti-pyretic, anti-inflammatory, anti-histaminic, anti-malarial, anti-bacterial, anti-oxidant, diabetes control, anti-allergic, anti-anxiety, anti-aggressive activity, anti-filarial, anti-cancer, anti-trypanosomal potential, anti-tryptaminergic, anti-cholinesterase, anti-parasitic, anti-anemic, CNS depressant, membrane stabilizer, and treatment for piles, gout, and dry cough.[15],[2],[3],[8],[5]

- **Hair tonic activity**

Dandruff and hair lice can be cleared up and controlled with a parijat seed decoction.
Parijat flowers are used as a hair tonic and to stop hair loss. In addition to preventing folliculitis, psoriasis, alopecia areata, and seborrheic dermatitis, parijat also helps to prevent greying of the hair. The keshya (hair tonic) properties of parijat aid in the stimulation of hair growth. When applied topically to the scalp, parijat flower juice or seed paste can induce rapid hair growth.[19]

- **Sedative activity**

Parijat can induce sleep or calmness by modulating the activity of the central nervous system. The sedative activity mainly found in flower. Sedative potential of hot infusion of the flowers was examined in rats. Male rats exhibited a dose dependent conscious sedative activity while female rats Remained unaffected. By adjusting the central nervous system's activity, parijat can promote relaxation or sleep. The primary source of the sedative effect is flowers. Rats were used to test the sedative effects of the flowers hot infusion. While female rats were unaffected, male rats showed dose-dependent conscious sedative action.

- **Morphology**

Many species exhibit a range of morphological traits. The smooth edges of the solitary, opposing leaves on Nyctanthes arbortristis measure 6–12 cm in length and 2–6.5 cm in width. Each flower has five to eight lobes and is white with orange-red peta.[1] They open at night and close at dusk, and they travel in groups of two to seven. All through the night, they smell wonderful.[12] Two seeds, one on each leaf, are found within the brown, flat, heart-shaped, or

round capsule that constitutes the fruit.[1] Nyctanthes arbortristis is a common little tree or large, hardy shrub found in the wild. The lifespan of the plant is 5–20 years.[12]

Fig.Parijatak flower.

Fig.Parijatak seed.

Fig.Parijatak bud.

Fig.Parijatak leaf.

Fig.Parijatak stem.

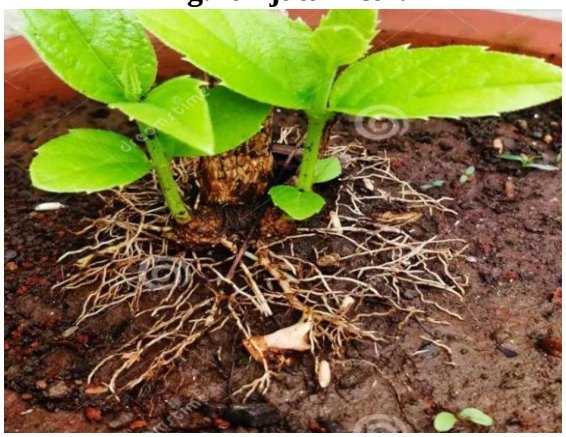


Fig.Parijatak root.

- **Chemical constituents**[2],[3],[5],[9],[16],[19]

- **Alkaloids**

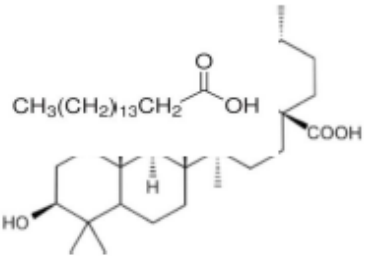
1) Nyctanthine: This chemical constituents are found in the plant. It is give several therapeutic effect.

2) Nyctanthic acid: It constituents are found in leaves and seeds of plant. It give the antibacterial, antioxidant and anti-inflammatory activity.
3) Lignoceric Acid: Lignoceric Acid is type of long chain fatty acids found in seeds of plant. This compound to give several properties of plant such as antimicrobial properties, Neuroprotective effect, anti-inflammatory effects and antioxidants activity.
4) Palmitic acid: This chemical constituents are found in seeds of plant. It give the antimicrobial and antioxidants activity. Palmitic acid are help of cardiovascular and skin health.
5) Methyl Palmitate: Methyl Palmitate is an ester of palmitic acid. The properties are give of Palmitic acid, anti-inflammatory activity and skin and hair health.
6) ß- sitosterol: ß- sitosterol is a type of phytosterol and it is primarily found in stem of plant. Give the properties such as anti-cancer, antidiabetic, immunomodulatory, cholesterol-lowering properties and antioxidants and anti-inflammatory effects.

