

**A REVIEW ON EXTRACTION PROCESS FOR THE MIRACULOUS PLANT,  
NYCTANTHES ARBOR-TRISTIS LINN. (NIGHT JASMINE)****Mr. Digvijay G Patil<sup>1\*</sup> and Ms. Sayali S Bhatiya<sup>2</sup>**<sup>1</sup>Assistant Professor, Department of Pharmaceutical Chemistry, Shastry Institute of Pharmacy (Palasdal) Erandol, Jalgaon.<sup>2</sup>Department of Pharmaceutical Organic Chemistry, Shastry Institute of Pharmacy (Palasdal) Erandol, Jalgaon.

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**ABSTRACT**

One of the earliest medical systems, Ayurveda employs plant extracts to treat and manage a wide range of illnesses. *Nyctanthes arbor-tristis* Linn (Oleaceae) is a significant large flowering shrub found in tropical and subtropical regions of the world. It has been traditionally used as an anthelmintic, a hair tonic, a chalogogue, a laxative, a diaphoretic, a treatment for scabies and other skin infections, and a stimulant for menstruation. In India, *Nyctanthes arbor-tristis* is among the most practical conventional plants. The diverse plant components, including as the fruits, leaves, seeds, flowers, bark, and stem, contain significant amounts of phytochemicals that are useful in medicine for the treatment and control of various disease conditions. Flavanol glycoside, oleanic acid, tannic acid, and essential oils are examples of phytochemicals. The current study focuses on the following topics: pharmacological activity, medicinal use, biological behavior of significant substances, ecology and distribution, and chemical composition. The present evaluation holds promise for the advancement of future research endeavors. An old-fashioned plant India is home to the extremely beneficial medicinal herb *Nyctanthes arbor-tristis* Linn. This plant may be used economically since every portion of it has unique therapeutic qualities and benefits. *Nyctanthes arbor-tristis* Linn, sometimes referred to as Harsingar or Parijat, is a traditional herbal remedy used to cure inflammatory conditions including rheumatism. Another name for it is a night jasmine. Night jasmine grows abundantly from the sub-Himalayan areas all the way down to the Godavari. A traditional plant *Nyctanthes arbor-tristis* Linn, a very useful medicinal plant, grows in India. This plant has distinct medicinal properties and advantages in every part, making it commercially useful. *Nyctanthes arbor-tristis* Linn, also known as Parijat or Harsingar, is a traditional herbal treatment used to treat rheumatism and other inflammatory diseases. It is also known as a night jasmine. From the sub-Himalayan regions all the way down to the Godavari, night jasmine blooms in profusion.

**KEYWORDS:** Silver nanoparticle, extraction process, pharmacological activities, phytochemistry, *Nyctanthes arbor-tristis*, and traditional uses, Biological activity, Therapeutic actions.

**INTRODUCTION**

*Nyctanthes arbor-tristis* One of the most adaptable medicinal plants with a broad range of biological sports, Linn "a night time flowering sad tree" of the Oleaceae (Nyctaginaceae) family is well-known in India and its neighboring countries. It is widely grown in tropical and subtropical regions worldwide. It is a five to twenty year woody perennial that grows on land. The majority of the plant is a tiny tree or shrub with beautiful, fragrant flowers that bloom at night and fade before daybreak, leaving the ground below in a pleasing mix of red and white. As a result, the plant eventually loses all of its brilliance, earning it the nickname "Tree of Sadness"

