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Permalink

<https://escholarship.org/uc/item/07s161kw>

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Publication Date

2016-04-01

DOI

10.3733/ucanr.8560

Peer reviewed

Poisonous Plants

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This publication describes typical adverse symptoms and health effects that selected common poisonous plants and plant parts can cause in people. It also includes a table of poisonous plants commonly found around the home and garden and explains how to make a plant identification file. Plants associated with poisonings and other health problems that have been frequently reported throughout the state to the California Poison Control System are listed. Plant species that can cause dermatitis (an inflammation or swelling of the skin) or other form of poisoning, as reported by other reliable sources, are also included.

The table in this publication lists plants alphabetically by scientific name to avoid confusion that sometimes occurs with use of common names. We include common names of plants and, for most plants, the following toxicity information: the name of the toxin, which part of the plant contains the toxin, and the human body part or parts that are affected by the toxin. Note that the publication does not include all known poisonous plants that could be found in California gardens or landscapes, only those commonly found in these settings and that are toxic in some way to people. Some of the plants listed in this publication are quite toxic to animals. Animal genera and species vary in their sensitivity to the respective poisonous components. Livestock injury and mortality from ingestion of poisonous plants are well documented, with an extensive research base. However, a discussion of plant toxicity to livestock or other domestic animals is outside the scope of this publication.

Sources used in compiling this information include California Poison Control Center data, textbooks, scientific journal articles, and field guides. A bibliography at the end of the publication provides reference materials.



Poisonous Landscape and Garden Plants and Symptoms Resulting from Poisoning

Many hundreds of species of poisonous plants grow in the United States. Some of the most beautiful trees, shrubs, vegetables, and vines are poisonous under certain conditions. They provide shade, colorful flowers, or food, but parts of the plant (sap, leaves, seed, flowers, stems) may also contain toxic compounds. Some poisonous plants have substances that irritate the skin or mouth and cause stomach upset, while others can cause vomiting or diarrhea. Skin rashes are one of the most common health complaints that arise from handling certain plants, but fatalities can occur when toxin-containing plants or plant parts are ingested. Some of the very toxic plants also taste very bitter, possibly reducing the risk of poisoning, but there are no simple tests to identify which plants are poisonous. Do not assume a plant is nontoxic because birds or animals eat it without harmful effects. Eating a small amount of a poisonous plant may not be a problem, but large or repeated small doses could cause toxic symptoms. The signs of poisoning may not appear for many hours after tasting, chewing, or swallowing poisonous plant parts.

Some of the most poisonous plants also can be sources of valuable pharmaceuticals. For example, digitalis, which is derived from the leaves and seeds of foxglove (*Digitalis purpurea*), was originally used to strengthen the heartbeat of an ill person. However, poisonous plants or their toxicants may be inadvertently introduced at home via medicinal teas and homemade medicines. Heating or cooking does not necessarily reduce or eliminate the toxins in plants or mushrooms. Herbal remedies may have undesirable side effects and may contain varying concentrations of bioactive compounds. Therefore, self-treatment with plant parts or homemade teas from plants must be strongly discouraged and such treatments could be fatal.

Although many plants contain significant amounts of natural toxins, these plants need not always be eliminated from the home or garden. It does mean that homeowners should be prepared to identify all plants on their property. Homeowners should also know which plants found in their landscape could be toxic in some way and, ideally, should have some knowledge of the symptoms associated with these poisonous plants.

What to Do If Plant Poisoning Is Suspected

If you suspect that someone has been poisoned by a plant, telephone your doctor or the Poison Control Center at 1-800-222-1222. The information you provide about the plant that was consumed will help a health professional determine the proper treatment. If you are advised to go to the hospital, take a sample of the plant with you, if possible.

Eating any wild mushrooms collected outdoors is potentially dangerous. Call the Poison Control Center at 1-800-222-1222 even if you only suspect that someone has eaten a mushroom. Never just wait and see. Don't guess that everything is okay because no symptoms have developed. After a poisoning, symptoms may not appear until many hours later.

Preventing Plant Poisoning

Plant poisoning can be prevented. If you employ practical prevention measures, such as storing bulbs and seeds where children cannot reach them, keeping house plants out of reach, and teaching children about poisonous plants, you can prevent most problems. Do not use plant branches as sticks for roasting hot dogs or marshmallows unless you are sure that the plant from which they were taken is safe. For example, oleanders are common landscape shrubs that contain a poisonous principle, making their leaves and stems very toxic, so oleander wood should never be used as barbecuing skewers. If you develop the plant identification file described below, you will know which plants are poisonous.