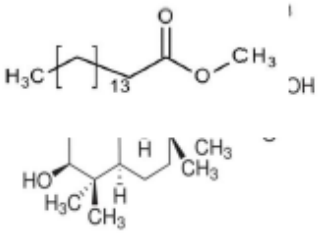
- **Flavonoids**

1) **Quercetin:** It is primarily found in the flowers and leaves. And ist give antioxidant and anti-inflammatory properties.
2) **Kaempferol:** This are found in the flowers and leaves of the plant. Exhibit anti-inflammatory and anti-cancer effect.
3) **Rutin:** Rutin, a flavonoid known for its antioxidant and anti-inflammatory properties, is primarily found in the flowers and leaves of Nyctanthes arbor-tristis. rutin contributes to its various medicinal benefits, including improving circulation and reducing inflammation.
4) **Ascorbic Acid:** This chemical constituents are found in leaves. The presence of ascorbic acid antioxidant, immune boosting and anti-inflammatory effects.

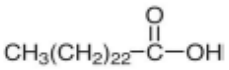
➢ **Chemical constituents structure**[2],[3],[5],[9],[16],[19]



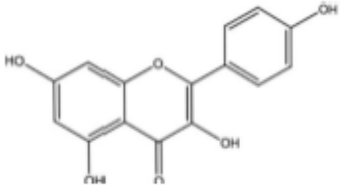
Nyctanthus.



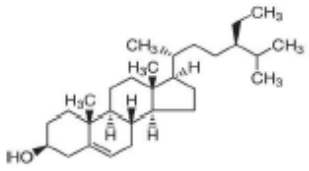
Nyctanthic acid.



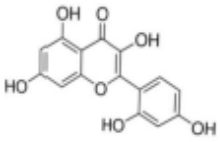
Palmitate acid.



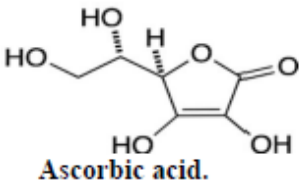
Methyl palmitate.



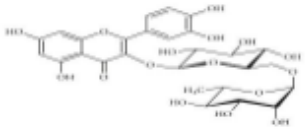
ß- sitosterol.



Quercetin.



Ascorbic acid.



Kaempferol

➢ **Taxonomical Classification**[17]

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order: Lamiales

Family : Oleaceae

Genus : Nyctanthes

Species : Arbor-tristis

Bionominal name: Nyctanthes Arbor-tristis

➢ **Synonyms**[6]

- Raga-puship

- Shephalika
- Khara-patraka
- Naala-singhaara
- Rakta-kesara

➢ **Local Name**[6]

- Hindi name : Harsingar
- Marathi name : parijata, Kharbadi, Kharassi, Kharasli
- English name : Night jasmine
- Gujarathi name : Harshanagar
- Telugu name : Parijathamu
- Tamil name : Majjapu
- Kannada name : Parijatha
- Bengali name : Shefalika& Shivali
- Filipino : Coral jasmine
- Indonesian : Srigading (sundanese,Javanese)
- Kokani : Pardic,Parizatak,Parzonta,Parzonta
- Lao(Tibetan) : Salikaa
- Malay : Seri uading
- Malayalam : Mannapu,Parizhamali,Parijatakom
- Oriya : Godokodiko,Gunjoseyoli,Singaraharo
- Punjabi : Harsinghar
- Sanskrit : Parijata, Parijatah,Parijataka,Sephalika
- Thai : Karonikaa
- Urdu : Gulejafari, Harsingar
- Vietnamese : Lai Tay

