REALLY POISONOUS PLANTS

Ornamental plants, young ornamental bushes and even young fruit trees can present a very great danger to pets, especially puppies in the chewing stage and for those dogs and cats with an adventurous taste in non-foods. Many of these plants will be equally toxic to humans. You can learn whether there is some in your neighborhood (quite likely) and take precautions before, not after, the fact. Websites: http://www.calpoison.com/public/plants-toxic.html and http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_common_Name_659/ http://en.wikipedia.org/wiki/List_of_poisonous_plants. An outstanding book with glorious pictures: A guide to poisonous house and garden plants by Anthony P. Knight, BVSc, MS, DACVIM. Dr. Knight is at Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, USA. This table is about the most dangerous plants:

<table>
<thead>
<tr>
<th>Name of Plant</th>
<th>Where they grow</th>
<th>Toxic parts</th>
<th>Medical emergency</th>
<th>Mortality without vet and kind of poison</th>
<th>See Vet or Emergency hospital for these medical treatments:</th>
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<tr>
<td><strong>Aconitum</strong> &quot;the queen of poisons, aconite, monkshood, wolf's bane, leopard's bane, women's bane, devil's helmet or blue rocket&quot;</td>
<td>They thrive in garden soils, and will grow in the shade of trees. Poisoning may occur by touching or picking at the leaves; the toxin is absorbed easily through the skin.</td>
<td>Cardiac failure (hypotension, etc) after major gastrointestinal distress, nausea, vomiting. Burning sensation, numbness, confusion, dizziness.</td>
<td>Death within 2-6 hours Active toxin is aconitine, a neurotoxin.</td>
<td>IMMEDIATELY. Use activated charcoal within one hour to absorb toxin. Atropine and drugs for ventricular arrhythmias. Other supportive emergency procedures.</td>
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<td><strong>Acokanthera spp.</strong> &quot;Bushman's poison, wintersweet&quot;</td>
<td>Ornamental. The bark, wood and roots of <em>Acokanthera schimperi</em> are used as an important ingredient of arrow poison in Africa. Seeds are dangerous, and so is immature fruit. <strong>Ripe</strong> fruit is okay.</td>
<td>Pain, cramping, pawing at the mouth, diarrhea. Heart problems: cardiac dysrhythmias, conduction defects, and hyperkalemia.</td>
<td>Heart failure. Death. All plant parts contain acovenoside A and ouabain, which are cardiotonic glycosides.</td>
<td>IMMEDIATELY. Induce emesis or perform gastric lavage if ingestion was recent and patient is not showing systemic signs. Activated charcoal and a cathartic (Repeat in 3 hours). Treat hyperkalemia if detected. Treat dysrhythmias. If bradycardia is unresponsive to atropine, consider cardiac pacing. Dialysis and diuresis are not effective in enhancing elimination.</td>
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<td><strong>Aloe vera</strong></td>
<td>Common house plant: inside greenish gel of the stem is used to treat minor cuts and burns. Despite advertisements, NOT for internal use in pets.</td>
<td>Vomiting, depression, diarrhea, loss of appetite, tremors and muscle spasms, urine changes color, usually red.</td>
<td>Hypoglycemia, GI problems. Anthraquinone glycoside and saponins. The latex, white sap, and outer skin of leaves are toxic purgatives. Barbaloin turns urine red.</td>
<td>ASAP</td>
<td>Treat hypoglycemia, dehydration. Control diarrhea.</td>
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<td><strong>Amaryllis spp. and Hippeastrum sp., &quot;naked lady, March lily, belladonna lily, resurrection lily&quot;</strong></td>
<td>House plant and garden in mild climates: Showy trumpet-like, generally red flowers. Outside: drought-tolerant pink showy flowers with naked stems (no leaves). All parts toxic, especially to cats. The bulb is the most dangerous.</td>
<td>Violent vomiting, nausea, shivering, dark brown urine, loss of appetite, GI enteritis, abdominal pain. Large amounts eaten: CNS collapse, seizures, paralysis and death.</td>
<td>Severely ill, but with recovery. Potential for liver damage. May cause death if large amount ingested. Amaryllidine, lycorine (an emetic, causes vomiting), haemanthamine, tazzetine, hippeastrine, pancracine, vittatine, hydroxyvittatine and others.</td>
<td>ASAP</td>
<td>Lycorine causes vomiting, so do not induce more vomiting. Flush mouth with water; for severe cases or larger ingested amounts, lavage. Fluid support, liver function monitored. No antidote</td>
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<td><strong>Anemone and Pulsatilla spp. and Ranunculus spp. &quot;anemone, wind flower, pasqueflower and buttercups&quot;</strong></td>
<td>Gardens, potted plants. Moist meadows, woodlands, fields Sap is a great irritant to mouth, and that may save a pet from ingesting a fatal dose.</td>
<td>Hemorrhagic gastritis, convulsions, paralysis, shock, death. Dried buttercups not toxic to livestock.</td>
<td>Can cause shock and death. Protoanemonin, cardiac glycosides and oxytonin. There is no known antidote for the poison ranunculin found in buttercup varieties.</td>
<td>ASAP</td>
<td>Give purgatives initially, then gastrointestinal protectives later. Atropine should be given when clinically significant bradycardia occurs (eg. hypotension).</td>
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| **Atropa belladonna**,  
| "belladonna or deadly nightshade" | Perennial with showy, a 5 ft. shrub or bush when grown.  
