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Role of *Dhatura* according to *Agad Tantra* in Ayurveda

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ABSTRACT

Ayurveda is considered as one of the ancient health care systems. The antique Vedic texts have scattered references of Ayurvedic Remedies and allied aspects of medicine and health. Atharvaveda mainly deals with extensive Ayurvedic information. *Agad Tantra* is one of the eight branches of Ayurveda dealing with identification of poison, types of poison from minerals, plant and animal kingdoms as well as artificial poisons prepared from poisonous drugs and their treatment. *Dhatura* is one of the *Upvisha*. It is a wildy growing plant from the Solanaceae family, used in many Ayurvedic formulations. This plant has contributed various pharmacological actions in the scientific field of Indian systems of medicine like analgesic, anti-inflammatory, anti-asthmatic, hypoglycemic, anti-rheumatoid, and wound healing activities. It contains a variety of toxic tropane alkaloids such as atropine, hyoscyamine, scopolamine, etc. every part of the plant is toxic, but the highest number of alkaloids is contained in the seed. *Dhatura* poisoning is common in India. The administration of improper amounts of *Dhatura* affects the central nervous system with symptoms such as dysphagia, dementia, confusion, convulsions, delirium, and hallucination.

Key words: Vedic, Ayurveda, Agad, Dhatura, Upvisha, Atropine, Toxic, Anti-asthmatic.

INTRODUCTION

The demand for medicinal plant is growing in both developed and developing countries due to growing recognition of natural product. Herbal medicine is an important part of both traditional and modern system of medicines.^[1] The universal role of plants in the treatment of disease is exemplified by their employment in all the major systems of medicine irrespective of the underlying philosophical premises.

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The use of single pure compounds, including synthetic drugs, is not without its limitations, and in recent years, there has been an immense revival in interest in the herbal and homeopathic systems of medicine, both of which rely heavily on plant sources. *Dhatura*, commonly known as thorn apple, jimson weed, locoweed, and devil's weed. Common species encountered are *D. fastuosa*, *D. atroxa* and *D. metal*. *D. fastuosa* is of two varieties - niger and alba. *Dhatura metal* L., with local name "*Dhatura*". Is an erect shrub with spreading branches. In Ayurveda, *Dhatura* is described as a useful remedy for various human ailments including asthma, cough, fever, inflammations, wound, edema, neuralgia, insanity, myalgia, hyperacidity, and dysmenorrhea. *Dhatura* poisoning is common in India, the seeds being usually employed mainly as a stupefying poison prior to robbery, kidnapping and rape. It is sometimes known as roadside poison. Accidental poisoning is commonly occurring when children and adults eat the raw fruit or seeds mistaking them for edible fruits or capsicum seeds. The administration of improper amounts of

Dhatura affects the central nervous system with symptoms such as dysphagia, dementia, confusion, convulsions, delirium, and hallucination. However, death by *Dhatura* poisoning is rare, recovery may take several days. As this plant is responsible for both medicinal and toxic effects on human beings, so it is necessary to use it after appropriate knowledge.

Vernacular Names^[2]

Language	Synonyms
Hindi	<i>Sada Dhatura</i>
English	Thorn-Apple
Telugu	<i>Ummetta</i>
Tamil	<i>Ummattai, Umate</i>
Bengali	<i>Dhatura, Dhotra</i>
Kannada	<i>Unmatta</i>
Gujarati	<i>Dhatura, Dhaturu</i>
Marathi	<i>Dhotra, Dhatura</i>
Bihar	<i>Khunuk</i>
Kashmir	<i>Dather</i>

Classical Name: *Dhattura, Dhuttura, Dhustura, Dhurta, Kitava, Kanaka, Unmatta, Matula, Shivpriya, Dhurta, Devata, Kitava, Toori, Mahamohi, Kanakahva* etc.

Possible meaning of	Synonyms of <i>Dhatura</i>
<i>Dhattura</i>	It destroys vitiated <i>Doshas</i> and <i>Dhatus</i> by its <i>Ushna Guna</i>
<i>Unmatta</i>	The drug that produces delirium
<i>Kanaka / Kanakahva</i>	The drug with synonyms of gold
<i>Kitava</i>	People who consume will behave idiotic
<i>Madana</i>	That paralysis the function of the body parts
<i>Shivapriya</i>	Favorite of lord Shiva

<i>Dhustura</i>	Drug causing giddiness and palpitation (with its deliriant effect)
<i>Dhurta</i>	Drug that kills head lies (<i>Yuka</i>), body lies (<i>Leeksha</i>) etc.
<i>Matula</i>	No other drug is equal to its therapeutic effects or in other words there is no comparison of its efficacy with other drugs

Types^[3]

There are 5 types based on color of flowers.

1. White
2. Blue
3. Black
4. Deep red
5. Yellow

Botanical Description^[4]

Dhatura is a messy smelling, erect, annual, freely branching herb that forms a shrub up to 60 to 150 cm (3 to 5 ft) tall.

Root: Cylindrical with lateral branches, brown coloured, rough splintery.

Stem: Dichotomously branched, cylindrical, blackish dark to purple colour, internode very short.

Leaf: 6 to 11 cm long, 2 to 8 cm broad, alternately arranged with pointed margin, dark green colour.

Flower: The flowers are trumpet or bell shaped.

Fruit: Capsule, Spherical with soft spines and contains 50 to 100 light brown reniform seed.