➢ **Habitat/Geographical Source**

Native to India, Nyctanthes arbortristis can also be found growing in Nepal's subtropical Himalayas.[19] It is more prevalent in Indonesia, Malaysia, and Thailand. Is frequently planted in Maharashtra as a sacred tree.[4] Typically, it grows in red and black soil. PH 5.6 to 7.5, with a preference for semi-arid and arid climates Normally found in rocky gardens and arid, low-slope areas, it grows gregariously. With mild shade from sea level to an elevation of 1500

meters, with a broad variety of rain patterns ranging from seasonal to non-seasonal Flowering takes place in July through October.[18],[4],[19]

- **Extraction Process**

1) Material And Methods

a) Collection of the plant samples[22]

Fresh plant parts were collected randomly from Durg district of Chhattisgarh. The plants were identified and studied according to their families Fresh plant materials were Collected and washed under tap water, shade dried and then homogenized to fine powder and stored in airtight Bottles.

b) Preparation of plant extract[23]

Ten grams of air dried powder was taken in 100 ml of petroleum ether in a Conical flask, plugged with cotton wool and then kept on a rotary shaker at 190-220 rpm for 24 hours. After 24h, The supernatant was discarded and petroleum ether was evaporated from the powder. This dry powder was then Taken in 100 ml of solvent (methanol or acetone) in a conical flask, plugged with cotton wool and then kept on a Rotary shaker at 190-220 rpm for 24 h. After 24 h, the extracts were centrifuged at 5000 g for 10 min, the supernatant was collected, solvents were evaporated and the dry extract was weighed and stored at 4C in airtight Bottles. The extraction was done at least three times for each plant. The preliminary qualitative phytochemical Analysis was carried out in crude dry powder of selected plants. Soxhlet extraction method: Leaves of selected plants were collected locally. Leaves were washed; air dried Under shade and powdered with the help of Grinder. Powdered leaves were weighed and packed in soxhlet. Solvent used for soxhletion was petroleum ether and ethanol. Extraction was continued at the temperature of 35°C till clear solvent was observed in thimble. Extract was concentrated in water bath at 40°C. Concentrated Extract was concentrated at 40°C in hot air oven. Concentrated extract was packed in an air tight container. Qualitative Phytochemical screening: Nyctanthes arbor- tristis with petroleum ether extract were subjected to Various qualitative tests for the identification of plant constituents present in this species.

2) Extraction of seeds[21]

a) Preparation of seed powder

Seeds of nyctanthes arbortristis were obtained from the ayurvedic garden. The seeds were dried for seven days at 25°C after being cleaned under running tap water. Ground dried seeds

into a fine powder. To prepare the aqueous extract, the hot percolation extraction method was used.

b) Extraction of seed powder[21]

250ml of distilled water was used to boil 25.40g of the powdered material for 30 minutes. Continued to shake intermittently for three days. The Soxhlet extraction method was used to create the seed's ethanol extract. To make the ethanol extract, 25.40 grams of powdered seeds were extracted in 250 milliliters of ethanol. Using a rotary evaporator, the extract was dried at 45°C. After examination, the dried semi-solid extract was kept in a refrigeratorat 4°C for future research.

3) Extraction of flower[22]

a) Preparation of flower powder

Flowers were gathered. collected fresh and dried using a shade-drying method.

They were coarsely ground in a pulverizer once all of the moisture had been removed. They underwent extraction after being weighed, labeled, and kept at 4°C in zip-lock bags.

b) Extraction of powdered flower[22]

The traditional extraction process is applied. 200 milliliters of ethanol were used to macerate 20 grams of flower powder. Similarly, 130 milliliters of water were used to macerate 10 grams of powder. For 48 hours, both mixtures were held in a magnetic shaker. After filtering, it was put through a rotary evaporator to evaporate. The resulting crude extract was weighed and stored for additional examination.

- **Activity wise Extraction method of Nyctanthus flower**

1. Sedative Activity

Rats were used to test the sedative effects of a hot floral infusion. Male rats showed dose-dependent conscious sedative activity in this test, but female rats showed no change. Blood glucose levels, even at the highest dose, were unaffected by these dosages, nor were muscle strength and coordination Nyctanthes arbortristision. On the other hand, the small intestine's ability to absorb glucose was greatly diminished. The extract's antioxidant and membrane-stabilizing properties were partly responsible for the sedation.[3],[5],[10]

➢ **Extraction method of sedative activity**

Decoction

1. Collection and cleaning: Collect fresh Parijatak flowers, clean, and dry them.
2. Weighing: Measure 10-20 grams of dried flowers.
3. Water measurement: Use 400-800 ml of water.
4. Decoction process: Boil the water, add flowers, and simmer for 15-30 minutes.
5. Strain and filter: Strain the decoction, discard solids, and filter.