| | TOXIC black berries. Temptation: sweet-tasting berries, but all parts of the plant contain tropane alkaloids.  
| | Severe nervous system reaction: dilated pupils, headache, rash, dry mouth, (slurred speech), delirium and convulsions. Heart rate disrupted. 2-5 berries enough to KILL a child or pet.  
| | Death. Nervous system and heart. Neurotoxins affecting parasympathetic NS via atropine, hyoscine (scopolamine)  
| | IMMEDIATELY.  
| | The antidote for belladonna poisoning is physostigmine or pilocarpine.  
| **Colchicum spp.**  
| "autumn crocus, naked lady (small one), meadow saffron". PS The familiar spring crocus is a non-toxic spring flower. They look alike. | Meadows and damp woodland clearings, esp. on calcareous and neutral soils (eg home gardens).  
| | All parts of the plant, but especially the bulb is poisonous. Handling the bulb can cause skin allergies in some people.  
| | Vomiting, violent purging, serious inflammation of the stomach and bowels. Reduced blood pressure, cardiac arrest and death.  
| | Death due to heart failure. For "better"cases: bad GI inflammation. Colchicine. Inhibits microtubules, part of the "muscle" and matrix of the cell. Prevents cell division and many other internal cellular pathways, such as secretion.  
| | ASAP for support of suffering and treatment of symptoms. No antidote! However, colchicine poisoning in humans has been successfully treated using goat-derived, colchicine-specific Fab fragments.  
| **Convallaria majalis**,  
| "lily of the valley" | Woodlands, ornamental. All parts of plant are very toxic. Its red berries may attract children.  
| | Irregular heart beats, vomiting, diarrhea, confusion, weakness, shock and convulsions.  
| | Death. Irregular or dangerously reduced heart rate. Diarrhea. 38+ Cardiac glycosides and a teratogen: azetidine-2-carboxylic acid (substitutes for proline in proteins) Bourgeonal: opens calcium gates in cells; chemotaxis in sperm  
| | IMMEDIATELY  
| | Advanced life support (ALS), atropine to counter brachycardia, supplemental oxygen and an IV line. Activated charcoal if conscious
| **Crassula argentea**  
| "jade plant, rubber plant" | House plant, garden ornamental. Kittens like to chew on leaves. | Vomiting, decreased heart rate, uncoordinated movements, depression | Heart slows, sometimes nervous system disorder, vomiting. | ASAP Supportive treatment with fluids and electrolytes. Atropine or propranolol for heart dysrhythmias. |
| **Crysanthermons**  
| "mums" | Common garden and house plant.  
| Keep away from cats! | Drooling, uncoordinated and trembling muscles, vomiting, depression, dermatitis.  
| Onset within 1-4 hours. | Nervous system. With treatment will recover in few days.  
| Insecticide and more.  
