Household Toxic Items in Veterinary Medicine

Refer lecturer for course updated notes.

Students are oblidged to follow the courses for evaluation process and presented notes are preliminary drafts for the whole evaluation process.

Common Household Poisons

This list is not inclusive because there may be other substances toxic to birds that have not been widely documented. The bird's environment should be limited to those items known to be safe.

- Acetone (nail polish remover)
- Ammonia
- Antifreeze
- Ant syrup or paste
- Avocado
- Bathroom bowl cleaner
- Bleach
- Boric acid
- Camphophenique
- Carbon tetrachloride
- Charcoal lighter
- Clinitest tablets
- Copper and brass cleaners
- Corn and wart remover
- Garden sprays
- Gasoline
- Gun cleaner
- Gunpowder
- Hair dyes
- Hexachlorophene (in some soaps)
- House plants (including calla lilies, mistletoe, poinsettia, and others)
- Indelible markers
- Insecticides
- Iodine
- Kerosene
- Lighter fluid
- Linoleum (contains lead)
- Matches
- Model glue
- Permanent wave solutions
- Pesticides
- Photographic solutions
- Pine oil
- Prescription and nonprescription drugs
- Red squill
- Rodenticides
- Rubbing alcohol
- Shaving lotion
- Silver polish
- Snail bait
- Spot remover
- Spray starch
- Sulphuric acid
- Suntan lotion

Common household poisons-cont'ed

- Crayons
- Deodorants
- Detergents
- Disinfectants
- Drain cleaners
- Epoxy or super glue
- Fabric softeners
- Fluoropolymer fumes
- Galvanized materials
- Mothballs
- Muriatic acid
- Mushrooms (some varieties)
- Nail polish
- Oven cleaner
- Paint
- Paint remover
- Paint thinner
- Perfume
- Turpentine
- Weed killers
- Window cleaners

Allium sp

- Onion (*Allium cepa*), garlic (*Allium sativum*), leek (*Allium porrum*), and chives (*Allium schoenoprasum*)
- Organosulfoxides- chewing converts organosulfoxides to a complex mixture of sulfur compounds.
- converts organosulfoxides to a complex mixture of sulfur compounds.
- Cooking, drying, and processing do not eliminate the toxic effect
- Dogs and cats are highly susceptible
- 5 g/kg of onions by cats and 15–30 g/kg by dogs - cause clinically important hematologic changes
- hereditary high erythrocyte-reduced glutathione and potassium concentrations observed in certain breeds (e.g., Akita, Shiba, and Jindo) lead to greater susceptibility to onion-induced oxidative damage
- Induce vomit, activated charcoal, supportive care

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Ethanol

- alcoholic beverages, paint and varnish, medication, perfume, mouthwash, certain types of thermometers, and certain forms of antifreeze, disinfectant, a fuel substitute
- ingestion of rotten apples, uncooked bread and pizza dough-yeast *Saccharomyces cerevisiae*, which metabolizes carbohydrate substrates to ethanol and carbon dioxide
- absorbed from the gastrointestinal tract and crosses the blood–brain barrier-inhibiting *N*-methyl-D-aspartate glutamate receptors in brain cells and the related production of cyclic guanosine monophosphate
- central nervous system (CNS) depression, ataxia, lethargy, sedation, hypothermia, and metabolic acidosis
- Comatose-resp depression
- Symptomatic treatment, Yohimbine, an alpha 2-adrenergic antagonist
- Check liver damage

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Grapes & Raisins, Sultanas, and Currants

- Grapes, the fruits of *Vitis vinifera*, and their dried products (raisins, sultanas, and currants) have been reported to cause renal failure in dogs.
- nephrotoxic agent or an idiosyncratic reaction, leading to hypovolemic shock and renal ischemia
- raisins as low as 2.8 mg/kg, and as little as four to five grapes in a dog weighing 8.2 kg
- Diarrhea, anorexia, lethargy, and abdominal pain have also been reported
- renal insufficiency or failure (oliguria, anuria, polydipsia, proteinuria, and elevated serum concentrations of creatinine and urea) within a short period-prognosis poor
- metics and repeated doses of activated charcoal is highly recommended
- aggressive intravenous fluid therapy for a minimum of 48–72 h, and their renal function should be monitored for at least 72 h

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Macadamia Nuts

- trees of the genus *Macadamia* (Proteaceae family)
- *Macadamia integrifolia* and *Macadamia tetraphyllah*- accumulate cyanogenic glycoside (proteacin and durrin) in their seeds
- 0.7 g/kg of nuts-clinical signs, but also 2.2 to 62.4 g/kg various literature available
- weakness (particularly hind limb weakness), depression, vomiting, ataxia, tremors, hyperthermia, abdominal pain, lameness, stiffness, recumbency, and pale mucous membranes
- İnduce emesis

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Methylxanthines (Caffeine, Theobromine, and Theophylline)

- Methylxanthines, including caffeine, theobromine, and theophylline, are plant-derived alkaloids
- Caffeine is found in coffee (from the fruit of *Coffea arabica*), tea (from the leaves of *Thea sinensis*), guarana (from the seeds of *Paullinia cupana*), and as an additive in many soft drinks. Theobromine occurs in cacao seeds (*Theobroma cacao*)
- antagonize cellular adenosine receptors and inhibit cellular phosphodiesterases, causing an increase in cyclic adenosine monophosphate (cAMP) - enhance the release of catecholamines and increase cellular calcium entry while inhibiting intracellular sequestration of calcium by the sarcoplasmic reticulum, leading to increased muscular contractility
- stimulation of both the CNS and cardiac muscle, the relaxation of smooth muscle, most notably bronchial muscle, and diuresis

