

## Toxicology Advice Centers • •

**Administrative Phone Numbers** - To obtain a consult in your area, call 1.800.222.1222.

**Western New York Poison Center (WNY)**

716.878.7871 • <http://wnypoison.org>

**Finger Lakes Regional Poison & Drug Info Center (FL)**

585.273.4155 • [www.FingerLakesPoison.org](http://www.FingerLakesPoison.org)

**Central New York Poison Center (CNY)**

315.464.7078 • [www.cnypoison.org](http://www.cnypoison.org)

**New York City Poison Control Center (NYC)**

212.447.8152

**Long Island Poison & Drug Info Center (LI)**

516.663.4574 • [www.LIRPDIC.org](http://www.LIRPDIC.org)

## Program Announcements • •

**FL:** Monthly conference: every 4 weeks on Thursdays starting Jan 27th (11 am to noon), and every 4 weeks on Tuesdays starting Feb 1st, 2005 (10 am-11 am).

**CNY:** Please mark your calendars for our Ninth Annual Toxicology Teaching Day to be held on November 2, 2005 at the Sheraton Hotel and Conference Center in Syracuse. More information to come.

**NYC:** Consultants Case Conference • The first Thursday of the Month from 2-4pm

**LI:** March 30, 2005: Sports Toxicology  
David Lee, M.D., ABEM, ABMT

April 27, 2005: Weapons Of Mass Destruction  
Robin McFee, D.O., MPH

May 23, 2005: Dangers of Drug Interactions And Adverse Drug Reactions In Geriatric Patients  
Irving Gomolin, M.D.

June 29, 2005: Recognition and Management of the Most Deadly Poisons Around  
Heather Long, M.D., ABEM

*Times:* 12:15 PM-1:45 PM

*Location:* New Life Conference Rooms B&C, Winthrop-University Hospital, 259 First Street, Mineola, Long Island, New York 11501. Pre-Registration is required. Please contact *Denis Jao* at 516-663-2650 if interested in attending. Both Telephone and Televideo broadcasts will be available.

**Please call administrative telephone numbers for more information.**

## Tox Trivia • •

1. What phenomenon is characteristic of ciguatera?
2. What vitamin is in roseheads?
3. What is the toxin in amanita pantheria?

## NYPC Tidbits • •

1. What Shakespearean character dies from a snakebite?
2. What state introduced the lethal injection as a form of execution in 1982?
3. What car manufacturer produced a car known as the Stingray?

**Answers on page 6**

## **Paxil CR (paroxetine hydrochloride)**

### **Avandamet (rosiglitazone maleate + metformin hydrochloride)**

FDA and the Department of Justice have seized the remaining stocks of Paxil CR and Avandamet tablets manufactured by GlaxoSmithKline, Inc. Manufacturing practices for the two drugs, approved to treat depression and panic disorder (Paxil CR) and Type II Diabetes (Avandamet), failed to meet the standards laid out by FDA that ensure product safety, strength, quality and purity. *March 4, 2004*

### **Crestor (rosuvastatin calcium)**

FDA issued a public health advisory describing revisions to the WARNINGS, DOSAGE AND ADMINISTRATION, CLINICAL PHARMACOLOGY, and PRECAUTIONS sections of the labeling. The revisions include results from a Phase 4 pharmacokinetic study in Asian-Americans and highlight important information on the safe use of Crestor to reduce the risk for serious muscle toxicity (myopathy / rhabdomyolysis), especially at the highest approved dose of 40 mg. *March 2, 2005*

### **Tysabri (natalizumab)**

FDA issued a public health advisory to inform patients and health care providers about the suspended marketing of Tysabri (natalizumab) due to two serious adverse events reported with its use. FDA received reports of one confirmed, fatal case and one possible case of progressive multifocal leukoencephalopathy (PML) in patients receiving Tysabri for multiple sclerosis. *February 28, 2005*

### **Gabitril (tiagabine)**

FDA and Cephalon, Inc. notified healthcare professionals and the public that a Bolded Warning has been added to the labeling for Gabitril (tiagabine) to warn prescribers of the risk of seizures in patients without epilepsy being treated with Gabitril. *February 14, 2005*