| Pyrethrins, lactones, sesquiterpene and miscellaneous skin irritants. | ASAP  
| This is insecticide poisoning. Combination of emesis, and activated charcoal. Diazepam or methocarbamol to control muscle tremors and seizures, and atropine to control hypersalivation. Pyrethroids are highly toxic to cats because they do not have glucuronidase which serves in hepatic detoxifying metabolism pathways. |
| **Cycas and Zamia species**  
| "cycads, Sago palm, cardboard palm, coontie palm" | Many dogs, cats, horses, and a plethora of other animals find Sago Palms delicious. The whole plant is toxic, but the seeds have the most toxin, unfortunately easy to absorb. The poison in these plants is so toxic that dogs have died after ingesting a single seed. | Vomiting, melena, icterus, increased thirst, hemorrhagic gastroenteritis, bruising, coagulopathy, liver damage, liver failure, death. | Death within hours. Liver failure.  
| Cycasin, B-methylamino-l-alanine | IMMEDIATELY.  
| No antidote!  
| Intravenous fluids and/or a plasma transfusion, induce vomiting, the activated charcoal. Various drugs to support liver, brain and gastrointestinal tract. |
| **Cyclamen sp.**  
| "Persian Violet, Sowbread" | Popular house and garden plant.  
| Root is the most toxic, but luckily tastes bitter. Rest of plant also toxic. | Irritation of the mouth & throat, gastrointestinal upset, diarrhea, convulsions and paralysis. Changes in heart rhythm. Breathing may stop. | Severe GI and nervous system (seizures), can lead to death by respiratory arrest.  
| Saponins have cardiotoxic properties.  
| Triterpinoid saponins | IMMEDIATELY.  
| Hopefully only small amounts ingested, ergo limited to GI effects.  
<p>| Life support (heart etc) and fluids. |</p>
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<th><strong>Delphinium spp.</strong> &quot;larkspur&quot;</th>
<th>Common in gardens and disturbed areas. Larkspur, CA, is named for it. All parts toxic. Mainly cattle are poisoned.</th>
<th>Burning of lips and mouth, numbness of throat; intense vomiting and diarrhea, muscular weakness and spasms, weak pulse, paralysis of the respiratory system, convulsions; fatal.</th>
<th>Death. Tremors and collapse. Breathing stops. Alkaloids delphinine, ajacine, and others.</th>
<th>IMMEDIATELY. Physostigmine can be effective treatment. Suggested dose of 0.04 - 0.08 mg/kg body weight given inter peritoneally to reverse the neuromuscular blockade. Delphinine resembles aconitine toxicity.</th>
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<td><strong>Dieffenbachia</strong> &quot;dumb cane, tropic snow, and exotica&quot; and <strong>Colocasia</strong> &quot;elephant ear&quot; Similar problem with <strong>Philodendrum</strong>, <strong>Caladium</strong>, <strong>Skunk-cabbage</strong>, and <strong>Jack-in-the-pulpit.</strong></td>
<td>Common house plant. Weeds/ornamentals in some regions. Most toxic is the plant sap, all stems. Generally pet stops chewing due to painful encounter with sap.</td>
<td>Drooling. Inflammation of throat, mouth and GI tract. Internal swelling and breathing difficulties. Bladder pain. Diarrhea and/or vomiting. Kidney damage.</td>
<td>Death possible due to closing of air ways; chemically -induced strangling. An allergic-type reaction due to histamine release induced by oxalates. Calcium oxalate and the amino acid L-asparagine</td>
<td>IMMEDIATELY. Anti-histamines -- do ASAP on way to vet. Remove any part of plant inside mouth. Do not induce vomiting. Rinse with milk or water as long as liquid is not swallowed. Reduce swelling of mouth and GI, pain meds and other supportive care.</td>
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<td><strong>Digitalis</strong> &quot;foxglove&quot;</td>