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Chocolate

- Methylxanthines are variably absorbed (caffeine <1 hour; theobromine 10 hours), metabolized by liver; excreted in bile and reabsorbed (enterohepatic cycling). Halflife theobromine 17 h, caffeine 4.5 hours (dogs)
- Theobromine is the largest fraction of methylxanthines in chocolate products and in cacao bean mulch.
- Dogs frequently poisoned based on proximity to methylxanthine products, consuming large doses, and longer half-life of theobromine in dogs (theobromine 17.5 hours vs. caffeine 4.5 hours).
- Cats rarely affected
- Minimum lethal dosage for caffeine and theobromine (dogs)—100–200 mg/kg. Potentially lethal exposure (dogs): 5 g baking chocolate provides 20 mg caffeine and 80 mg theobromine (total 100 mg)
- Control seizure,detox, activated charcoal, control hyperthermia, treat tachycardia, IV fluid, control tremoe-methocarbamol, diazepam

Xylitol

- five-carbon sugar alcohol primarily used as an artificial sweetener in many products, including sugar-free gum, candy, bread, cookies, and other baked goods
- xylitol is a potent stimulator of insulin release, leading to dramatic decrease in blood glucose levels- 0.03 g/kg- hypoglycemia
- liver failure in dogs- 0.5 g/kg
- Vomiting is usually the initial clinical sign. Clinical signs of hypoglycemia, including lethargy, ataxia, collapse, and seizures, may develop within 30–60 min after ingestion or may be delayed up to 12 h after ingestion- hepatopathy, lethargy, icterus, vomiting, and coagulopathic signs, such as petechiae, ecchymoses, and gastrointestinal hemorrhages

Front Vet Sci. 2016; 3: 26.
Published online 2016 Mar 22. doi: 10.3389/fvets.2016.00026

Cleaning products

- bleach -cause stomach upset, drooling, vomiting or diarrhea, severe burns if swallowed, and respiratory tract irritation if inhaled in a high enough concentration.
- In addition, skin contact with concentrated solutions may produce serious chemical burns.
- Some detergents can produce a similar reaction and cats can be particularly sensitive to certain ingredients such as phenols (CATS).

Soaps and other Sundries

- Bath and hand soaps, toothpaste and sun screens should also be kept away from the pets.
- cause stomach upset, vomiting or diarrhea.
- Keep toilet lids closed to prevent your pets from consuming treated toilet bowl water that could irritate their digestive tract.

Household Cleaners

- Product warning label indicates level of toxicity
  - No label = LD50 > 5 g/kg
  - Caution = 0.5 – 5 g/kg
  - Warning = 50 – 500 mg/kg
  - Danger: Poison = <50 mg/kg

Soaps, Shampoos, Detergents

- Most have low toxicity
- Usually cause only vomiting and diarrhea
- Cationic surfactants are found in contact lens solutions, fabric softeners, swimming pool algicides; can cause neuromuscular and ganglionic blockade as well as GI ulcerations, acidosis and shock
- Anionic surfactants are in many cleaning products like shampoos have the potential to cause hemolysis

Disinfectant Cleaners

- Products like Lysol contain phenolic compounds mixed with detergents
- Pine oil based compounds like Pine Sol
- These products are especially toxic to cats due to metabolism by glucuronidation; can cause liver injury, jaundice, and renal damage in conjunction with GI problems
- Phenolics also found in creosote and tar paper; watch out for pigs

Alkaline Compounds

- Ammonia, Oven Cleaner, Most Drain Openers
- All have pH of >12 which can cause burns (ulcerations)
- Ulcers can be very severe, especially with granular drain openers
- Ingestions causes GI ulcerations, vomiting, salivation, dysphagia (esophageal stricture), dyspnea
- Bleach and scouring powders with bleach usually not high enough pH to cause ulceration; can be a problem if mixed with ammonia = chloramine gas

Acidic Compounds

- Toilet bowl cleaners, concrete cleaner, Lime-A-Way, some drain openers
- Can cause severe burns, but usually not as deep as alkali
- Signs and treatment similar to alkaline products

Household plants

- Certain types of lilies (Lilium and Hemerocallis species) are highly toxic to cats, resulting in kidney failure — even if only small amounts are ingested.
- Lily of the Valley, oleander, yew, foxglove, and kalanchoe may cause heart problems if ingested.
- Sago palms (Cycas species) can cause severe intestinal problems, seizures and liver damage, especially if the nut portion of the plant is consumed.
- Azaleas, rhododendrons and tulip/narcissus bulbs can cause intestinal upset, weakness, depression, heart problems, coma and death.
- Castor bean can cause severe intestinal problems, seizures, coma, and death. Other plants that can cause intestinal upset include cyclamen, amaryllis, chrysanthemums, pothos, English ivy, philodendron, corn plant, mother-in-law's tongue, hibiscus, hydrangea, peace lily and schefflera/scheffleria.
- Rhubarb leaves and shamrock contain substances that can produce kidney failure.
- Additionally, fungi (such as certain varieties of mushrooms) can cause liver damage or other illnesses- aflatoxicosis

avma.org/public/PetCare/Pages/householdhazards.aspx