(*arbor-tristis*). *Trichomonas arbor-tristis* Regarded as "a night time flowering sad tree" by many in India and its adjacent nations, Linn, a member of the Oleaceae (Nyctaginaceae) family, is one of the most adaptive medicinal plants having a wide variety of biological sports. It is commonly grown around the world in tropical and subtropical climates. It is an on-land woody perennial that may live for five to twenty years. The plant is mostly a little tree or shrub with fragrant, lovely blooms that bloom at night and disappear before dawn, leaving a charming blend of red and white on the ground below. The plant so gradually loses all of its brightness, becoming known as the "Tree of Sadness" (*arbor-tristis*). Indian medical systems are used in Ayurvedic, Sidha,

and Unani systems of medicine, and tribal people in Orissa and Bihar, in particular, are known to employ them for a variety of pharmacological effects and diseases. Sciatica, rheumatism, gout, and other joint disorders are among the conditions for which it is utilized (Sah and Verma, 2012). The flowers are used for a variety of purposes, including treating piles and

different skin problems (Khatune et al., 2001), as well as for stomachic, carminative, astringent to intestine, ant bilious, expectorant, and hair tonic purposes (Sasmal et al., 2007). Traditionally, powdered stem bark has been used as an expectorant, to cure malaria, and to relieve rheumatic joint discomfort (Rouf, 2003).

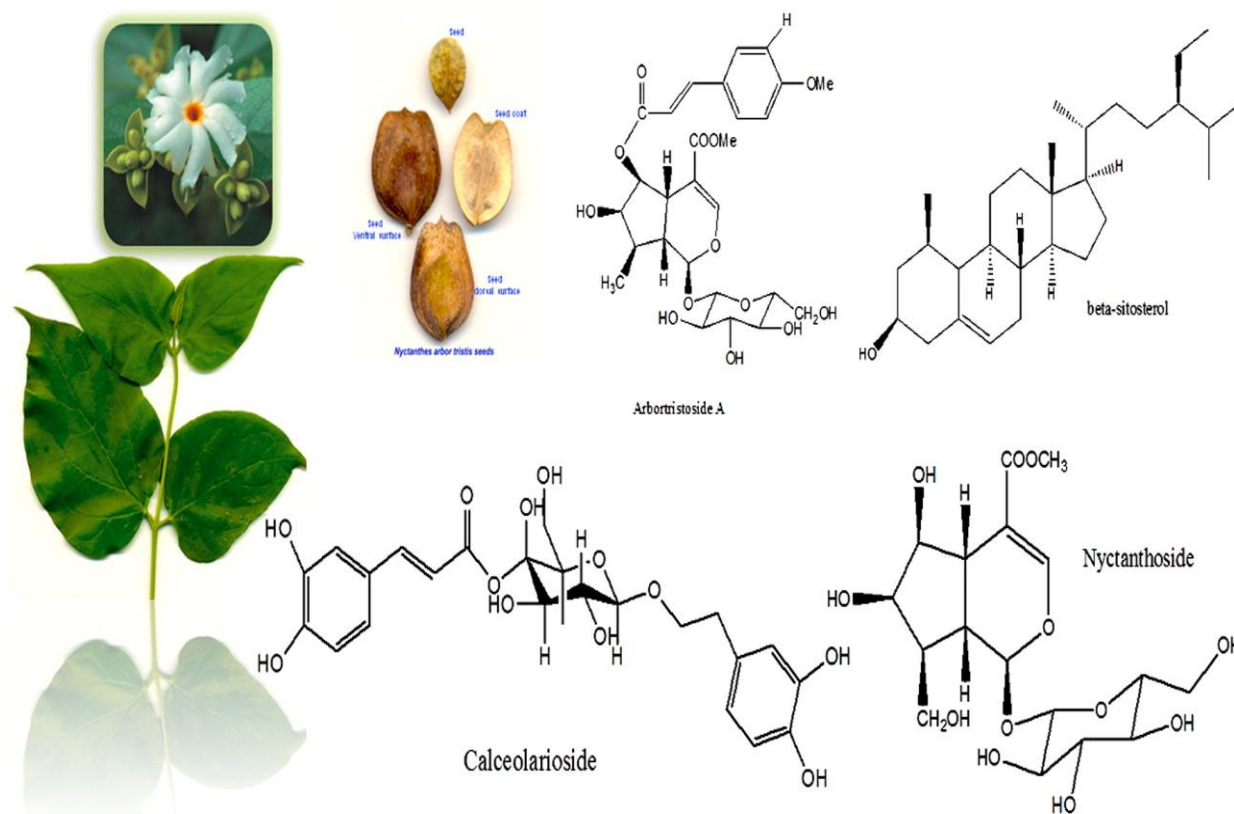


Figure-1: *Nyctanthes arbor-tristis* Linn.



