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Datura

Datura is a genus of nine species of poisonous vespertine flowering plants belonging to the family Solanaceae. They are commonly known as thornapples or jimsonweeds but are also known as devil's trumpets. Other English common names include moonflower, devil's weed and hell's bells.

Scientific name: Datura

Family: Solanaceae

Datura stramonium, known by the common names thorn apple, jimsonweed (jimson weed) or devil's snare,is a plant species in the nightshade family and *Datura* genus. Its likely origin was in Central America, and it has been introduced in many world regions.It is an aggressive invasive weed in temperate climates across the world.*D. stramonium* has frequently been employed in traditional medicine to treat a variety of ailments. It has also been used as a hallucinogen (of the anticholinergic/antimuscarinic, deliriant type), taken entheogenically to cause intense visions. It is unlikely ever to become a major drug of abuse owing to effects upon both mind and body frequently perceived subjectively as highly unpleasant, giving rise to a state of profound and long-lasting disorientation with a potentially fatal outcome. It contains tropane alkaloids which are responsible for the deliriant effects, and may be severely toxic.

Datura stramonium (*D. stramonium*) is one of the widely well known folklore medicinal herbs. The troublesome weed, *D. stramonium* is a plant with both poisonous and medicinal properties and has been proven to have great pharmacological potential with a great utility and

usage in folklore medicine. *D. stromonium* has been scientifically proven to contain alkaloids, tannins, carbohydrates and proteins. This plant has contributed various pharmacological actions in the scientific field of Indian systems of medicines like analgesic and antiasthmatic activities.

The major tropane alkaloids hyoscyamine and scopolamine and several minor tropane alkaloids have been identified in *Datura* species. Typical examples of minor alkaloids in *D. stramonium* are tigloidin, aposcopolamine, apoatropin, hyoscyamine N-oxide and scopolamine N-oxide17-20. 6â-ditigloyloxytropane and 7-hydroxyhyoscyamine are reported for the first time in this species

Distribution of hyoscyamine and scopolamine in *D. stromonium* was studied. The production of hycyamine and scopolamine in *D. stromonium* has been investigated in the different plant parts, at different stages of their life cycle. The maximum contents were found in the stems and leaves of young plants, hyocyamine being always the predominate component. These compounds were included in many pharmacopieas because of their anticholinergic activities

D. stromonium contain variety of alkaloids including atropine, hyoscamine and scopolamine

Sixty-four tropane alkaloids have been detected from *D. stramonium*. Two new tropane alkaloids, 3-phenylacetoxy-6, 7-epoxynortropane and 7-hydroxyapoatropine were tentatively identified. The alkaloids scopoline, 3-(hydroxyacetoxy) tropane, 3-hydroxy-6-(2-methylbutyryloxy) tropane, 3â-tigloyloxy-6-hydroxytropane, 3, 7-dihydroxy-6-tigloyloxytropane, 3-tigloyloxy-6-propionyloxytropane, 3 phenylacetoxy-6,7-epoxytropane, 3-phenylacetoxy-6-hydroxytropane, aponor scopolamine, 3â, 6â-ditigloyloxytropane and 7-hydroxyhyoscyamine are reported for the first time for this species. Other alkaloids found in *D. stramonium* include Hygrine, 3á, 6â-Ditigloyloxy-7-hydroxytropane, 6-Hydroxyhyoscyamine, Pseudotropine, 3á-Tigloyloxytropane, Hydroxy-6-tigloyloxytropane, Phenylacetoxytropane, 3-Tigloyloxy-6-(2-methylbutyryloxy) tropane, Hyoscyamine, 3-Tigloyloxy-6-isovaleroyloxy-7-hydroxytropane, Scopolamine, Tropinone, Scopine, 6-Hydroxyacetoxytropane, 3,6-Diacetoxytropane, 3-Tigloxyloxy-6-acetoxytropane, 3-Tigloyloxy-2-

methylbutyryloxytropane, 3á, 6â-Ditiglotoxytropane, 3-Acetoxy-6-isobutyryloxytropan, 3-(2-Phenylpropionyloxy) tropane, Littorine, 6-Hydroxyapoatropine, 3â, 6â-Ditigloyloxy-7-hydroxytropane, 3-Tropoyloxy-6-acetoxytropane, 3,6-Dihydroxytropane, 3â-Tigloyloxytropane, 3-Tigloyloxy-6-propionyloxy-7- hydroxytropane, 3á-Apotropoyloxytropane, Aposcopolamine, 3â, 6â-Ditigloyloxytropane, 3-(3′ -Acetoxytropoyloxy) tropane, 3á-Tigloyloxy-6-hydroxytropane, Tropine, 3-Acetoxytropane, 3-Hydroxy-6-acetoxytropane, 3-Hydroxy-6-methylbutyryloxytropane, 3-Tigloloxy-6-isobutyryloxytropane, Aponorscopolamine, 7-Hydroxyhyoscyamine, Meteloidine, 3â, 6â-Ditigloyloxytropane.