### **Phenergan (promethazine hydrochloride)**

FDA and Wyeth notified healthcare professionals of revisions to the CONTRAINDICATIONS, WARNINGS/Use in Pediatric Patients, and DOSAGE AND ADMINISTRATION sections of the prescribing information for Phenergan. Phenergan is contraindicated for use in pediatric patients less than two years of age because of the potential for fatal respiratory depression. *January 21, 2005*

### **Adderall XR (amphetamine)**

FDA issued a Public Health Advisory to notify healthcare professionals that Health Canada, the

Canadian drug regulatory agency, has suspended the sale of Adderall XR in the Canadian market. Adderall XR is a controlled release amphetamine used to treat patients with Attention Deficit Hyperactivity Disorder (ADHD). The Canadian action was based on U.S. post-marketing reports of sudden deaths in pediatric patients. *February 10, 2005*

### **Agrylin (anagrelide hydrochloride)**

Shire and FDA notified healthcare professionals about changes to the CONTRAINDICATIONS and WARNINGS sections of the prescribing information for Agrylin (anagrelide hydrochloride), a medication approved for the treatment of thrombocytopenia secondary to myeloproliferative disorders to reduce platelet count and the risk of thrombosis and to ameliorate associated symptoms including thrombohemorrhagic events. Pharmacokinetic studies have revealed an 8-fold increase in total exposure (AUC) to anagrelide hydrochloride in patients with moderate hepatic impairment. *January 2005*

### **Invirase (saquinavir mesylate capsules and tablets)**

### **Fortovase (saquinavir soft gelatin capsules)**

Roche and FDA notified healthcare professionals about an Important drug interaction warning. Drug-induced hepatitis with marked transaminase elevations has been observed in healthy volunteers receiving rifampin 600 mg once daily in combination with ritonavir 100 mg/saquinavir 1000 mg twice daily (ritonavir boosted saquinavir). *February 2005*

### **ZyPREXA (olanzapine)**

Eli Lilly and FDA notified healthcare professionals reports of medication dispensing or prescribing errors between the atypical antipsychotic ZyPREXA (olanzapine), indicated for the short-term and maintenance treatment of schizophrenia and for the short-term treatment of acute mixed or manic episodes associated with Bipolar I Disorder, and the antihistamine ZYRTEC (cetirizine HCl) marketed by Pfizer, indicated for the treatment of allergic rhinitis or chronic urticaria. *January 26, 2005*

### **IV Flush Brand of Preloaded Syringes Containing Heparin or Sodium Chloride**

FDA is issuing a nationwide alert against the use of all lots of preloaded syringes containing either heparin or sodium chloride intravenous catheter flushes manufactured by the IV Flush, LLC and distributed by Pinnacle Medical Supply, of Rowlett, Texas, because they lacked proper FDA clearance for

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# Poisonous Plants in New York State

## Case Report:

Contributed By: Ruth A. Lawrence, MD, Medical Director – Finger Lakes Poison Center

### Are There Any Poisonous Plants In The State Of New York?

The toxicology literature has been filled with reports of plant exposures that have appeared in the data collected by the American Association of Poison Centers. Many of these articles have indicated that since many of these reported exposures did not appear to result in any symptoms or morbidity that these plants are not toxic. Unless the plant is carefully identified and a close assessment of actual exposure, i.e. a real ingestion is confirmed, interpreting the outcome is fallacious. There are toxic plants in this state of New York and they are readily available in cultivated yards as well as meadows, fields and woods.

Plants from the standpoint of toxicity can be classified in three categories. The first is edible; the second is non-toxic but inedible and thirdly toxic. Many plants including the common tomato and potato, which are in the solanine family, have both edible and poisonous parts. This is also true of rhubarb where the stalks are edible and the leaves are highly toxic due to the high concentration of oxalate. It is appropriate to be familiar with the most toxic plants in one's immediate geographic area. While it may not always be possible to identify definitively a plant by telephone with the description from a frantic mother, it should be possible to rule out toxic plants with similar descriptions.

