

**DATURA STRAMONIUM (COMMON NAME: JIMSON WEED)
MEDICINAL USES, SIDE EFFECTS AND BENEFITS*****Dr. Shaival Mishra**

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ABSTRACT

It is small shrub growing 4 to 5 feet height and belong to family solanaceae. It's having active principles – Hyoscine, hyoscyamine atropine. It is used as mydriate, antispasmodic, antidote, pre anesthetic and medication, bronchial, asthma mode of action – peripheral effects are predominant and result from anticholinergic action. Central effects involve initial stimulations of the C.N.S with excitement and restlessness followed by subsequent depression delirium and coma. It is mainly used for robbery & other type of crime.

KEYWORDS: Atropine, antidot, delirium.**INTRODUCTION**

It is small shrub growing 4 to 5 feet height and belong to family solanaceae.

Datura is an herbaceous perennial plant, which is grown in temperate and tropical region of the globe. All the species of Datura are poisonous in nature. Some are aphrodisiac too. The seeds and flowers are more poisonous in nature. Sometimes, datura is termed as witches weeds and shows properties like deadly nightshade and henbane. Datura use is known for feverish state and even death. However, in Ayurveda, it is used as medicine and ritual as well as prayers has also place this. Even being a poisonous plant, datura has been using since the ancient times by ayurveda physicians, spiritual purposes, holy men and its use in modern medicine drugs.



Datura seeds parts used are seeds, flowers and leaves. All the parts of datura contain dangerous level of poison like tropane alkaloids atropine, hyoscyamine, scopolamine, which are considered as delirians or anticholinergics.

Datura should be taken only after consultation from the good practitioner as the difference between medical dose and toxic dose is very very small.

Datura distribution

Initially, datura was found in United States of America but now it is spread all over the world. In United States, datura is generally found in Southern America and Mexico. Datura is found in the deserts of America such as southern California, east Texas, and northern region of Arizona, New Mexico, Utah and Nevada. It grows wild in the tropical as well as temperate climate where it is found in the road side area as well as the medicinal plant nursery. In Europe, it grows as weed on the wasteland and garbage. In India, it is distributed in the Himalayn region.

Datura classification

- Botanical name: Datura stramonium
- Kingdom: Plantae
- Division: Magnoliophyta
- Class: Magnoliopsida

- Order: Solanales
- Family: Solanaceae (deadly Nightshade family)
- Genus: Datura
- Species: Datura stramonium

Common names of Datura

It has been known by many names such as jimson weed, stink weed, mad apple, thorn apple stramonium, dhatura tatula, and datura seeds. Datura is also known by other common names such as Devil's snare, hell's bell, devil's trumpet, devil's weed, tolguacha, locoweed, pricklyburr and devil's cucumber.

- English Name- Thorn apple, Devil's trumpet, Metel
- Hindi Name- Sada Dhatura
- Tamil Name- Ummattangani/ Vella- Ummathai
- Telugu Name- Ummetta
- Bengal Name- Dhatura
- Gujarati name – Dhatura
- Marathi Name-Dhatura
- Kannada name- Unmatta, Dhatura
- Malayalam Name- Unmatta, Dhatura
- Arabic name – Datur
- Persian name – Tatur