Children are the most frequent victims of plant poisoning, making up two-thirds of calls to poison centers regarding plant exposures. Thus, it is critical to watch children when they are playing or otherwise have access to any poisonous plants in the home, garden, or other public areas where plants are grown (relatives' homes, parks, school yards, church, etc.). It is critical to teach children that plants are beautiful but should not be eaten, and some should not be touched, either. Children should be told not to eat garden seeds, berries, mushrooms, or leaves from any plant at any time, even if others dare them to do so. They should also not suck on the flowers, unless an adult verifies that the plant is not toxic.

Keeping Plant Identification Records

Each year about 70,000 people call poison control centers across the United States about plant and mushroom exposures, and one in four plant calls to poison centers nationwide involves an exposure to a plant of unknown identity. Without knowing the name of the plant, poison center staff cannot provide accurate information regarding toxicity.

- Create a hard copy or a computer file list called “Plants: Identification.” Keep it with your important papers or store it in your computer. Enter the telephone number of the Poison Control Center (1-800-222-1222) in your file and in the front cover of your telephone book.
- Use the scientific or botanical name to record plant identity. Common names may refer to several different plants that may not be related.
- Keep a copy of the identification tags from the plants you buy and put them directly into your plant identification file. Keep the original identifying tag attached to the plant for quick reference. Make a diagram of your landscape with its plants identified.
- To identify plants already in your home or garden, consult resources such as the *Sunset Western Garden Book*, contact a California Certified Nursery Professional (CCNPro) at a local retail nursery or garden center, or contact your local UC Cooperative Extension county office for help in identifying your plants. Bringing the plant or as many plant parts as possible (not just one leaf or one berry) to a retail nursery or a UC Cooperative Extension office is perhaps the best way to identify a plant. Calling over the phone and trying to describe a plant can result in serious and potentially life-threatening errors in identification.
- Taking a photo of the entire plant and a close-up of leaves and/or berries or flower with a digital camera or cell phone camera and e-mailing the picture to a plant expert may be another alternative if you cannot take the actual plant in for identification.
- Once the plants have been identified, take photographs of them. Use a flash both indoors and out to fill in shadows. The best outdoor light for taking identification photographs occurs early in the morning, late in the afternoon, or on cloudy days. Use an

indelible marker to write the names of the plants on the back of printed photos or create a digital photo album with the plant name placed in the caption for each photo. Keep the photos in your plant identification file. Let relatives and babysitters know about the file, its location, and how to access it.

Plants and Their Toxic Principles

Toxicology is the study of poisons and how they affect living organisms. People and animals are continually exposed to toxic principles in the environment, which include specific chemical elements, chemical compounds, and radiation. The toxic principles of plants are usually chemical compounds manufactured by and found within the plant. As a basic principle of toxicology, it is the dose that often determines whether toxicity will occur.

Whether specific chemical compound is toxic is affected by several factors, such as the following:

- potency of the toxicant (activity per gram, often considered relative to the mass, or weight, of a person or animal)
- concentration of the toxicant in the plant part
- route of exposure (oral, dermal, inhalation)
- dose (amount) received
- amount absorbed
- overall sensitivity of the person to the toxicant
- mode of action of the toxicant
- organ or system affected within the person

A plant species may contain several types of chemically unrelated toxic compounds, often referred to as toxic principles. Many of these poisonous compounds have been studied and identified, while others are not well understood.

Although it may be known that ingestion of a specific plant genus or species results in injury, a specific chemical compound may not have been identified. Taxonomic relationships of plants may be helpful in evaluating the potential for toxicity. However, even among plants of the same species, variability in chemical concentration can occur.

The amount of a toxin found in a plant may vary according to several factors. The concentration of plant toxins can vary in different parts of the plant. Some plants concentrate toxic compounds in the seed but not the leaves; in others, unripe fruit may be toxic but not ripened fruit; in others, such as oleander (*Nerium oleander*), all plant parts are toxic. Geographic location, time of year, and growing conditions of the plant may influence the concentration of toxic compounds. For example, nitrate toxicity is affected by plant water stress.

In addition, distinguish between hazard and risk. Hazard is the nature of an event, such as plant poisoning. Risk is the likelihood of such an event, which may be affected by where the plant is located, the height of the plant, access of people to the plant, ages of people, and so forth.

Toxins Found in Plants

Toxins found in plants may be described in several ways. In some cases the poisonous component has been identified and its molecular formula and structure determined; for these, the chemical may be named. Some toxicants may be classified based on their structure or presence of a functional group, for example, steroid, pyridine, or glycoside. Some compounds may be described in terms of the organ system affected, for example, cardiac. A more specific description of compounds may not be available (e.g., a resin), or the biochemical mechanism of a particular poisonous component in causing toxicity may not be known, although the organ system affected may be known.