<td>Common in gardens. Spectacularly poisonous, but rarely eaten. All of plant is toxic, especially seeds. Pets may ingest poison by drinking water from flower arrangements.</td>
<td>Vomiting and diarrhea followed by weakness, rapid heart rate, and changes in cardiac conduction with resulting decrease is in cardiac output, hypotension, collapse, and death.</td>
<td>Death from heart failure, Digitalis cardenolides. <strong>Similar cardenolides found in butterfly weed, Lily of the valley, oleander, yellow oleander and dogbane.</strong></td>
<td>IMMEDIATELY. Activated charcoal, cathartic. Serum potassium closely monitored and fluid therapy. Phenytoin, an anti-arrhythmic drug effective against supraventricular and ventricular arrhythmias. Digitalis-specific antibody (Digibind - Burroughs Wellcome) may counteract cardenolides effects.</td>
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<td>Plant Family</td>
<td>Native Distribution/Description</td>
<td>Symptoms</td>
<td>Immediate Treatment</td>
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<td><strong>Heteromeles arbutifolia, &quot;Toyon&quot;</strong></td>
<td>Native to California, attractive flowers and fruit. Toxic to mammals, but cooking degrades toxin. Birds, bees are okay.</td>
<td>Rapid breathing, drooling and salivation, GI distress, spasms, struggles, asphyxiation.</td>
<td>Cyanogenic glycosides, e.g. cyanide.</td>
<td><strong>IMMEDIATELY</strong> Intravenous sodium thiosulfate and sodium nitrite. For dogs: DMAP IM at 5 mg/kg or hydroxylamine hydrochloride IM at 50 mg/kg are as effective as nitrite and thiosulfate.</td>
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<td><strong>Hyoscyamus niger &quot;black henbane, insane root, stinking nightshade, hog's beam&quot;</strong></td>
<td>Black henbane is commonly found in pastures, fence rows, roadsides, waste places, and riparian areas. It does well in most soils; noxious weed. All parts of the plant are toxic.</td>
<td>Trembling, seizures, delirium, change in heart rate. Depending on pet size and dose: insane behavior, violent outbursts, seizures.</td>
<td>Death. 10-20 seeds cause severe poisoning. Even if 10x less concentrated than belladonna. Neurotoxins: atropine, hyoscyamine, alkaloids like belladonna.</td>
<td><strong>IMMEDIATELY</strong> The antidote for henbane poisoning is physostigmine or pilocarpine.</td>
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<td><strong>Lilium spp., also Zantedeschia spp. &quot;lilies&quot; others within the Liliaceae.</strong></td>
<td>Gardens and houseplants. Bulbs and flowers particularly poisonous, but all parts of plant are toxic.</td>
<td>The alkaloids cause breathing problems, vomiting, and hypotension. Excessive salivation, abdominal pain, and diarrhea. Calcium oxalate raphides may also contribute to digestive symptoms.</td>
<td>Death from kidney failure within 36-72 hrs in cats depending on amount eaten. Lycorine, oxalate, phenanthridine alkaloids</td>
<td><strong>IMMEDIATELY due to breathing difficulties and low blood pressure.</strong> Atropine, dexamethasone and fluid therapy. Prevent kidney failure.</td>
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### Lupinus spp. "lupins"
Other toxic legumes (Fabaceae): Scotch broom, vetch, black locust, acasia.

- **Open fields.**
- **Nervous system:** dilated unresponsive pupils, confusion, disorientation, flushed face and/or fever, tremors, un-coordination, numb paws, dizziness, burning dry mouth, stomach pain, and anxiety. High heart rate and blood pressure. In sheep, first sign may be coma, then death. Cattle: first sign may be respiratory paralysis.
- **Death by neurotoxin.**
- **20 Lupin beans and 1-2 beans of Golden rain tree beans can kill a child.**
- **Lupinine and nicotinic quinolizidine alkaloids** (for ex. spartine).
