WILDERNESS IMAGES

Datura: The Roadside Poison

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Datura is a genus in the family Solanaceae (Latin: quieting) that contains 9 species, namely *Datura ceratocaula*, *Datura discolor*, *Datura ferox*, *Datura inoxia*, *Datura leichhardtii*, *Datura metel*, *Datura quercifolia*, *Datura stramonium*, and *Datura wrightii*. Etymologically the word *datura* is derived from a Sanskrit word, *dhatur*. It is also known as yangjinhua, tatala, and stinkblaar in Chinese, Turkish, and Afrikaans, respectively. It came to be known as Jamestown or Jimson weed as a result of its involvement in an accidental poisoning in Jamestown, VA. Other common names for *Datura* are devil's apple, devil's trumpet,

thorn apple, belladonna, metelnut, deadly nightshade, and solanum.

Datura is an annual herb (occasionally short-lived perennial) that attains a height up to 2 m. This herb has 10- to 20-cm-long and 5- to 18-cm-wide lobed alternate leaves. The other distinguishing feature is the erect 5- to 20-cm-long trumpet-shaped white to pale purple flowers. The 4- to 10-cm-long and 2- to 6-cm-broad fruit of *Datura* has a spiny capsule, hence the name thorn apple. The ripe fruit splits open, dispersing numerous kidney-shaped seeds over pastures, fields, or wastelands (Figure). *Datura* (devil's trumpet) has structural resemblance to the genus

Figure. A, *Datura alba*, a subspecies of *Datura fastuosa*. B, Fruit with spiny capsule. C, Ripe fruit and seeds. D, E, Trumpet-shaped flowers. Photographs by Tanuj Kanchan, MD.

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Submitted for publication March 2016

Accepted for publication April 2016

Brugmansia (angel's trumpet). Taxonomically distinct woody shrubs *Brugmansia* (formerly included in *Datura*) are identified by their pendulous flowers and the absence of spines on the fruit capsule.

The weed contains the tropane alkaloids—scopolamine, hyoscyamine, and atropine—which are concentrated primarily in the seeds and flowers. These alkaloids competitively block the neurotransmitter acetylcholine at the muscarinic receptor, both centrally and peripherally, and also at end organ sites of the parasympathetic nervous system. Scopolamine crosses the blood-brain barrier and is responsible for central nervous system effects such as delirium, drowsiness, agitation, and dementia.¹ The major effects of atropine-like plant poisoning is described in the classic aphorism “Red as a beet, blind as a bat, hot as a hare, dry as a bone, mad as a hatter.” The signs and symptoms of *Datura* poisoning are conveniently remembered as the 10 Ds, which include 1) dryness of mouth, thirst, and slurred speech; 2) dysphagia; 3) dilated pupils; 4) diplopia; 5) dry hot skin, with flushing and hyperpyrexia; 6) drunken gait (ataxia), hyperreflexia, and convulsions; 7) delirium with hallucinations, agitation, amnesia, and incoherence; 8) delusions; 9) dysuria, urinary retention, and bladder distention; and 10) death, preceded by tachycardia, arrhythmias, coma, and respiratory depression.

Therapeutic traits of *Datura*, including antinociceptive, antioxidant, anti-inflammatory, antibacterial, antiasthmatic, antirheumatoid, and hypoglycemic properties, have been identified; however, its medicinal use has yet to be established. It was used for relief from the pain of parturition in the past. Studies further suggest that the plant possesses anticancer properties.^{1–3} The identified therapeutic uses of scopolamine in butyl bromide form is for its antispasmodic action over gastrointestinal, biliary, and genitourinary tracts and for preanesthetic medication. Scopolamine is also used as truth-serum during medicolegal investigations.

The Afrikaans refer to *Datura* seeds as malpitte (crazy seeds). The hypnotic and hallucinogenic property of *Datura* is often used by some Hindu devotees during the festivals of Holi and Shivaratri. An extract of the delirium-inducing plant *Datura* is sometimes mixed with comestibles, notably in the form of cookies, and offered to unsuspecting passengers or individuals to facilitate

robbery or commit sexual assaults, thus giving it the name “roadside poison.” Accidental poisoning occurs when the seeds, which resemble capsicum seeds, are mistakenly ingested by humans. Consumption of wasp honey contaminated with *Datura* also leads to poisoning.

Physostigmine is considered the drug of choice for treating *Datura* intoxication; its use, however, still remains controversial. Reversal of anticholinergic effect is not accomplished as a result of its relatively short duration of action of 30 to 60 minutes. The use of physostigmine for treating *Datura* poisoning is not recommended as it makes the patient vulnerable to hypotension, bradycardia, convulsion, and asystole.^{4,5} Treatment of *Datura* poisoning is mainly supportive, which includes gastrointestinal decontamination with activated charcoal and benzodiazepines to control agitation.

Author Contributions: Study concept and design (TK); obtaining funding (none); acquisition of the data (TK); analysis of the data (TK); drafting of the manuscript (AA, TK); critical revision of the manuscript (TK, AA); and approval of final manuscript (TK, AA).

Financial/Material Support: None.

Disclosures: None.

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