### Exposures

Plant exposures and potential toxicity can occur from contact, ingestion and by inhalation. The most common contact dermatitis from plants is Poison Ivy and this plant is usually well recognized with its triple leaf formation, its vine like characteristics and its oily substance, which causes a severe blistering rash. Poison Sumac and Poison Oak cause similar rashes and are usually found in the woods and should be recognizable. Poison Oaks are in the species of *Toxicodendron diversilobum*. Poison Ivy is *Rhus radicans*. In the same group of allergic contact dermatitis is the cashew, the mango tree and the smoke tree.

A newer plant in this group of allergic dermatitis is a plant that causes photo dermatitis and was indeed imported from Russia years ago as a good hedging plant for fields. It is commonly known as Russian hogweed or giant hogweed (*Helleborus mantegazzianum* Sommier). Giant hogweed looks like giant Queen Anne's

Lace standing sometimes ten feet tall. The flowers are as big as dinner plates and it is a very enticing intriguing plant for children who often like to play in and around it or cut its stalks to make blow guns. It is in the same family as Queen Anne's Lace, cow parsnip, fig and lime. The rash that is caused by contact with hogweed however is very photosensitive and reappears every time the skin is exposed to sunlight even as long as a year later. The rash is not unlike that of poison ivy except that it is both painful and itchy and has often has a hemorrhagic base. Its constant recurrence is especially irritating. Victims must avoid skin exposure to sunlight.

Toxicity by inhalation is a large family of plants with pollen, seeds and other particles in the air that cause allergic reactions in some individuals.

To help the poison center determine the potential hazard in the ingestion of a berry, it is helpful to have an indication that the berry was in the mouth, was chewed, and appears on the teeth and other traces as well. General estimation of the hazard of a given exposure is that six or more berries have the potential of being serious. Furthermore the amount of leaf ingested would have to exceed a half-dollar in size to present a risk of significant toxicity.

### Nightshade

Nightshade is a member of the solanum species. The family is Solanaceae. There are a number of plants in this family, most of which are poisonous and many which are available in our region and sometimes in our homes. The most notorious is deadly nightshade or black nightshade (*S. americanum* or *S. nigrum*). Deadly nightshade is very toxic. It is different from ordinary common nightshade with the following characteristics: the plant is less aggressive, is less likely to have long vines and wrap itself around bushes and trees but the leaf shapes are similar. The important differential is that the flowers are white and the pistil is yellow. They are the same 3-5mm size and bloom at the same time as berries are ripening. The berries are black when ripe and contain considerably more of the toxic principle, solanine glycoalkaloids.

Black nightshade is a native to Europe but has been found in the United States and has been found in New York State especially upstate New York. Common nightshade is one that plagues most of New York

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States gardens and yards is an aggressive vine that winds itself around other plants, bushes and trees, has heart shaped and tri-shaped leaves and a characteristic tiny purple flower with a yellow stamen. It too has flowers while berries are ripening; the berries are bright red and hang in a droop. Two to three of these berries may cause mouth irritation but probably little in the way of systemic symptoms. Two to three black nightshade berries could have serious morbidity. Symptoms are gastric irritation, general GI tract irritation with vomiting and diarrhea and may even be confused with gastroenteritis. However, the most disturbing symptoms are those of behavior changes and anticholinergic symptoms of increased temperature, flushed face, dilated pupils and irrational behavior. Other members of this plant family are the tomato and the potato. Sprouts from a potato are toxic and during the potato famine of Ireland caused many deaths. The indoor plant, the Jerusalem Cherry, is in the same family and causes similar symptoms. It is easier to diagnose because it is a houseplant and usually there are only one or two fruit on the plant, which are easily counted. One "cherry" could cause symptoms in a young child.

Nightshade is a simple telephone diagnosis by the shape of the leaves, the droop of berries and the classic tiny flower with the yellow stamen. The public often describes it as a vine, a bush or a tree depending on what it has chosen to wrap itself around.