In some cases, a toxic agent may be classified into more than one category. For example, oleandrin can be also considered to fall within the broader group of cardiac glycosides. Solanine, found in the nightshade family, sometimes including potatoes, is a combination of solanose (a sugar) and solanidine (the active principle). Since it contains a sugar, solanine can be considered a glycoside. In terms of its physical properties, solanine may be considered a saponin. The active principle solanidine is a modified steroid that behaves as an alkaloid, so it could be called an alkaloid steroid.

Toxins classified based on the nature of a chemical reaction or similarity to a chemical class include the following:

- Alkaloids, which are alkali-like. They can form salts upon reaction with acids and act as bases in reactions. They usually have a bitter taste, as do true alkalis.
- Glycosides, which yield one or more sugars if the molecule is cleaved. The toxic principle is the nonsugar portion of the molecule.
- Oxalates, which are salts of oxalic acid. The oxalate ion is responsible for the toxic effects.
- Saponins, which are large molecules that form a soap-like froth when shaken in water.

Toxins classified based on the effect on an organ system include the following:

- Cardiac glycoside, which affects the heart.
- Cyanogenic glycoside, which yields hydrocyanic acid (hydrogen cyanide), which prevents respiration at the cellular level.

Toxins classified based on the specific chemical include the following:

- Ricin, of castor bean, is well studied, a protein of more than 100 amino acids.
- Oleandrin, found in oleander, is a modified steroid.
- Cochicine is also well studied, since it affects a later stage of cell division (microtubule retraction) and is used in laboratories to interfere with DNA replication.

Plants That Injure the Skin

Mechanical Injury

Mechanical injury is perhaps the most common injury associated with plants. When thorns, needles, spines, or other plant parts become embedded in the skin, chronic irritation may result if the material is not removed quickly. A simple way to remove the hairlike thorns common on cacti is to apply a thin layer of white (Elmer's) glue over the thorns. Allow the glue to dry. Then apply a piece of masking or duct tape over the glue. Remove the thorns by quickly peeling off the tape-glue plaster.

Thorns that embed deeply in the skin near joints may cause painful, inflamed joints similar to chronic arthritis. If they embed near bones, they may cause a reaction in which the body walls off the thorn in solid, tough tissue that may resemble a tumor. This reaction may also occur even if the thorn is not near bone, but it is less common.

If a thorn embeds deep in a joint (knuckle, wrist, elbow, knee, toe, etc.) a severe infection may develop that requires hospitalization. A stab wound to a joint is an emergency situation and should not be ignored.

Plants commonly associated with mechanical injury include

- agave, including century plant (*Agave americana*)
- blackberry (*Rubus* spp.)
- cacti (family Cactaceae)
- citrus (*Citrus* spp.)
- Melaleuca spp. (some)
- palms (some)
- pyracantha (*Pyracantha* spp.)
- roses (*Rosa* spp.)

Primary Irritant or Contact Dermatitis

The most common injury following a skin exposure to a toxic plant is dermatitis, an inflammation or swelling of the skin accompanied by redness, itching, and tenderness to touch. Irritant dermatitis can be caused by caustic or irritating substances produced by plants that come in contact with or injure the skin. This results in nonallergic, inflammatory skin reactions, or rashes. No one is safe from an irritant: if enough of the material contacts the skin, a rash will develop.

Irritant dermatitis is a very common complaint with plants in the arum family (Araceae), which includes such common houseplants as dieffenbachia, arrowhead vine, peace lily, philodendron, and pothos. All of these plants have special cells that contain calcium oxalate, or oxalic acid, crystals. When a leaf is brushed, handled, broken, bent, or chewed, it ejects the crystals. These crystals embed themselves in the skin or mouth or whatever surface is in contact with the plant. Oxalic acid is extremely

irritating. Members of the spurge family (Euphorbiaceae), such as spurge and to a much lesser extent poinsettia, are also commonly associated with dermatitis.

Many other plants are commonly associated with causing irritant dermatitis. Keep in mind that many of these plants can cause more serious symptoms than just dermatitis, especially when ingested. Plants that cause irritant dermatitis include

