FAQs

1: Deadly nightshade (Atropa belladonna) **and posisonous compounds?**

The main toxins in deadly nightshade are atropine, scopolamine and hyoscyamine all of which effect the nervous system by blocking certain neurotransmitters. Whilst all parts of the plant are toxic, the root is generally most poisonous. A dose of around two to five berries is usually sufficient to kill an adult.

The classic symptoms of poisoning include dilated pupils, blurred vision, dry mouth, hallucinations, loud heart beats (audible several feet away), aggressive behaviour, convulsions, coma and possibly death

2: Name a few poisonous plants and their parts?

- **Foxglove-Leaves-toxin-**Large amounts cause dangerously irregular heartbeat and pulse, usually digestive upset and mental confusion. May be fatal
- **Oleander-Leaves ,branches-**Extremely poisonous. Affects the heart, produces severe digestive upset and has caused death.
- **Rosary Pea, Castor Bean seeds--**Fatal. A single Rosary Pea seed has caused death. One or two Castor Bean seeds are near the lethal dose for adults.
- Oaks-Foliage, acorns-Affects kidneys gradually. Symptoms appear only after several days or weeks. Takes a large amount for poisoning.
- **Water Hemlock_-All parts--**Fatal. Violent and painful convulsions. A number of people have died from hemlock.
- **Nightshade--**All parts, especially the unripened berry--Fatal. Intense digestive disturbance and nervous symptoms.
- Cassava_Roots and leaves -Excess cyanide residue from improper preparation is known to cause acute cyanide intoxication, and goiters, and has been linked to ataxia (a neurological disorder affecting the ability to walk.) It has also been linked to tropical calcific pancreatitis in humans, leading to chronic pancreatitis

3:.What is Casava, ,what is the chemical compound present in it?

Cassava is the third largest source of food carbohydrates and it is a major staple food in the developing world.. It is one of the most drought-tolerant crops, capable of growing on marginal soils. Nigeria is the world's largest producer of cassava, and Thailand is the largest exporter of dried cassava. Excess cyanide residue from improper preparation is known to cause acute cyanide intoxication, and goiters, and has been linked to ataxia (a neurological disorder affecting the ability to walk.) It has also been linked to tropical calcific pancreatitis in humans, leading to chronic pancreatitis.Roots and leaves also contain two cyanogenic glycosides,linamarin and lotaustralin.

4: Mango latex toxin and its effect?

Mango peel and sap contain urushiol, the allergen in poison ivy and poison sumac that can cause urushiol –induced contact dermatitis in susceptible people. Many times cross-reactions between mango contact allergens and urushiol have been observed. Urushiol is also present in mango leaves and stems.

5:Name few toxins and their mode of action?

Many defense compounds are toxic to the plant itself .The ways in which plant toxins are stored are often crucial for their effectiveness. Certain plant species accumulate toxins in resin ducts, laticifers .The toxins are released in large amounts as soon as these structures are ruptured by herbivore feeding, movement on the plant surface or the growth of pathogens.

Examples of constitutive plant toxins. (a) A furanocoumarin from Pastinaca sativa, (b) a saponin from Avena sativa, (c) a cardenolide from Asclepias currassavica, (d) talkaloid morphine from Papaver somniferum (e) a pyrrolizidine alkaloid from Senecio jacobaea,

7: What is Tomato (*Solanum lycopersicum*). Plant toxin?

Like many other members of the night shade family Solanaceae, tomato leaves and stems contain solanine , causing digestive upset and nervous excitement. Leaves, stems, and green unripe fruit of the tomato plant also contain small amounts of the poisonous alkaloid tomatine. Ripe tomatoes do not contain any detectable tomatine. Tomato plants can be toxic to dogs if they eat large amounts of the fruit, or chew plant material.

What are the notable families which are highly toxic to human and live stock

8: Write notes on Hydrogen cyanide?

A cyanide is any chemical compound that contains monovalent combining group CN. This group, known as the cyano group, consists of a carbon atom triple-bonded to a nitrogen atom. Hydrogen cyanide gas in air is explosive at concentrations over 5.6%. This is far above its toxicity level. The toxicity is caused by the cyanide ion, which halts cellular respiration by acting as a non –competitive inhibitor for an enzyme in mitochondria called cytocrome coxidase. Specifically CN^- binds to Fe in theheme subunit in cytochromes, interrupting electron transfer.