## Polkweed

Polkweed is *Phytolacca americana* and is a member of the family of *phytolaccaceae*. It goes by other names such as inkberry, Indian polk, red weed. Polkweed is a confusing plant because early in the spring it's young sprouts and stems are boiled and safely eaten after cooking in several waters. The very mature black inky berries are also relatively non-toxic. In between those times however, there is significant toxicity due to *phytolaccatoxin* and related triterpenes. A common error even among knowledgeable gardeners is mistaking a polk root for parsnip or horseradish, both of which are edible, while the polk root is extremely toxic. The classic recognizable characteristics of this plant, which grows from Maine to Minnesota and throughout New York State is the large perennial rootstock from which stout purplish branching leaf stalks emerge. It can grow up to twelve feet in height. The stems, while green initially turn red as the toxin increases in concentration. The single leaves are four to twelve inches long; the flowers are greenish white to purplish, small and appear on a short stalk. The dark berries are purplish to black and are attached to

the stalk by a very short stem. The berries before they become fully ripe look like miniature green pumpkins and are toxic.

The symptoms from consuming any toxic part of the polk weed are usually delayed for two hours or so and begin with nausea and severe gastroenteric cramps, profuse sweating, persistent vomiting and later diarrhea. The symptoms may continue for forty-eight hours. Management involves symptomatic treatment for pain and the replacement of fluids. Children usually require hospitalization. Many adults have been hospitalized for consuming the root or eating the leaves when they are mature and toxic.

## The Castor Bean Plant

Another toxic ornamental plant that has reappeared in the state of New York is the Castor Bean plant, which is *Ricinus communis*. Family *euphorbiaceae*. Other popular names are the wonder tree or the ricin. This majestic plant grows over fifteen feet high has large lobed leaves sometimes three feet across. Its spiny seedpods form clusters along spikes. The pods contain plump seeds with unusually beautiful mottled brown on white coloring. The seed has a very pleasant taste but contains the toxin ricin, plant toxin, lacticin (toxalbumin), which inhibits protein synthesis in the intestinal wall. The oil when extracted from this plant is the castor oil, which is a powerful but non-toxic cathartic. When the seeds are eaten or large amounts of the rest of the plant, symptoms occur after a latent period of a several hours. There is nausea, vomiting and diarrhea with massive fluid and electrolyte loss and intestinal dysfunction. The ingestion can be fatal because of hypovolemia and electrolyte abnormalities. It has been estimated that the ingestion of as few as two of these seeds can be fatal. Ricin of course has been identified as one of the most toxic poisons in every day terrorism.

## Angel Trumpet

Angel Trumpet (*brugmansia sauveolens*) is a beautiful majestic shrub that has become very popular in New York State gardens. It is a small bush with classic trumpet shaped flowers. It is also known as Jimson weed, Mad Apple and Thorn Apple. It causes Belladonna syndrome. The white flowers are funnel shaped, large and showy and point upward. The prickly fruits are capsules about two inches long which split open when mature and dry along four seams to expose the numerous kidney shaped brownish black seeds. There are other varieties, which have lavender or red flowers, which often appear as a vine on telephone poles.

The whole plant is toxic including the nectar but the seeds are most commonly ingested in unintentional poisonings. The dried leaves have been used by individuals seeking a delirious reaction. The toxin is Belladonna alkaloids. The symptoms are the classic Belladonna dry mouth, mydriasis, dry warm skin, red face, tachycardia and delirium with hallucinations. Children are most severely affected, sometimes so severely as to require anticholinergic physostigmine.

## BERRIES

Toxic	Non-toxic/inedible
Nightshade (especially black)	Honeysuckle
Yew (Taxus)	Fully ripe poke berry
Lily of the Valley	
Evergreen bitterweet (euonymus)	
Holly Berries	
Mistletoe	

## PLANTS THAT CAUSE SKIN IRRITATION

<b>Plants that cause contact dermatitis</b>
Hydrangea
Hyacinth
Tulip
<b>Plants that contain Raphides</b>
Dumbcane
Pothos
Boston Ivy
<b>Plants that produce phytophotodermatitis</b>
Queen Ann's Lace
Giant Hogweed
Lime
<b>Plants that have stinging hairs or detachable needles</b>
Stinging Nettle
Stinging Lupine
<b>Plants that contain irritant sap or latex</b>
Snow on the mountain
Crown of thorns
<b>Plants causing allergic contact dermatitis</b>
Poison Ivy
Poison Oak
Cashew

Note: These are examples and not exclusive lists.