- **BINOMIAL NAME**

- **Flowers: Bell shaped**

- **Fruits: Spherical with spines**

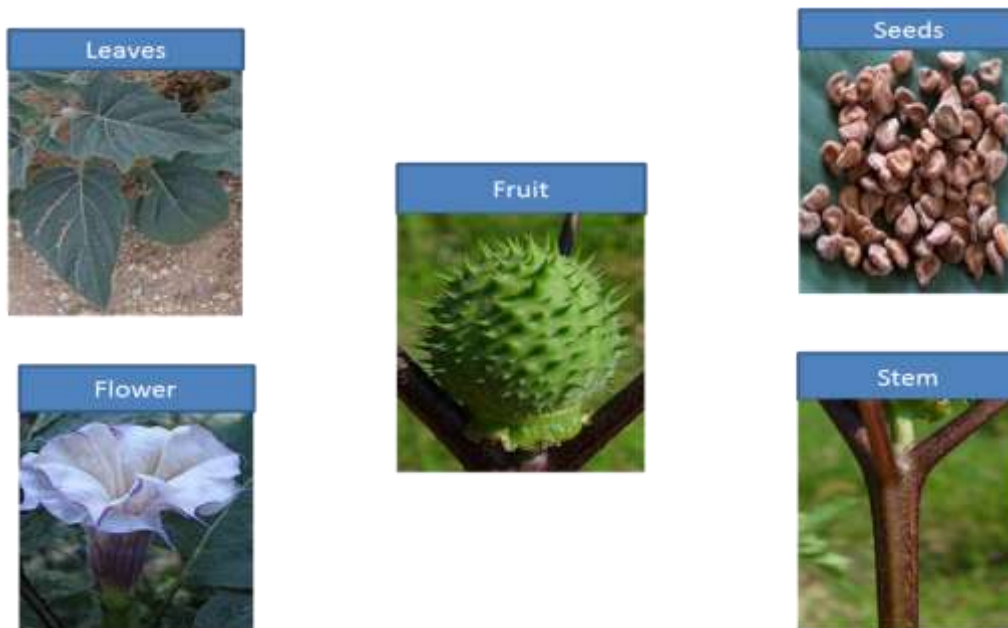
- **contains 400-500 seeds**

- **Seeds: Yellowish-brown resembling capsicum seeds.**

- **TYPES**

- **1. Datura Alba**

- **2. Datura Niger**



Datura drugs and medicinal benefits

Recently, FDA has recognized the medicinal uses of Datura because the presence of chemical compounds such as scopolamine and atropine.

- Flying Ointment: Flying ointment is used by medieval witches of Europe so that they can fly. Flying ointment is a complex drug that is made from the plants such as henbane, hemlock, wolfsbane and some plants from nightshade family. The ointment is used to apply on the soles of the feet, vagina and armpits.
- Ayahuasca brews: Ayahuasca brew is used by shamans to make brew. Only 2-3 leaves are used for 30-40 people.
- Smoking blends of datura and cannabis are used as smoke because it is not ruthless and burns easier.
- It has been used by the British soldiers to treat respiratory problems. Both scopolamine and atropine are used as sedatives and sometimes helps in curing of motion sickness, nausea and dizziness.
- Datura has been used in Ayurveda for asthma symptoms where jimson weed's leaves are smoked in cigarette or pipe.
- The Zuni once used it as analgesic for bone setting while the Chinese were used it as anaesthesia during surgery.

Datura seeds benefits

- Datura leaves are used to treat pain. The paste of roasted leaves is applied over the area to relieve pain.
- It is used as herbal medicine, especially in case of ayurveda for asthma and bonesetting.
- Jimson weed is used to treat spasm of bronchitis in asthma.
- Datura seeds and leaves are used as antiasthmatic, antispasmodic, hypnotic and narcotic.
- Externally, the jimson seeds are used in treating of fistulas and abscesses
- Datura leaves are enriched with hyoscyamine and atropine, can be used as mind altering drug.
- The oil extract from the datura seed is used to treat baldness and stimulate growth of hair.

Datura leaves benefits

- The leaves of datura are good to relieve headache.
- The vapour of datura leaves infusion is used to relieve arthritis such as rheumatism and gout.
- The burning leaf smoke of datura is good to treat asthma and bronchitis.
- The ethanol extract from datura leaves are used as acaricidal, repellent and oviposition deterrent properties against mites.
- The ethanol extract of datura is used as repellent against larva and mosquito.
- The leaves of datura are used to treat heart problems like palpitations and hypertension.
- Datura leaves juice is used to treat earache.
- Boils can also be overcome by applying datura leaves as poultice.

List of Datura species

- *Datura wrightii* also called Southwestern Thorn Apple
- *Datura stramonium* also called Jimson weed
- *Datura meteloides* also called sacred datura
- *Datura innoxia* named as Toloache
- *Datura discolor* is also known as Moon flower.
- *Datura ceratocaula*
- *Datura ferox*: long spined thorn-apple
- *Datura leichhardtii*: Leichhardt's datura
- *Datura quercifolia*: Oak-leaf thorn-apple

