



# Pet Intoxications Special Edition

# CAHFS CONNECTION

May 2012

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### HOLIDAY SCHEDULE

CAHFS will be closed on **Monday, May 28, 2012** in observance of Memorial Day.

## CAHFS Toxicology

Malicious and accidental poisonings of dogs and cats occur infrequently, but require specific toxicologic investigation to be diagnosed. For any suspect intoxication case, the CAHFS Toxicology Section provides general screens or specific tests that can help identify a specific toxicant. The best **antemortem samples** for testing are serum or plasma, whole blood, urine, and vomit/gastric lavage. The best **postmortem samples** are fresh (not formalin-fixed) liver, kidney, stomach contents, and urine. In some cases other tissues are required or useful. Samples should be packaged individually, well labeled and frozen or refrigerated prior to submission. Several resources relating to toxicological testing are available on the CAHFS website, [www.cahfs.ucdavis.edu](http://www.cahfs.ucdavis.edu), including a list of tests, pricing, sample volume requirements and optimum transport conditions, as well as a standard submission form. If a specific poison is of concern, but not listed on the website, please contact the toxicologist for further discussion. CAHFS' toxicologists are available for a case consultation at 530-752-6322 during regular business hours. The following cases illustrate several recent intoxications involving small animals.

### Methomyl poisoning

Ten dogs were fatally poisoned over a short period in San Diego county. **Methomyl poisoning** was diagnosed based on the detection of this carbamate insecticide in the stomach contents of all poisoned dogs, along with lowered brain cholinesterase activity levels and compatible clinical signs. Investigators from the Humane Society of San Diego observed several poisoned dogs and reported that they experienced hypersalivation and convulsions before dying. Most of the affected dogs were small breeds. Dogs in the area were allowed to run free and it was believed that the poisonings were malicious. Unfortunately, a source for the methomyl was not identified. CAHFS offers screening of biological samples and suspect source material for several classes of insecticides, such as cholinesterase-inhibitors (organophosphorous and carbamates insecticides), pyrethrins/pyrethroids, organochlorines (such as toxaphene), and macrolide endectocides (such as ivermectin).

### Caffeine intoxication

An adult German shepherd developed hyperthermia, tachycardia and agitation following consumption of ground meat found in the backyard of its owner. Based on serum testing performed at the clinic using an available point-of-care test kit, antifreeze (ethylene glycol) was suspected and the dog was treated accordingly. Approximately 11 hours post-exposure the dog died. Samples subsequently submitted to CAHFS were negative for ethylene glycol. However, additional screening using mass spectrometry detected **caffeine** in the stomach contents and meat at high concentrations. Based upon analytical results and the occurrence of consistent clinical signs, caffeine was determined to be the cause of death. This case illustrates that the use of commercially available test kits can lead to erroneous results and that confirmatory testing is strongly recommended. In another case, the use of **pseudoephedrine** in a ground meat sample was detected by CAHFS' illicit drug screen. Veterinarians and animal caregivers should be aware of the possible use of such legally available over-the-counter drugs to poison pets, or for pets to accidentally be exposed to household medications.

## CAHFS Lab Locations

### CAHFS - Davis

University of California  
West Health Sciences Drive  
Davis, CA 95616  
Phone: 530-752-8700  
Fax: 530-752-6253

[cahfsdavis@cahfs.ucdavis.edu](mailto:cahfsdavis@cahfs.ucdavis.edu)

### CAHFS - San Bernardino

105 W. Central Avenue  
San Bernardino, CA 92408  
Phone: (909) 383-4287  
Fax: (909) 884-5980

[cahfsanbernardino@cahfs.ucdavis.edu](mailto:cahfsanbernardino@cahfs.ucdavis.edu)

### CAHFS - Tulare

18830 Road 112  
Tulare, CA 93274  
Phone: (559) 688-7543  
Fax: (559) 686-4231

[cahfstulare@cahfs.ucdavis.edu](mailto:cahfstulare@cahfs.ucdavis.edu)

### CAHFS—Turlock

1550 Soderquist Road  
Turlock, CA 95381  
Phone: (209) 634-5837  
Fax: (209) 667-4261

[cahfsturlock@cahfs.ucdavis.edu](mailto:cahfsturlock@cahfs.ucdavis.edu)

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Your feedback is always welcome. To provide comments or to get additional information on any of the covered topics or services, please contact Sharon Hein at [slhein@ucdavis.edu](mailto:slhein@ucdavis.edu).