- **Anagyrine - developmental defects and abortions.**
- **Lectins in Black locust cause diarrhea.**
- **ASAP Anticholinergic toxicity**
- **Phytostigmine treatment.**
- **(May manage seizures with benzodiazepines.)**
- **Life support for hyperthermia, arrhythmia and other symptoms.**

### Macadamia integrifolia
macadamia nuts

- **Nuts are toxic to dogs and the dog can become seriously ill after eating a few nuts.**
- **Depression, uncontrollable increase in body temperature, weakness, tremors, stiffness of the muscles, vomiting, increased heart rate.**
- **Variable sensitivities.**
- **Full recovery with vet emergency care, preferably within 24 hrs.**
- **Unknown toxin.**
- **IMMEDIATELY 3% hydrogen peroxide to induce vomiting to empty the stomach of any undigested nuts. Vet administers activated charcoal with a cathartic (a substance which accelerates defecation) such as 70% sorbitol to speed the passage of nuts.**

### Melia azedarach
"chinaberry tree, bead tree, Persian lilac, white cedar"

- **The Chinaberry tree is widely distributed in southern USA, with leaves that drop to the ground during the winter (potentially to chew on).**
- **Yellow, marble sized, poisonous fruits.**
- **Vomiting, diarrhea or constipation, loss of appetite, nausea, severe abdominal pain, bloody feces, loss of coordination, stupor, muscle fatigue, muscle rigidity, seizures finally ending in cardiac paralysis with death taking place after a period of about 24 hours.**
- **Death. Heart failure.**
- **Modified nortriterpene (natural plant produced insecticide) tetranortriterpene**
- **ASAP Induce vomiting using 3% hydrogen peroxide solution and rinse the mouth thoroughly. Treatment not a guarantee for survival: employ gastrointestinal protectives and respiratory stimulants as well as Lentin (carbamylcholine chloride). 0.5-1cc for a 70lb dog.**
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<td><strong>Narcissus &quot;daffodil&quot;</strong></td>
<td>The whole plant is poisonous but especially the bulbs. People mistake them for onions! Kittens and cats may play and chew on leaves. Water drunk from vase with cut daffodils is toxic!</td>
<td>Lethargy and vomiting, Becomes hypothermic (cold) heart rate too slow (bradycardia). Vomitting, tremors, diarrhea. One bulb can kill a dog, but crystals of calcium oxalate in the outer layer irritates the mouth and makes the dog drool, so the dog may stop in time.</td>
<td>Potentially lethal. Two alkaloids, narcissine (lycorine) and galantamine as well as the glycoside scillaine (scillitoxin).</td>
<td>ASAP Activated charcoal, then pipettes of water, followed by 1-5 tsp of milk to coat intestines. Atropine, dexamethasone, fluid therapy, and supportive care.</td>
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<td>Similar problems with Tulips and Wisteria and Amaryllis spp.</td>
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<td><strong>Nerium oleander sp. and Thevetia sp. &quot;oleander&quot;, &quot;yellow oleander&quot;</strong></td>
<td>Thvetia or yellow oleander has very toxic leaves and nectar. Oleander varies in toxicity (60x difference between varieties). Dog playing fetch with oleander sticks has caused illness. 0.005% of body weight or roughly <strong>10-20 leaves</strong> can be lethal for a <strong>1500 lb cow</strong>.</td>
<td>It may take 3 hours for symptoms to show. Early on, a pet can show rapid breathing with cold paws and nose, weak pulse. GI irritation, vomiting, diarrhea (may be bloody), loss of coordination, drooling, shallow breathing, muscle tremors, hypothermia. Decreased cardiac output, heart block, and death.</td>
<td>Heart failure, hypothermia and death within 24 hours. Organ necroses. Cardiac glycosides. Thvetin A and B, thevetoxin are strong cardiotoxins and cause GI enteritis. Oleanderin, Oleandroside, Nerine, Neroside</td>
<td>IMMEDIATELY Activated charcoal, cathartic. Serum potassium closely monitored and fluid therapy. The cardiac irregularities may be treated using anti-arrrhythmic drugs such as potassium chloride, procaainamide, lidocaine, dipotassium EDTA, or atropine sulfate. The use of fructose-1,6-diphosphate can reduce serum potassium levels.</td>
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| **Persea americana**