The duration of action of Belladonna alkaloids is longer than that of the physostigmine so repeated administration has been required.

This is only a brief review of some of the more attractive, toxic and common plant exposures in the State of New York. Absence from this list does not imply that the plant is non-toxic. Poison centers should be familiar with the local culprits and be able to rule out toxicity in the event of a plant exposure.

### References:

Lampe K, McCann MA, AMA Handbook of Poisonous and Injurious Plants, Chicago Review Press 1985

Gridley Peterson M, How to Know Wild Fruits, Dover Publications, 1973

Kinghorn A, Toxic Plants, Columbia University Press, 1979



marketing. FDA and the company have also been informed of *Pseudomonas fluorescens* (*P. fluorescens*) infections in patients possibly caused by the heparin flushes. PDATE February 4, 2005

## Viramune (nevirapine)

FDA issued a public health advisory to inform health care providers and patients about recent safety-related changes to the nevirapine (Viramune®) label and about appropriate use of HIV triple combination therapy containing nevirapine, a treatment option in the United States which is increasingly being used globally. The Indications and Usage section now recommends against starting nevirapine treatment in women with CD4 + cell counts greater than 250 cells/mm<sup>3</sup> unless benefits clearly outweigh risks. This recommendation is based on a higher observed risk of serious liver toxicity in patients with higher CD4 cell counts prior to initiation of therapy. January 19, 2005

## Methylin CT (Methylphenidate HCl Chewable Tablets)

[01/19/2005] FDA and Alliant Pharmaceuticals notified healthcare professionals and consumers of the voluntary recall of one lot of Methylphenidate HCl Chewable Tablets, 5 mg strength, indicated for Attention Deficit Hyperactivity Disorder and Narcolepsy. After testing and evaluation, Alliant found that lot number #AMT50402A [expiration date April 2006] might contain up to three times the active ingredient, and elected to recall the medication as it could pose serious health risk for some patients. UPDATE 02/10/2005

## Aranesp (darbepoetin alfa)

FDA and Amgen notified healthcare professionals of revisions to the WARNINGS and PRECAUTIONS

sections of the prescribing information for Aranesp, indicated for the treatment of chemotherapy-induced anemia in patients with nonmyeloid malignancies. This safety information alerts physicians to the adverse effects observed with other products in this class in association with off-label dosing strategies. Two recent investigational studies with other erythropoietic products permitted or required dosing to achieve hemoglobin levels of greater than 12 grams per deciliter. An increased frequency of adverse patient outcomes, including increased mortality and thrombotic vascular events were reported in these studies. January 11, 2005

## Cordarone (amiodarone HCl)

FDA and Wyeth notified pharmacists and physicians of a new Medication Guide for Cordarone (amiodarone hydrochloride tablets). The FDA regulation 21CFR 208 requires a Medication Guide to be provided with each prescription that is dispensed for products that FDA determines pose a serious and significant public health concern. December 30, 2004

## Avastin (bevacizumab)

FDA and Genentech notified healthcare professionals of revisions to the WARNINGS, PRECAUTIONS, ADVERSE EVENTS, and DOSAGE AND ADMINISTRATION sections of the Avastin labeling. Avastin, used in combination with intravenous 5-fluorouracil-based chemotherapy, is indicated for first-line treatment of patients with metastatic carcinoma of the colon or rectum. Arterial thromboembolic events, including cerebral infarction, transient ischemic attacks (TIAs), myocardial infarction (MI), and angina, occurred at a higher incidence in patients receiving Avastin in combination with chemotherapy as compared to those receiving chemotherapy alone. January 5, 2005

## Tox Trivia Answers • •

1. Dry ice phenomenon
2. Vitamin C
3. Ibotenic acid and mucilol

## NYPC Tidbits Answers • •

1. Cleopatra
2. Texas
3. Chevrolet

## Crossword Answers • •

Across

4. inhalation
8. ethylene glycol
9. pokeweed
10. giant hogweed

Down

1. black nightshade
2. kidney
3. angel trumpet
5. calcium oxalate
6. sweet
7. fomepizole