Seed: Light brown, reniform, compressed, flattened, 0.4 to 0.5 cm long, and 0.4 cm wide, foveate, surface finely pitted, yellowish brown colour and resembling chilly seeds.

Distribution: In India, *Dhatura* plants are abundant and grow wild throughout the country.

Ayurvedic properties of *Dhatura*

Rasa	Tikta, Katu
Guna	Laghu, Ruksha, Vyavayi, Vikasi
Veerya	Ushna
Vipaka	Katu
Prabhava	Madaka
Doshaghnata	Kaphavatashamaka
Rogaghanta	Shotha, Vedna, Arsha, Vatavikara, Amlapitta, Shwasa, Shaiyyamootra, Yuka, Liksha
Karma	Jantughana, Vedanasthapana, Shukrastambhan, Twagdoshahara, Swedavarodhak, Shoolaprashmana, Hridayottejaka, Garbhashayaprasarak.

Therapeutic Parts^[5]

Root, fruit, seed, flower, leaves.

Traditional Uses

Dhatura is useful in asthma, cough, fever, inflammations, oedema, neuralgia, insanity, myalgia, hyperacidity, duodenal ulcer, renal colic, calculi, and dysmenorrhoea. The whole plant is of medicinal importance, but especially roots are used for bites of rabid dogs. Leaf is useful in inflammations and piles. Leaf juice is applied externally for lice and skin disease. Leaves in form of poultice are used in lumbago, sciatica, neuralgia, mumps, and painful swellings. Seeds are aphrodisiac and used in toothache, earache, gastric disorders, and are good to treat dandruff and lice.

Mode of Action

Atropine and hyoscine block the acetylcholine receptor and produces sympathomimetic or parasympatholytic action. It stimulates the central nervous system in early phase, but later CNS depression occurs, especially of the respiratory center. Vagolytic action resulting in stimulation of the heart.

Common Formulations

Kankasawa, Ekangvira Rasa, Puspadhanwa Rasa, Tribhuvana Kirti Rasa, Laghu Vishgarbha Taila, Visatinduka Taila, Dhattura Taila.

Toxicological Profile**Type of Poison**

Ayurveda: *Sthavara Vanaspatik Visha, Upavisha*

Modern: *Cerebral Deliriant Poison*

Fatal Dose

- 1) About 60 to 100 *Datura* seeds.
- 2) Usually 60 to 75 mg of atropine.

Fatal Period: 24 hours

Clinical (Toxic) Features^[6]

Summarized in the classic phrase: blind as a bat, hot as a hen, dry as a bone, red as a beet and mad as a wet hen.

The important manifestation of *Dhatura* poisoning can be summarized as 9Ds.

1. Dryness of mouth, thirst, slurred speech.
2. Dysphagia.
3. Dilated pupils.
4. Diplopia.
5. Dry hot skin with flushing, hyperpyrexia.
6. Drunken gait (ataxia), hyperpyrexia, convulsions
7. Delirium with hallucinations, agitation, amnesia, incoherence.
8. Dysuria, Urinary retention, bladder distension.
9. Death preceded by tachycardia, arrhythmias, coma and respiratory depression.

Treatment Principle^[7]

Monitoring of pulse, respiration and body temperature, Stomach washes by KMnO₄ or 4 - 5% tannic acid., hysostigmine 1-4 mg I.V./I.M. (repeated, if necessary, at intervals of 1-2 hrs.) Or Neostigmine (2.5 mg I.V. every 3 hrs.), Pilocarpine 5mg/S.C.

Ayurvedic Antidote^[8]

Cow milk with sugar, juice of *Vrintaka* fruit in a dose of one *Pal*, *Karpasasthi Pushpa Kwath*, *Nimbu Swarasa*, *Jiraka*.

Post- Mortem Appearance^[9]

Not characteristic, Dilated pupil, Sign of asphyxia, General signs of poisoning, Seeds or their fragments may be detected in the stomach and small intestines. It resists putrefaction and may be found even in a decomposed body.

Medico-Legal Aspects**1. Accidental**

- Therapeutic misadventure due to quackery.
- Ingestion of seed by children.
- Over enthusiastic use of atropine as an antidote for organophosphate or carbamate poisoning.

2. Suicide: Mostly reported from rural areas.

3. Homicide: Extremely rare.

4. Stupefaction: Used as stupefying agent for theft, robbery, rape or kidnapping. The powdered seeds are mixed with food, tea, drink.

DISCUSSION AND CONCLUSION

Several alkaloids, carbohydrates, fat, proteins and tannins have been reported to be present in different parts of *Dhatura*. In Ayurvedic literature, *Dhatura* is described as a useful remedy for various ailments like *Asthma*, *Jwara*, *Kustha*, *Alarka-visha*, *Amlapitta*, and *Krimi*. It can be used both locally and through oral administration. For the preparation of many Ayurvedic formulations like *Tribhuvana Kirti Rasa*, *Sootshekhara Rasa*, *Kanakasava*, *Mahavishagarbha Taila*, *Dhatura* is used as one of the ingredients. In modern, many

previous reviews revealed that the plant shows various type of activities such as analgesic, anti-inflammatory, anti-cancer, anti-viral, anti-bacterial, antipyretic, anti-spasmodic, neurologic and wound healing that may be due to the presence of the different active components like alkaloids, tannins, saponins, steroids, flavonoids, and glycosides. It is a powerful deliriant and hallucinogen.

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