| **avocado** | Dog friends: Do not share sandwiches with avocado in it! | Respiratory distress, generalized congestion, vomiting, diarrhea, accumulation of fluid around the heart and death. | Death, heart failure. Persin: a fungicidal poison that leaches into from the pit, deadly to pets but not humans | **IMMEDIATELY.** On way to vet, induce vomiting with diluted 3% hydrogen peroxide (1 tsp peroxide to 1 cup water). |
| **Physalis spp.**
| "Chinese Lantern" as well as "ground cherry, Jerusalem cherry, strawberry tomato" | Ornamental. The unripe berries of the Chinese Lantern plant are highly toxic although the ripe fruit is edible. Most toxic: unripe berries, leaves. Not palatable, but bored pets…. | Headache, dilated pupils, breathing problems, stomach ache, vomiting, diarrhea, low temperature, and numbness. Onset of signs can be fast, but at other times it takes hours. | Death possible. Nervous system. GI, and breathing troubles. Solanine, solanocapsine and atropine-like alkaloids: solanocapsine, aramines, phentamines, dopamine, fluoxetine and amphetamines derivatives. | **IMMEDIATELY** Anticholinergic syndrome, use Phytostigmine as needed. Vomiting induced by 3% hydrogen peroxide and gastric lavage should be performed, followed by activated charcoal. Life support. |
| **Ricinus communis,**
| "castor bean plant" | Garden ornamental. Extremely toxic seeds, but tough outer coat usually allows seeds to pass without absorption. | Bloody diarrhea, weakness, seizures, abdominal pain, dehydration, low blood pressure, collapse. | Liver damage or death. 3 castor beans sufficient to kill if chewed on. Ricin, a glycoprotein lectin (toxalbumin); ricinine, a piperidine alkaloid | **ASAP - usually 6 hr delay before signs appear, so get to vet before symptoms occur. Apomorphine to induce vomiting. Prevent dehydration and shock. Activated charcoal orally, intravenous fluid and electrolyte therapy** |
| **Rhododendron,**
| "azalea, mountain rosebay, red laurel, rosebay laurel, great laurel, California rosebay" | Common indoors and in many habitats. All parts toxic. Beware of leaves, branches chewed, flowers and nectar eaten. | Irregular heart beat, hypotension, depressed breathing, projectile vomiting, drooling, partial blindness, seizures. | Heart irregularity, heart failure. Diterpenoids collectively grayanotoxins I and II, tannins. | **IMMEDIATELY** Activated charcoal given orally (2 - 8 g/kg body weight) is helpful if given shortly after ingestion. Atropine to counter the cardiovascular effects. |
| **Vinca and Catharanthus**  
"periwinkle and Madagascar periwinkle" | Ground cover. Potted plants.  
Toxins are present in all parts of the plant.  
Usually not eaten, but remove indoors plants. | Low blood pressure, anorexia, anemia, incoordination, muscle tremors, lateral flexion of the neck, and convulsions.  
Cona and death. | Large doses cause death.  
Alkaloids: alstronine, reserpine, vinblastine, vincristine, and yohimbine. | ASAP  
Activated charcoal.  
Supportive treatment and intravenous fluid therapy |
|---|---|---|---|---|
| **Almond, Apple, Apricot, Black cherry, Cherry, Crabapple, Loquat, Nectarine, Peach, Pear, Plum… and Roses and Hydrangea** | Fruit orchards. Gardens.  
**Seeds, bark, and leaves** contain cyanide-like compounds. The pulp of the fruits is safe. The greatest concentration of the toxin occurs in vigorous growth shoots, seeds, and **wilted** leaves. | Rapid breathing, irregular heartbeat, salivation, GI distress, spasms, struggles, asphyxiation. | Death.  
Cyanide and a cyanide-producing compound, amygdalin. Cyanide inhibits oxygen from getting to tissues. Cytochrome oxidase and causes death from histotoxic anoxia. 3 µg/ml in blood is a lethal concentration. | IMMEDIATELY, preferably within 15 minutes.  
Intravenous sodium thiosulfate and sodium nitrite. For dogs: DMAP IM at 5 mg/kg or hydroxylamine hydrochlorine IM at 50 mg/kg. Otherwise, a 20% solution of sodium nitrite administered slowly, intravenous at a dose of 16mg/kg body weight, followed by a 20% solution of sodium thiosulfate at a dose of 1.65ml/kg body weight. Hydroxocobalamin, and alpha-ketoglutaric acid have been effective adjunct to treating cyanide poisoning in dogs. |

**Cardiac glycoside** is a toxin common to many poisonous plants that has effects on the heart, stomach, intestines, and nervous system, not just the heart. In very small pharmacological doses, these same toxins help patients recover from heart diseases, hence the term **cardiac**.

**Beware** of feeding onions to dogs (in pizzas, on hamburgers, sandwiches etc): will cause anemia (low blood count)