• Species	• Origin	• Leaves (%)	• Stem (%)	• Roots (%)	• Fruits (%)	• Seeds (%)
• <i>fastuosa</i>	• India, Asia and Africa	• 0.12	• 0.12	• 0.10	• 0.20	• -
• <i>stramonium</i>	• India, USA and Europe	• 0.41-0.45	• 0.25-0.26	• 0.21	• 0.46	• 0.19
• <i>alba</i>	• India, Asia and Africa	• 0.12	• 0.12	• 0.10	• 0.20	• -
• <i>innoxia</i>	• India and Mexico	• 0.25	• 0.3	• 0.39	• 0.12	• 0.23-0.25
• <i>metel</i>	• India and Mexico	• 0.12	• 0.12	• 0.10	• 0.20	• -

- Following are the active principles of Datura :
- 1. Hyoscine (Scopolamine) : **C₁₇H₂₁NO₄** Present mainly in fruits
- 2. Hyoscyamine (Scopoline) : **C₁₇H₂₃NO₃** present mainly in roots/seeds
- 3. Atropine : Present mainly in leaves/flowers

Datura side effects

► Competitively inhibits muscarinic effects of Acetylcholine

- Datura is poisonous plant, so it should be taken only after consultation with the experienced physicians.
- Datura chemicals such as scopolamine and atropine are used as poison and used in murders and suicides.
- Datura increases the heart beat and may lead to cardiac arrest.
- Ingesting datura may cause violent behavior because the presence of chemical substance called anticholinergic.
- Taking datura results to dilated pupils.
- One can also experience amnesia due to this.
- Blurred vision, nausea, giddiness, confusion, rapid pulse, hyperthermia are some of the side effects of datura.
- Datura can affect the nervous system adversely.
- The juice of datura leaves is also very harmful for eyes.
- **All parts or the plants are poisonous.**
- **Seeds and fruits are most toxic.**
- **They contains 0.2-0.4% of hyoscine, hyoscyamine and traces of atropine.**

Etiopathogenesis

The alkaloids of datura stimulate the higher centres of the brain and then the motor centres they inhibit recreation of sweat and saliva dilate the pupil and stimulate the heart regulating centre situated in the floor of the third ventricle the initial stimulation is followed by depression and paralysis of the vital centres in the medulla.

➤ Exerts central and peripheral action

➤ Mainly anticholinergic effects

CNS, CVS, Eyes, Smooth Muscles, Glands, Body Temp, Local Anesthetics, decreases bronchial secretion, etc.

• Sign and Symptoms

According To Modern

SYMPTOMS

- Following are the symptoms which are first complained of usually within 30 min. after swallowing the drug :
 - Vomiting (immediately after taking the drug)
 - Dryness of mouth and throat, burning pain in stomach, dysphagia, head ache and difficulty in talking
- Followed by :
 - giddiness
 - incoordination of muscle
 - peculiar flushed appearance of the face
 - photophobia
 - dry hot skin with raised temperature
 - dilation of pupil
 - inability to pass urine
 - delirium
- Fatal cases drowsiness passes into stupor, convulsions and coma
- Death occurs due to respiratory failure



- a) Dryness of mouth, throat and unquenchable thirst.
- b) Dysphagia
- c) Burning pain in throat and stomach.
- d) Bad taste in the mouth.
- e) Flushing on face.

- f) Skin become dry, hot and the temperature rises. It may be up to 42° C.
- g) Dilation of pupils, photophobia and loss of accommodation.
- h) Initially the pulse is full and bounding gradually as the condition deteriorates the pulse becomes weak and slow. Later it becomes irregular and collapsing.
- i) The patient may become unconscious.
- j) Respiration is slow, then the rate increases.
- k) Rare convulsions are seen before.
- l) Death is due to :-
 - 1) Respiratory Failure
 - 2) Cardiac Failure

Dhatura poisoning is having a resemblance with Atropine Poisoning and quoted as:

- Hot as a Hare
- Blind as a Bat
- Dry as a Bone
- Red as a Beet
- Mad as a Hen

FATAL DOSE : Uncertain

FATAL PERIOD : Death usually occurs within 24 hours

• **Forensic significance(MEDICOLEGAL IMPORTANCE)**

Accidental

Suicidal

Homicidal

Stupefaction

Treatment Given

- **Stomach wash with water or a 2-4% solution of tannic acid, also give sodium sulphate by mouth as a purgative**
- **Physiostigmine i.v or i.m route in the dose of 0.5mg at 1-2 hour interval**
- **Pilocarpine nitrate, Methacholine or Neostigmine in the dose of 6-15 mg**
- **Short acting Barbiturates**
- **Stimulants such as Caffeine and artificial respiration ,gives when necessary**

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