Fig.2leaves showing morphology.



Fig.3 Flowers of *Nyctanthes arbor-tristis*.

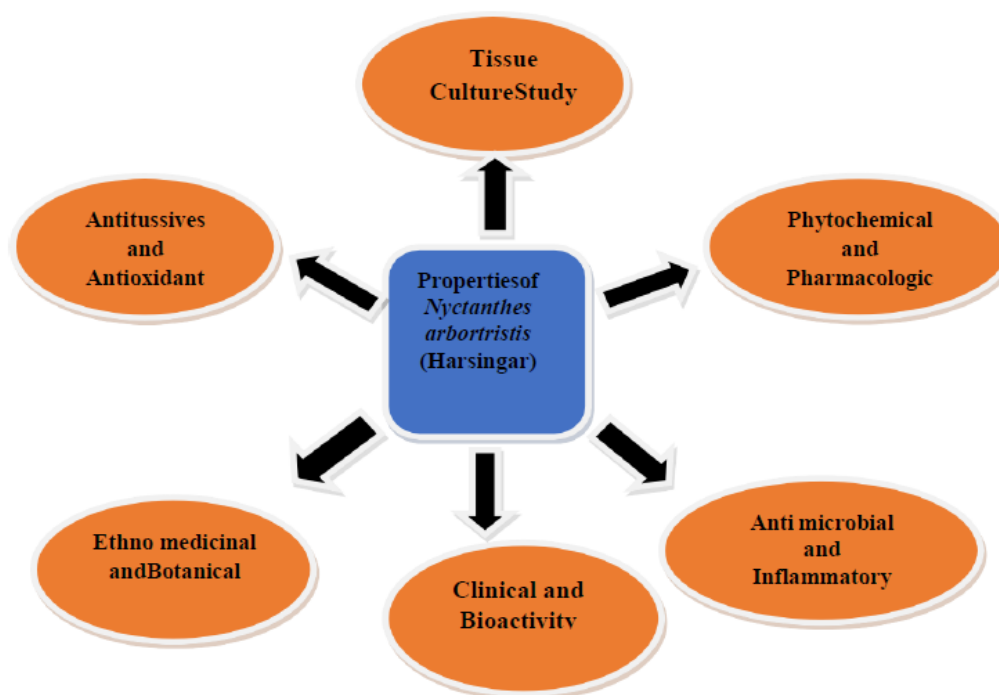
#### Scientific classification

Kingdom: Plantae  
Order: Lamiales  
Family: Oleaceae  
Genus: *Nyctanthes*

#### Species: *N. arbor-tristis* Taxonomical Classification

Kingdom: Plantae  
Order: Lamiales  
Division: Magnoliophyt  
Class: Magnoliopsida  
Family: Oleaceae  
Genus: *Nyctanthes*

Species: *Arbortristis*



### Phytochemistry

Phytochemical analysis of leaves, fruits and seeds *Nyctanthes arbor-tristis* revealed the presence phytosterols, phenols, tannins, flavonoids, glycosides and saponins. secondary metabolites such as glycosides and alkaloids here are the biggest groups of chemicals factory A phenylpropanoid glycoside, nictoside A23, a water-soluble glucomannan was found in its contents. a seed the seeds contained nictanoside, nyctanoic acid and iridoid glycosides such as beta-hydroxyloganin and arbortristosides A, B, and C. 16 Rengyolone, an iridoid; and a cyclohexylethanoid Arbors-hydroxyloganin, 6-0-trans-cinnamoyl-7-0 acetyl-6 $\beta$ hydroxyloganin, glucosides, and nyctanthoside, a glycoside phenylpropanoid, been separated from an ethanol-based extract of The blooms, including anti-inflammatory and antipyretic processes. Flowers include altered Anthocyanins, flavonoids, and diterpenoid nyctanthin and an essential oil that has similarities to jasmine. 4-Hexahydrobenzofuran-7-one hydroxy remains separate from the chloroform extract of the floral arrangements. The tubular orange calyx of the Carotenoids are found in flowers. Its blossoms are recognized to include an essential oil in 0.0045% an amount comparable to that of jasmine, which is acquired through water-distillery.