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We're on the Web  
[www.cahfs.ucdavis.edu](http://www.cahfs.ucdavis.edu)

## Mycotoxin intoxication

A 2-year-old Yorkie was diagnosed with **penitrem A intoxication**. Severe tremors led to fatal hyperthermia. A can of pet food submitted to CAHFS contained penitrem A and **roquefortine**. Penitrem A is a neurotoxic mycotoxin produced by *Penicillium* spp. Roquefortine, another mycotoxin produced by *Penicillium* spp., is often found in combination with penitrem A. These mycotoxins can be found in moldy foods or decomposing organic matter such as compost. Food most often implicated includes moldy dairy foods, walnuts or peanuts, spaghetti and stored grains.

## Mushroom intoxication

A 6-month-old Golden Retriever was diagnosed with ***Amanita* sp.** mushroom intoxication. The dog exhibited anorexia, lethargy, vomiting, and diarrhea of two days duration and had high liver enzyme activities. A urine sample was positive for **amanitin**, the hepatotoxin found in *Amanita* spp. and several other genera (e.g., *Galerina* and *Lepiota* spp.) of mushrooms. CAHFS has confirmed *Amanita* mushroom intoxication in a number of cases involving dogs and, interestingly, in two cats. In addition to offering a test for amanitin, testing for psilocin, one of the hallucinogenic mushroom toxins, found in *Psilocybe* spp. and several other mushroom genera, can also be performed (urine sample). Utilizing expertise available at UC Davis, mushrooms can also be identified, sometimes from good quality photographs submitted via e-mail.

## Prescription medicines

A 10-year-old Shih Tzu was admitted with a history of abnormal head movements and hyperactivity for 18 hours. The owners had been away from the house and noticed the change in the dog's behavior when they returned. Based on clinical signs, an otherwise normal physical examination and acceptable blood and biochemical laboratory results, a toxic etiology was suspected. The owners occasionally offered coffee to the dog and he also was in the habit of playing with the owner's ash tray. Our illicit drug screen detected **amphetamine** and **methamphetamine** in the urine along with trace amounts of caffeine. Nicotine was not detected in the urine. Although the source of amphetamines is unknown these drugs are legally available prescription medicines or are used illicitly. In this case, the dog recovered and the owners were advised to take necessary precautions to prevent a repeat occurrence.

## Plant intoxication

Ingestion of *Brunfelsia pauciflora*, the **Yesterday- Today-and-Tomorrow plant** was identified to have caused tremors and seizures in a dog. This evergreen shrub is drought resistant and is favored by nurseries and gardeners for its fragrant and colorful flower clusters which change colors from purple to blue to white. All parts of the plant are toxic. Clinically, the presentation is similar to strychnine poisoning and the treatment is based on seizure control and supportive care. The CAHFS Toxicology Section can provide identification of plants that are believed to have caused the illness in an animal or to evaluate whether a certain plant poses a risk to a pet or not.

## Anticoagulant rodenticide exposure/intoxication

Testing for **anticoagulant rodenticide exposure or intoxication** in dogs is a frequently requested analysis at CAHFS. Liver, serum and bait are samples of choice. In a recent case, a 7-year-old Dachshund was presented to a referring veterinarian with abdominal pain, hypotension, hypoglycemia, miosis and lateral recumbency. Twenty minutes after presentation, the dog vomited a large amount of unclotted blood and had cardiac arrest. No pleural or abdominal effusions were noted. **Brodifacoum** was detected in a submitted blood sample. Brodifacoum is a second-generation, long-acting anticoagulant rodenticide that interferes with normal blood clotting as a result of reduced concentrations of clotting factors II, VII, IX, and X. Clinical signs of anticoagulant rodenticide toxicosis can include depression, anorexia, anemia, hematemesis, bloody feces, ataxia, weakness, and subcutaneous hemorrhages. Recent EPA-mandated restrictions on the use of second-generation anticoagulant rodenticides (e.g., no longer available for purchase by homeowners and the requirement that they be placed in a "bait box" when used around homes) should decrease the number of intoxications of dogs.

Contributed by Drs. Tawde, Poppenga and Puschner