

Deadly Nightshade

DEFINITION

Deadly nightshade, scientific name *atropa belladonna*, is an herbaceous perennial plant found in shaded, damp areas across northern Europe, Asia, and North Africa. This plant can grow to be three feet, or 180 cm, tall and has pointed, oval leaves, purple flowers, and shiny black berries



that ripen in the fall. Other common names for deadly nightshade are witches berry (Robertson), belladonna, devil's cherry, and "dwale", an Anglo-Saxon word meaning "A stupefying drink"" (Stewart 31).

A part of the Solanaceae family, relatives of deadly nightshade include mandrake, the habanero chile pepper (Stewart), eggplant, tomato, potato, petunia, and tobacco (Britannica).

History of the name:

Atropa

The root of *atropa belladonna* stems from Greek mythology. Atropos, one of the Three Fates, is the sister who held the shears of death. Atropos would end a person's life when and how she chose by cutting their life thread, as spun by her sister Clotho (Stewart 33). A fitting name, given the deadly nature of this plant.

Belladonna

Meaning "beautiful woman" in Italian, belladonna is a synonym for deadly nightshade. Both Stewart and Sterkenberg mention two beauty rituals practiced by Italian women in the middle ages. One involved rubbing a tonic derived from the plant on their cheeks to "redden the pigment of their skin for a blush-like appearance", while the other was to drop the tonic in the eyes to dilate the pupils. Thankfully, these practices have since fallen out of use.

POISONOUS BY NATURE

Deadly nightshade contains a number of alkaloids, including atropine, solanine, and hyoscyne (Stewart, Funk, Robertson). Alkaloids are naturally occurring nitrogenic bases and are typically found in a large cross-section of plants. According to Britannica.com, "3,000 different types of alkaloids have been identified in a total of more than 4,000 plant species".

The entire deadly nightshade plant is poisonous, though it is believed the roots contain the most toxins (Robertson). Amy Stewart informs readers of her book “Wicked Plants” that “...just rubbing up against it can raise pustules on the skin” (31). While the ripe berries are the most enticing parts of the plant, they are the least toxic but can be deadly if eaten in volume (Funk). Two to four berries are said to be enough to kill a child (Bawden), and ten to twenty berries are potent enough to kill an adult. “Likewise, consuming even a single leaf can prove fatal to humans” (Largo). There are cases, however, of both children and adults eating more than that and not dying. This leads one to believe a fatal dose is dependent on the individual.



Symptoms:

If consumed, symptoms of deadly nightshade, or atropa belladonna, poisoning will appear quickly, often between one to two hours, and may “last for several days” (Robertson). Symptoms associated with nightshade poisoning include:

- Confusion and delirium
- Convulsions
- Difficulty breathing
- Digestive tract pain
- Dilated pupils
- Dry mouth and throat
- Intense hallucinations
- Nausea
- Paralysis
- Reddening of the face
- Slurred speech
- Vomiting
- Weakness and tremoring

In extreme cases, victims of nightshade poisoning may fall into a coma. If not treated, death may occur within a few days. (Funk, Robertson, Sterkenberg, Stewart).

Cures and remedies:

Since effects of poisoning can appear quickly, Michael Largo suggests drinking "...a large glass of warm vinegar or a mixture of mustard and water, which may dilute and neutralize its toxicity." This may work in instances when medical help is difficult to reach, but a source from the UK's National Biodiversity Network's site mentions physostigmine (ironically found in the deadly Calabar bean) or pilocarpine, as remedies to deadly nightshade or belladonna poisoning. A case report on atropa belladonna intoxication from Turkey mentioned the use of charcoal and stomach flushes as a form of treatment (Demirhan). Neostigmine can be used when physostigmine is not available (Odabas), and emetics and enemas have also been used to treat victims of atropa belladonna poisoning (Robertson).

CASES

There is a number of cases of atropa belladonna poisoning in the medical literature, many occurring in the last century. Stewart mentions an instance of a couple baking a pie made from deadly nightshade after mistaking the berries for bilberries, and another of an elderly woman eating the ripe berries in the fall. It wasn't until her daughter brought in a sample of the berries that the doctors who treated the woman were able to identify the "cause of her hallucinations, delusions, and headaches" (32).

A case report from 2003, also referenced by Stewart, explores the effects and details of atropa belladonna intoxication in children in Turkey. The report, headed by Dursun Odabas, provides information on the poisoning of forty-nine children over a six-year period, their symptoms, and how they were treated.

In 1846, an herb gatherer named James Hillard is linked to deaths caused by atropa belladonna poisoning. One was the death of a man after eating the berries in a pie, and the other was a three-year old boy, also said to have eaten some pie made of the berries. An inquest was held, and at the suggestion that Hillard knew that what he was selling was poisonous, he was sentenced for six months for manslaughter (Robertson).

Classically, atropa belladonna was a choice method of killing by assassins. The Romans used the it on their arrows to ensure a kill, and a number of kings throughout history were killed by atropa belladonna. Two of these kings were Roman Emperors Augustus and Claudius.

However, kings weren't the only victims of nightshade poisoning. In 1030, King Duncan I of Scotland is said to have passed bottles of a drink made from the nightshade berries to "an army of Danes, which killed them all without his having to lift a sword" (Largo).

OTHER USES

Though deadly nightshade has been used for killing and weapons, it also serves a purpose in medicine. Atropine is used in eye operations for pupil dilation, and an extract from the nightshade leaves is used to soothe muscle cramps (Poison Nature).

According to an article published by *EMedicineHealth*, a solution made of belladonna is used to help treat symptoms of Parkinson's disease, such as sweating, abnormal salivation, and tremors. If used properly, and in prescribed dosages, this solution can also be used to ease motion sickness, menstrual cramping, child colic, and stomach spasms.

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Picture Sources

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