### Morphology

*Tenebrio arbor-tristis* Linn is a massive shrub with quadrangular branches and flaky, gray, tough bark that can reach heights of up to 10 meters. The leaves are simple to handle, robust, hairy, decussately opposite, and measure 6–12 cm in length and 2–6 cm in width, with a complete edge. The foliage is arranged inside the leaf axils or at the tips of terminal branches, and they are *Trichomonas arbor-tristis* Reaching up to 10 meters in height, Linn is a huge shrub with quadrangular branches

and flaky, gray, rough bark. The leaves have a full edge, are easy to handle, strong, hairy, and measure 6–12 cm in length and 2–6 cm in breadth. They are also symmetrically opposed. The foliage is positioned at the tips of terminal branches or inside the leaf axils, and they are

### Traditional Uses

Plant extract from the seeds, leaves, and flowers demonstrated CNS depressive action (advance).The *Nectanthes arbortristis* exhibited efficacy against both the Semiliki Forest Virus (SFV) and the Encephalomyocarditis Virus (EMCV).Leaves: Leaf is used as a cholagogue, diaphoretic, antihelmintic, and to regulate fever and diabetes. Leaf juice has been used as a diuretic, somewhat bitter tonic, antidote to to reptile venom, and digestive. Additionally, leaves are utilized to cure spleen diseases. Ayurvedic medicine has made use of the leaves.

### Cultivation and collection

Because of its most pleasing and erratic scent, it is frequently grown in gardens. Both cuttings and seeds can be used to propagate the plant.

The seeds have been discovered to have a low because of phenolics, the rate of germination substances seeping from the ingested seeds. These substances that inhibited phenolics were preserved with the help of the seed coat in each carp. Germination proceeds more quickly when either eliminating the two treatment seeds using an antioxidant solution such as PVP (polyvinylpyrrolidone) or PVPP (polyvinylpolypyrrolidone) before germination in Vinod and Abhishek Kumar Sah In 2012, Kumar Verma.

### Flowers

NAT flowers are small, delightfully fragrant, sessile, and borne in pedunculate bracteates fascicles of three or five; the calyx is 6-8 mm long, narrowly campanulate, hairy on the outside, glabrous on the inside, truncate, or obscurely toothed; the peduncles are 4-angled, slender, hairy, auxiliary, solitary, and in terminal short dichotomous chimes. or ciliated, lobed. More than 13 mm long, glabrous corolla; 6-8 mm long, orange tube, about equaling the limb; white, unevenly obcordate, cuneate lobes (Bhosale & Associates, 2009).

### Nyctanthes arbortristis: a phytochemical, pharmaceutical, and tissue culture investigation.

Ayurvedic medicine uses the leaves of *Nyctanthes arbortristis* L. (Oleaceae) to treat a variety of ailments, although there is a lack of information on the phytochemicals and pharmacological qualities of this plant. Here, we describe the purification of an antioxidant polysaccharide (F2) that was water-extracted from the plant's leaves. According to chemical, chromatographic, and spectroscopic investigations, a highly branched polysaccharide (75 kDa) containing esterified phenolic acids was found. The ESMS analysis