9: Foxglove ,explain?

Foxglove poisoning usually occurs from sucking the flowers or eating the seeds, stems, or leaves of the **foxglove** plant. Poisoning may also occur from taking

Deslanoside,Digitoxin and Digitalis glycoside poisonous compounds are present in Flowers, leaves, stems, and seeds of the foxglove plant

10: Write notes on *Cerebera odollam* (commonly known as the suicide tree)

Cerbera odollam, Suicide Tree

In the Indian state of Kerala alone it is thought to be responsible for around 50 deaths a year. Despite being called the suicide tree the toxins work equally well for murder and the flavour is easily hidden under the spicy food. It is estimated that around 3,000 people a year died in these trials, many willingly submitting themselves to the process believing it infallible. The seeds contain cerberin, , a potent toxin related to digoxin. The poison blocks the calcium ion channels in heart muscle, causing disruption of the heart beat. It is often used in homicide and suicide in India; Kerala's suicide rate is about three times the Indian average.

11: Atropine,in which plant it is present and its effect?

The main toxins in deadly nightshade are atropine, scopolamine and hyoscyamine all of which effect the nervous system by blocking certain neurotransmitters. Whilst all parts of the plant are toxic, the root is generally most poisonous. A dose of around two to five berries is usually sufficient to kill an adult.
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12: Hemlock Poison and its effect?

Poison hemlock contains the potent toxin coniine. It is estimated that a dose of around 0.15 grams is sufficient to kill an adult. The mode of action of this poison is 'killing from the outside in'. A numbness of the extremities slowly spreads inwards, culminating in paralysis of the lungs and death. Cases of hemlock poisoning still occur, usually with people mistaking the plant for something edible such as a salad ingredient. Hemlock is a member of the same family as the carrot and fennel so the highly toxic root may also be consumed in error

13: Explain in detail what type of poison it contain and what is Aconite (*Aconitum napellus*)?

Also known as "the queen of poisons" this is possibly the most poisonous plant in Europe.

The pretty purple flowers are a fairly common sight on the foothills of mountains throughout northern Europe and Asia. All parts of the plant containing deadly aconitine. Just touching the plant can cause severe symptoms whilst ingesting often proved fatal. The effects are immediate and begin with a burning in the mouth. This is followed by drooling, vomiting and diarrhea. As the poison progresses victims may experience numbness, tingling, irregular heartbeat and ultimately death from respiratory failure.

Wolfsbane's deadly history is long. It features in literature both ancient and modern from Shakespeare right up to Harry Potter.The sap has long been used to tip spears and arrows. It was even used by some Eskimos to tip their harpoons for hunting whales. A more recent use was by the Nazis in World War II when the toxin was extracted to tip bullets.

14: What is Hydrogen cyanide gas, why it is dangerous?

A hydrogen cyanide concentration of 300 mg/m^3 in air will kill a human within 10–60 minutes. A hydrogen cyanide concentration of 3500 ppm (about 3200 mg/m^3) will kill a human in about 1 minute. The toxicity is caused by the cyanide ion, which halts cellular respiration by acting as a non –competitive inhibitor for an enzyme in mitochondria called cytocrome coxidase. Specifically CN^- binds to Fe in theheme subunit in cytochromes, interrupting electron transfer.

15: Glycoalkaloids toxin , plant in which it is present,write notes?

Family *Solanaceae*, which includes such plants as the deadly nightshade, henbane , tobacco as well as eggplant and tomato.

Glycoalkaloids may cause headaches,diarrhea, cramps and in severe cases coma and death. Poisoning from cultivated potatoes occurs very rarely, however, as toxic compounds in the potato plant are generally concentrated in the green portions of the plant and in the fruits. Some varieties of potato contain greater glycoalkaloid concentrations than others.Tubers that are exposed to light turn green from chlorophyll synthesis, thus giving a visual clue as to areas of the tuber that may have become more toxic.