# SPI CORNER TOPIC: ETHYLENE GLYCOL TOXICITY & ASSAY

Contributed by: Sharon Ternullo, Pharm. D., CSPI, Drug Information Coordinator, Finger Lakes Regional Poison and Drug Information Center

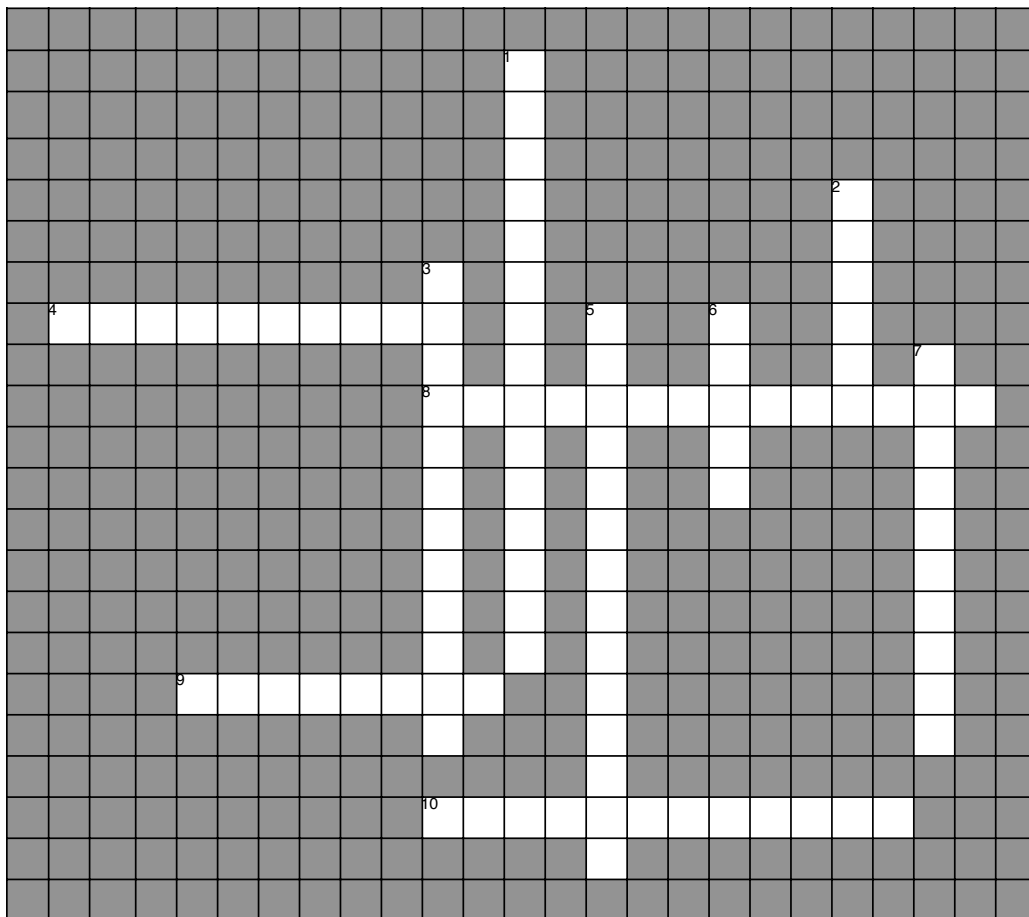
Ethylene glycol is a sweet, colorless, odorless liquid that is very palatable to animals and children. As little as 2 tablespoons of ethylene glycol can be fatal in adults and one fourth of that in children. The primary source of ethylene glycol is antifreeze, which contains between 95% and 98% ethylene glycol. Ethylene glycol is rapidly absorbed from the gastrointestinal tract and widely distributed to all tissues. Metabolism is primarily in the liver, and to a lesser degree in the kidneys. The limiting step in metabolism is the conversion of ethylene glycol to glycoaldehyde by alcohol dehydrogenase. Glycoaldehyde is further metabolized, first to glycolate, then glyoxylate, then finally to oxalate. Oxalate can bind to calcium to form calcium oxalate. It is not the ethylene glycol, but instead the intermediate metabolites that are toxic. Patients can present with impaired consciousness, seizures, and ophthalmoplegias. Hematuria, flank pain, and acute tubular necro-