of per acetylated oligomeric fragments obtained from Smith degradation, in particular, offers crucial structural details on a range of glycerol-tagged oligosaccharides. The DPPH and Ferric reducing power experiment demonstrated the dose-dependent free radical scavenging capacity of this polysaccharide. Over the pH range of 4.0-7.4, this pharmacologically active molecule (F2) and bovine serum albumin produced a water-soluble combination. Consequently, As the The derivative of anthraquinone was extracted from *A Nyctanthes fungus*, PM0409092 Oleaceae family member *arbortristis*. It was determined by DNA to be a *Phomopsis* sp. sequencing and amplification of the ITS locale. *Altersolanol*'s molecular makeup A's physicochemical properties were clarified. attributes, NMR spectroscopy in two dimensions, and more spectroscopy information. The mixture includes in vitro cytotoxic action on thirty-four human IC50 (IC70) mean for cancer cell lines proportions of 0.005 µg ml<sup>-1</sup>. (0.024 µg ml<sup>-1</sup>) in that order. One kinase is *Altersolanol A*. inhibitor, causes apoptosis to occur in cells via means of Caspase-3 and -9's cleavage and through a reduction in anti-apoptotic protein verbalization.

**Table-1: Chemical constituents found in one-of-a-kind parts of Night jasmine and their biological activities.**

Plant part	Chemical Constituents	Biological activity	References
Seeds	Arbortristoside A&B, Glycerides of linoleic oleic, lignoceric, stearic, palmitic and myristic acids, Nyctanthicacid, 3-4 secotriterpeneacid.	Antibacterial, Antileishmanial, Antifungal, Immunomodulatory	[1] [2] [3] [4] [5]
Flowers	Essentialoil, nyctanthin, d-mannitol, tannin and glucose, carotenoid, $\beta$ -monogentiobioside- $\beta$ -Dmonoglucosideester of $\alpha$ -crocetin, glycosidesviz $\beta$ -monogentiobioside ester of $\alpha$ -crocetin(orcrocin-3), $\beta$ -digentiobiosideesterof $\alpha$ -crocetin	Diuretic, Antioxidant, Anti-inflammatory, Anti-bilious, Sedative, Antifilarial	[6] [7] [8] [8]
Leaves	D-mannitol, $\beta$ -sitosterole, Flavanol glycosides-Astragalin, Nicotiflorin, Oleanolic acid, Nyctanthicacid, tannicacid, ascorbic acid, methyl salicylate, carotene, friedeline, lupeol, mannitol, Glucose andfructose, iridoid glycosides, benzoicacid.	Antibacterial, Anthelmintic, Anti-inflammatory, Hepatoprotective, Immunopotential, Anti-pyretic, Antioxidant, Antifungal	[10] [11] [12] [13] [14] [15] [16]
Stem	Glycoside-naringenin-4''-0- $\beta$ -glucapyranosyl- $\alpha$ -xylopyranosideand $\beta$ -sitosterol	Antipyretic, Antioxidant	[17] [18]
Bark	Glycosidesandalkaloids	Anti-microbial	[19]
Flower oil	$\alpha$ -pinene, p-cymene, 1- hexanol methyl heptanone, phenylacetaldehyde, 1-deconolandanisaldehyde	as perfume	[20]

### MATERIALS AND METHODS

Flowers were harvested early in the morning since *Nyctanthes arbortristis* L. and *Plumeria acuminata* have their strongest perfume in the morning. We picked

flowers in our backyard, our campus garden, and other surrounding areas.

## METHODS

Different techniques described in different publications were employed to extract the biocomponents from *Plumeria acuminata* and *Nyctanthes arbor-tristis* that are responsible for its scent. Below are the methods.

1. The procedures involved in creating a scented fragrance flower include gathering and drying the buds, fruits, and leaves from the scented flower tree as the first stage in creating a perfume employing the incense aroma of the current innovation.

The second stage involves pulverizing the fragrant flower in a container and adding different oils and inorganic solvents, such as water or ethanol, to extract the components of the scented flower; the third step is to filter or centrifuge the mixture to get rid of contaminants; the process of creating a scented extract by removing contaminants from the extract by letting its solvent evaporate (step 4); Additionally, stirring the fragrance after adding the produced scented aroma extract to 2% by weight depending on the overall weight ratio or weight percent of the traditional perfume additions scented flowers chosen from the vodka, floral water, and alcohol base.

