Although ripened tomatoes usually are not problematic to cats, green tomatoes can cause clinical signs.

Spring is here and the air is heating up. As your clients head for their gardens, tools in hand, are you prepared for the calls that you may receive regarding ingestion of certain garden plants by pets? There are numerous facts and myths surrounding which plants can actually be harmful to small animals. Just remember when dealing with toxicology, any plant can be problematic if the animal ingests an inappropriate amount.

**POTENTIALLY TOXIC GARDEN PLANTS**

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**POTENTIALLY HAZARDOUS PLANTS**

**Tomatoes**

Tomatoes (*Solanum lycopersicum*) belong to the nightshade family. Ingestion of the greenery, flowers, and green fruit can cause clinical problems in dogs and cats. Tomatine, an alkaloid related to solanine, is the agent that is concentrated in the young fruit and plant. As the plant ripens, the tomatine is metabolized. Therefore, ripe tomatoes are less likely to be problematic for animals. Clinical signs include gastrointestinal (GI) upset, cardiac effects, and central nervous system signs (e.g., ataxia, muscle weakness, tremors, seizures), resulting from cholinesterase inhibition. Because tomatine is very poorly absorbed orally, systemic effects are rare. As with all intoxications, the severity of clinical signs depends on the amount ingested. Treatment usually consists of symptomatic and supportive care.

**Grapes**

Grapes (*Vitis* spp) are commonly grown in backyards where dogs are frequently exercised. Recently, the ASPCA Animal Poison Control Center has identified cases of acute renal failure associated with ingestion of grapes and raisins by dogs. It is unknown by what mechanism renal failure develops. The syndrome may affect only a certain population of dogs, but no relationship has been found between breed, age, or sex. It is unknown if similar signs occur in cats. With acute exposure, renal damage may occur within 24 hours, causing azotemia. Other clinical signs in dogs are vomiting, diarrhea, anorexia, and oliguria. The treatment for grape toxicosis is fluid diuresis to protect the kidneys and maintain adequate urine output. Renal values should be monitored closely. Prevention is the key. Let your clients know that this fruit can cause life-threatening clinical problems and that grapes should not be fed as treats.

**Avocado**

The avocado (*Persea americana*) is a common food that seems perfectly harmless. However, avocados have been shown to cause mammary necrosis in goats within a few hours of exposure. Avocados are also believed to cause myocardial degeneration in cattle, mice, rabbits, fish, and birds. Birds that ingest even the smallest amount should be decontaminated promptly to reduce the possibility of fatal signs. The effects on dogs and cats are not completely understood. GI signs are commonly seen and should be treated symptomatically. In addition, the animal

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For more information about grape toxicosis, see “Toxicology Brief: Grape and Raisin Toxicity in Dogs,” which appeared on page 135 of the February 2005 issue of *Veterinary Technician*.

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Toxicology Brief is contributed by veterinary technicians at the American Society for the Prevention of Cruelty to Animals–Animal Poison Control Center, 1717 S. Philo Rd., Suite 36, Urbana, IL 61802; hotline: 888-4ANI-HELP (888-426-4435) or 900-443-0000 (a $50 consultation fee is charged to the caller’s telephone bill); email: sharont@napcc.aspca.org (for nonemergency information only); Web site: www.apcc.aspca.org.
Setting up a Plant Toxicology Reference in the Clinic

There are several ways technicians can prepare themselves to handle calls from concerned owners regarding a pet’s recent exposure to a common garden plant. Implementing the following steps can help the veterinary staff better handle common ingestions:

- Educate the staff about common toxic and nontoxic plants. The Internet is a great tool for this. The ASPCA Animal Poison Control Center’s Web site (www.aspca.org/apcc) provides lists of toxic and nontoxic plants. These lists can be made readily available to staff members who may be taking the calls.

- Develop a protocol system on how different types of calls should be handled. Work with the veterinarians in the clinic to decide which cases should be handled by the receptionist, veterinary technicians, and veterinarians and which cases should be referred to the ASPCA Animal Poison Control Center. This will save valuable time for the pet and frustration for the owner.

- Periodically hold staff meetings to review toxicology subjects. This will help to keep everyone refreshed on their toxicology knowledge.