sis appear over the following 24 hours. Oliguric renal failure, cerebral edema, cardiovascular collapse, non-cardiogenic edema, and myocarditis can develop over the next 48 hours. Treatment with either ethanol or fomepizole should be initiated immediately. Sodium bicarbonate should be used to treat severe acidosis. If ethylene glycol levels are elevated or if severe acidosis is present dialysis should be initiated. When treatment is successful, normal renal function is usually restored in 7-10 days, although permanent impairment has been reported. Documented ethylene glycol concentrations greater than 20mg per dL require treatment. However, obtaining timely levels is not always immediately available as very few laboratories can perform this assay. In an emergency, please contact your poison center for help in managing a case, and to determine emergent need for ethylene glycol levels.

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## TOXICOLOGY CROSSWORD PLANTS

Contributed by: Laurie Piwinski, RN, CSPI Central New York Poison Control Center, Syracuse, NY



### Across

4. Plant exposures occur through contact, ingestion, or \_\_\_\_\_.
8. Toxic chemical found in antifreeze
9. Also known as inkberry, Indian polk, and red weed
10. Common name for *h.mantegazzianum sommier*

### Down

1. Plant native to Europe, now found in upstate NY
2. Renal or \_\_\_\_\_ failure
3. Plant which causes Belladonna syndrome
5. Type of crystals found in urine with ethyleneglycol poisoning
6. Taste of antifreeze
7. Generic name for ethylene glycol antidote

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# SPI CORNER

## ETHYLENE GLYCOL TOXICITY & ASSAY

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In New York State, there are two official laboratories able to provide timely ethylene glycol levels;

The Regional Toxicology Laboratory at Strong Memorial Hospital (Rochester, NY) has made available a new assay for ethylene glycol based on gas chromatography-mass spectrometry (GC-MS) and is specific for ethylene glycol. The previous enzymatic assay was not specific and is no longer available. The assay also determines the concentration of glycolic acid in the specimen. Therefore, the report of the ethylene glycol test will consist of ethylene glycol and glycolic acid concentrations in mg/dL units. Analysis is available from 0700-1530 daily. The specimen should be between 0.25 and 0.5 ml of blood in an SST or red top tube. The assay will detect ethylene glycol levels down to 1mg/dL and glycolic acid levels down to 2mg/dL. For further information contact Client Services for the laboratory at 585-275-8181 or your local poison center at 1-800-222-1222.

The Regional Toxicology Laboratory at the Albany Medical Center continues to provide 24 hour X 7 day per week availability for analysis of ethylene glycol based on gas chromatography-flame ionization detection. Other glycols, including diethylene glycol and propylene glycol, may also be detected in the analysis. For 24 hour test service, contact the Albany Medical

Center Stat Laboratory at 518-262-3515 or your local poison center at 1-800-222-1222. The Albany Medical Center laboratory recommends collection of blood in a 7 milliliter red top tube without anticoagulant or serum separator gel as soon as possible after the ingestion. Transportation must be arranged by the requesting facility. In cases where testing for other glycols or ethylene glycol derivatives are needed, please contact the laboratory director at Albany Medical Center (518-262-3515).

The Regional Toxicology Laboratory at Women and Childrens Hospital of Buffalo provide 24 hour X 7 day per week availability for analysis via an enzymatic method. We ask for a 3 ml sealed red-top vacutainer collection and delivered to the laboratory immediately after collection. A report will be available within one hour upon receiving the sample. For administrative information, please contact Kaleidahealth. Org. at WCHOB's Regional Toxicology Laboratory (716-878-7403).

The New York City Poison Center has limited support to provide ethylene glycol levels via gas chromatography for hospitals in the City of New York. For further information contact your local poison center at 1-800-222-1222.