2. 400% by weight of ethanol, 100% by weight of fragrant flowers, ice, a 500 mL round-bottom flask, wire mesh, a 500 mL beaker, and an alcohol light

1. To eliminate moisture, use fragrant flowers and use a low heat for one or two days.

2. Roughly slice the fragrant flowers into a large beaker, about 1 centimeter.

3. Fill the beaker with enough distilled water to completely submerge the aromatic flowers.

4. To ensure they don't fall, position the little beakers in the center of the large beakers.

5. Fill a round-bottom flask with crushed ice and set it on top of a big beaker.

6. Turn on the alcohol lamp and let the beaker with aromatic flowers warm for thirty to forty minutes.

3. The object of the present invention was to produce another scented flower extract in a specialized company by the separation process comprising the following steps in the scented wood: First, dried buds of the incense flower trees were prepared and crushed to make fine powder. The fine scented fragrant flower powder was mixed with water in a predetermined ratio, and then mixed and stirred. After the stirring was completed, the extract was removed from the impurities by centrifugation or filtration. The extract may be used as it is through an additional purification process, or, preferably, separately extracted fractions more active by chromatographic methods may be used to prepare additives. That is, a step of preparing a scented flower by collecting undried buds from the scented Depending on the location and timing of the harvest, scented flowers may have different extracts with different compositions and activities. In the case of other common herbal remedies, this is to be expected. Furthermore, it is advised to dry the fragrant blossoming tree buds in the shade after collection. It is better since sunlight may volatilize or destroy the active chemicals in the fragrant

blossoms, reducing their impact. It is ideal to remove the scented smells from the stalks, leaf roots, and berries and add them to the perfume. It is also a better option. To extract the fragrance oil from the dried aroma, use oils, inorganic solvents such as methanol, ethanol, isopropyl alcohol, and butanol, esters like At between 40 and 70 °C, the extract is obtained by evaporating the solvent in relation to the extract. ideally between 0.005 and 1 atm.

The primary components of the extract may escape simultaneously in the air flowing out under reduced pressure, or chemical extracts may be created in the extract at this time when the evaporation temperature is increased. Therefore, it is better to choose an appropriate evaporation environment.

4. The solvent used is 20 liters of scented essential oil, which is extracted by squeezing scented fragrance into a 1-liter stainless steel container. Preferred additions, jojoba oil (20 percent by weight) and ethanol (60 percent by weight), are then diluted and completed. observed.

As a result, the fragrance of the current application, which is treated with 20% by weight in comparison to the perfume addition according to the present invention's embodiment, has the advantage of having a long-lasting impact. Thus, the present invention permits the use of scent while engaging in social activities, recreational pursuits like hiking, fishing, camping, travel, and vacation, or other outdoor activities like outdoor work and training or retreat.

## CONCLUSION

The aforementioned tests revealed that our company's fragrance was extremely aromatic and did not cause an adverse reaction, even when used by those with allergies. As an additional illustration, consider the time the door was left open while our bodies were doused in our fragrant perfume. I went to bed without biting any mosquitoes or other pests, and the following day, I walked to the food waste bin and park where the insects were awake for an hour after I had sprayed the fragrant aroma of the night. We could feel secure in shielding the human body from insects and mosquitoes because no mosquitoes were shot, and our company's fragrant product was frequently used as a repellent for mosquitoes in addition to fragrances. The experimental smell extract was extracted by distillation and filtration, which eliminated contaminants from the scent extract; the scent perfume was then diluted with alcohol and applied topically through spray; To create a functional scent, the extract can be utilized just as is through one more purification step or, ideally, by distilling or extracting more active fractions separately using chromatography. That is, the initial phase in creating a fragrant flower, which involves gathering the scented flower tree's fruits, stems, and buds that haven't dried; pulverizing the fragrant flowers and (second stage) extracting the fragrance by adding oil or an inorganic solvent (water, alcohol, etc.); the third step is to filter or centrifuge the mixture to get rid of contaminants; Setting Up.

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