Drontra® Plus

(praziquantel/pyrantel pamoate/febantel) Tablets

Broad Spectrum Anthelmintic for Dogs

Each Drontra® Plus Tablet for Puppies and Small dogs contains 22.7 mg praziquantel, 22.7 mg pyrantel base as pyrantel pamoate and 11.4 mg febantel. Each Drontra® Plus Tablet for Medium sized dogs contains 68.0 mg praziquantel, 68.0 mg pyrantel base as pyrantel pamoate and 240.2 mg febantel. Each Drontra® Plus Tablet for Large dogs contains 136.0 mg praziquantel, 136.0 mg pyrantel base as pyrantel pamoate, and 680.4 mg febantel.

INDICATIONS: Drontra® Plus (praziquantel/pyrantel pamoate/febantel) Tablets are indicated for removal of Tapeworms (Diphyllobothrium latum, Taenia saginata, Echinococcus granulosus, and removal and control of Echinococcus multilocularis). For removal of Hookworms (Ancylostoma caninum, Uncinia stenocephala), Ascariis (Ascaris lumbricoides, and Strongyloides (Strongyloides) spp can cause Heinz body formation, methemoglobinemia, and renal toxicity due to hemolysis. Drontra® Plus has been shown to significantly increase the frequency of Heinz bodies. A blood smear should be conducted to determine the presence of Heinz bodies.1,2

CONTRAINDICATIONS: DO NOT USE IN PREGNANT ANIMALS. Dogs treated with elevated levels of (6 consecutive days with 3 times the labeled dosage rate) of the combination of febantel and praziquantel in early pregnancy demonstrated an increased incidence of abortion and fetal abnormalities.2 The effects of Drontra® Plus on pregnant animals have not been determined. There are no known contraindications against the use of praziquantel or pyrantel pamoate in dogs.

ANIMAL TOXICOLOGY: Controlled safety evaluations have been conducted in dogs with Drontra® Plus (praziquantel/pyrantel pamoate/febantel) Tablets. Dogs receiving up to 3 times the label dosage 35 mg pyrantel pamoate and 17.5 mg pyrantel base/kg of body weight for 3 consecutive days (3 times the label dosage) showed clinical signs of vomiting and non-filmed stools. One dog receiving a 3 times labeled dose had elevated SQP, SGOT, CPK, and GGT readings (outside of normal range) at 6 days post-treatment. No additional findings were noted in hematology/clinical chemistry parameters nor were there any treatment-related histological changes. Vomition was the only side effect observed when dogs received a single treatment of 61 mg praziquantel, 61 mg pyrantel pamoate and 305 mg febantel/kg with one dog having an elevated SQP reading (outside of normal range) at 24 hours post treatment which had returned to normal by 7 days.

WARNING: KEEP OUT OF REACH OF CHILDREN.

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

REFERENCES:

should be monitored closely for other clinical signs related to the cardiovascular system.1,2

Rhubarb

Rhubarb (Rheum xeharbarum) is another common plant that your clients may have in their gardens. This plant contains oxalic acid, which can cause damage to the GI tract and the kidneys in dogs and cats. The leaves of the plant can cause vomiting, diarrhea, and oral irritation. Oxalic acid can lead to the formation of calcium oxalate crystals, which cause renal tubular damage resulting in renal failure. The treatment for this type of ingestion is symptomatic and supportive care for the GI tract and fluid diuresis to help protect the kidneys.2

Onion and Garlic

Onion (Allium cepa) and garlic (Allium sativum) are in the same family and can affect animals the same way. All types of onions and garlic can cause clinical problems. Allium spp can cause Heinz body formation, methemoglobinemia, agglutination, and hemoglobinuria. Cats are more sensitive to Allium toxicosis than dogs. In addition to anemia, small animals may exhibit GI signs, including anorexia, vomiting, and diarrhea. The anorexia often occurs 1 day before the hemolysis. GI signs should be managed, and the patient’s hematoctrit level should be monitored closely. A blood smear should be conducted to determine the presence of Heinz bodies.1,3

COMMON NONTOXIC FOOD PLANTS

Many garden foods are not expected to cause life-threatening signs. Keep in mind that any time an animal ingests anything that it is not accustomed to eating, mild to moderate GI signs may result. Different types of squash, such as acorn, buttercup, and butterly, fit into this category. Zucchini, cucumbers, melons, and bananas are also non-toxic to pets.

When outside, pets also have access to seeds that have fallen to the ground. Apple and cherry seeds are often thought to be poisonous. Although they do contain cyanide, the amount is very small. In addition, the seeds usually are not broken open when ingested. There is a higher probability that the seeds will cause a foreign body obstruction than toxicosis from cyanide.4

REFERENCES