2. **Hair tonic Activity:** To get rid of dandruff and lice, parijat seed decoction is used as a hair tonic and hair is cleansed every day.[4],[18]

➢ **Extraction method of hair-tonic activity**

- **Infusion**

1. Collection and cleaning: Collect and clean Parijatak seeds.
2. Drying: Dry seeds to prevent moisture.
3. Weighing: Measure 5-10 grams of dried seeds.
4. Water measurement: Use 200-400 ml of boiling water.
5. Infusion process: Steep seeds in boiling water for 5-10 minutes.
6. Strain and filter: Strain infusion, discard solids, and filter.

➢ **Use**[19],[12],[20],[15],[14]

According to the document, Nyctanthes arbor-tristis, often known as parijat or night jasmine, has the following uses

1. Fever: Used to lower body temperature as an antipyretic.
2. Rheumatism and Joint Pain: Because it balances Vata, it relieves bone and joint pain.
3. Skin Conditions: Good for wounds, ulcers, and other skin conditions.
4. Cough and Bronchitis: Leaf juice combined with honey relieves bronchitis and cough.
5. Premature graying and hair loss can be avoided using flower water
6. Malaria: Bark infusions aid in the treatment of malaria.
7. Neuralgia and sciatica: Reduces pain in the nerves.
8. Liver Disorders: Protects the liver by exhibiting hepatoprotective actions.
9. Biliary Disorders: Handles bile duct illnesses.
10. Traditional medicine uses menstrual disorders to control menstruation.
11. Gout: Gout-related inflammation can be reduced with the use of flower extracts.

12. Digestive Aid: Enhances appetite, lowers mucous, and improves digestion.
13. Worm Infections: Intestinal parasites can be treated using seeds' anthelmintic qualities.
14. Hairstyles and Scalp Conditions: Skin issues and scalp infections are treated using seed powders.

Industrial and cosmetic use

1. Dyes: The pigments found in flowers are used to dye textiles, sometimes in conjunction with turmeric or sunflower oil.
2. Cosmetics: Because of its calming and restorative qualities, the plant is utilized in skincare products.

Other applications

1. By scavenging free radicals, antioxidants shield cells from oxidative stress.
2. Anti-Inflammatory: Lessens discomfort and swelling brought on by inflammation.
3. Sedative: Induces relaxation or sleep by altering the central nervous system.
4. Expectorant: Aids in the respiratory tract's mucus ejection.

➢ CONCLUSION

Nyctanthes arbor-tristis, also referred to as night jasmine or parijat, is a multipurpose medicinal plant that is well-known for its calming qualities and important advantages for hair health. Its capacity to regulate the central nervous system, which successfully lowers tension and promotes sleep, is the basis of its calming effects. Because of this function, it is a natural alternative for treating ailments like anxiety, restlessness, and sleeplessness. Its extracts have long been used in traditional medical systems like Ayurveda and Unani because of their calming properties, which enable people to obtain mental rest without the negative side effects of synthetic sedatives.

The ability of the plant to support hair health is equally amazing. Nyctanthes arbor-tristis flowers are a popular component of natural hair care products since they are utilized to delay premature graying and prevent baldness. Its components are well known for strengthening hair follicles, nourishing the scalp, and enhancing the general vitality of hair. Its antibacterial and anti-inflammatory qualities also aid in preventing infections and relieving scalp irritations, creating a favorable environment for hair development. These qualities not only improve hair's visual appeal but also treat underlying scalp issues that could cause damage or hair loss.

In conclusion, Nyctanthes arbor-tristis supports mental and physical health by combining its sedative and hair-enhancing qualities to provide a comprehensive approach to well-being. Its multiple advantages demonstrate the plant's potential for both medicinal and cosmetic uses, underscoring its significance in both traditional and contemporary herbal therapy.

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