The phytochemical analysis of the plant revealed that *D. stramonium* contained saponins, tannins and alkaloids and glycosides. The secondary metabolites identified in the plant materials in the study of Banso A and Adeyemo S showed antimicrobial activity

Uses

Antiasthmatic activity

Anticholinergic activity

Anticancer activity

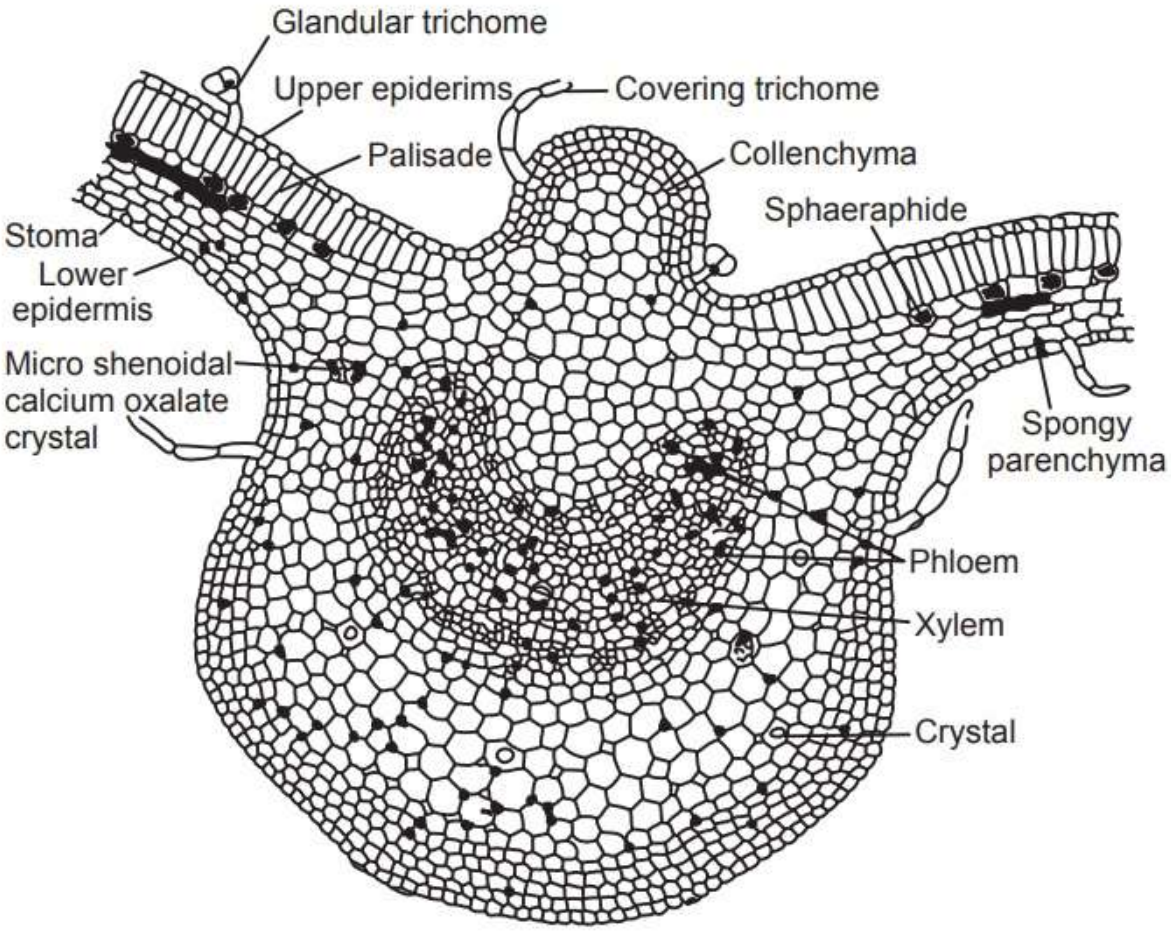
Antiinflamatory activity

Larvicidal and mosquito repellent activities

Antifungal activity

Biopesticide with antifungal activity

Protective agent in severe organophosphate toxicity


Glandular trichome
Upper epiderims
Covering trichome
Palisade
Collenchyma
Sphaeraphide
Stoma
Lower epidermis
Micro shenoidal calcium oxalate crystal
Spongy parenchyma
Phloem
Xylem
Crystal