- arum family (dieffenbachias, philodendrons, pothos, caladium)
- bulbs of many kinds (tulips, daffodils, hyacinths, buttercups, narcissus)
- carrot (*Daucus carota*)
- castor beans (*Ricinus* spp.) (very toxic if ingested)
- celery (*Apium graveolens*)
- century plant (*Agave parryi*)
- cowslip (*Primula* spp.)
- Euphorbia family, including pencil tree (*Euphorbia tirucalli*), poinsettia (*E. pulcherrima*), and spurges (*Euphorbia* spp.)
- Ficus spp. (fig, rubber tree)
- foxglove (*Digitalis* spp.) (very toxic if ingested)
- milkweed (*Asclepias* spp.) (very toxic if ingested)
- mushrooms (various species)
- parsley (*Petroselinum* spp.)
- parsnip (*Pastinaca sativa*)
- tomato (stems and leaves) (*Lycopersicon esculentum*)
- trees including alder (*Alnus* spp.), ash (*Fraxinus* spp.), beech (*Fagus* spp.), birch (*Betula* spp.), cedar (*Cedrus* spp.), elm (*Ulmus* spp.), maple (*Acer* spp.), mesquite (*Prosopis* spp.), oak (*Quercus* spp.), pine (*Pinus* spp.), poplar (*Populus* spp.), and spruce (*Picea* spp.)
- turnip (*Brassica rapa*)

Allergic Contact Dermatitis

Allergic contact dermatitis (ACD) differs from irritant contact dermatitis in that only sensitized (allergic) individuals react to contact with the plant material, which is known as the allergen. It is

rare for allergic individuals to react the first time they are exposed to an allergen. The first encounter sensitizes the allergic individual. Usually, the next encounter with the allergen stimulates the allergic response. ACD usually results in redness, itching, and the development of small blisters, but it may become so severe that large fluid-filled blisters form. As with irritant dermatitis, ACD injury is limited to the skin area exposed to the plant material.

Often, people exposed to plant allergens will use topical anesthetics (containing benzocaine, dibucaine, lidocaine, or other chemicals ending in the “-caine” suffix) and will develop an ACD plant reaction to the medication in addition to the primary ACD reaction.

Allergic persons may experience reactions to topical antibiotics (neomycin and bacitracin), topical antihistamines (diphenhydramine), and topical mercury compounds (mercurochrome and merthiolate). Nickel is the most common metallic sensitizer; it causes more ACD problems than all other metals combined (Zamula 1990). A person who develops a rash needs to consider exposure to plants, medications, nickel, and anything new to which he or she might have recently been exposed.

Many plants are commonly associated with ACD. Keep in mind that many of these plants cause other more dangerous symptoms than just allergic dermatitis, especially when ingested. Plants that cause allergic contact dermatitis include

- aster (*Aster* spp.)
- birch (*Betula* spp.) (pollen can cross-sensitize people to apples, carrots, and celery)
- bulbs (*Narcissus* spp., including daffodil and narcissus)
- carrots (*Daucus carota*)
- castor beans (*Ricinus* spp.) (very toxic if ingested)
- cayenne peppers (*Capsicum* spp.)
- cedar trees (*Cedrus* spp.)
- celery (*Apium graveolens*)
- chrysanthemums (*Chrysanthemum* spp.)
- citrus (*Citrus* spp.)

- English ivy (*Hedera helix*)
- garlic (*Allium sativum*)
- geraniums (*Geranium* spp.)
- ginger (*Zingiber* spp.)
- ginkgo (female trees only, fruit of *Ginkgo biloba*)
- laurel (*Laurus nobilis*, sweet bay, bay leaf)
- lichens (various species)
- liverwort (*Hepatica* spp.)
- magnolia (*Magnolia* spp.)
- oleander (*Nerium oleander*) (very toxic if ingested)
- onion (*Allium* spp.)
- philodendrons (*Philodendron* spp.)
- primrose (*Primula* spp.)
- sawdust from various trees, including laurel (also known as sweet bay or bay leaf) (*Laurus nobilis*), Brazilian pepper (*Schinus terebinthifolius*), and silk oak (*Grevillea robusta*)
- smoke tree (*Cotinus coggygria*)
- *Toxicodendron* spp. (poison oak, poison ivy, poison sumac) (strong local skin reactions)

Photosensitization Dermatitis

Photosensitization dermatitis is a special case of ACD in which sunlight is required to cause injury. In livestock animals, photosensitivity results from the animals grazing on plants that produce chemicals capable of injuring the skin after being exposed to sunlight. In humans, photosensitization dermatitis is more common from chronic skin exposure to plants or plant parts that sensitize the skin to sunlight. After recovery from photosensitization dermatitis, the skin will be darkened permanently.

Plants associated with human photosensitization dermatitis reactions include

- anise (*Pimpinella* spp.)
- buttercup (*Ranunculus* spp.)

- carrot (*Daucus carota*)
- celery (with pink rot) (*Apium graveolens*)
- dill (*Anethum graveolens*)
- fig (*Ficus* spp.)
- Klamath weed (*Hypericum* spp.)
- lime (and other citrus rinds) (*Citrus* spp.)
- mustard seed (*Brassica* spp.)
- parsley (*Petroselinum* spp.)
- parsnips (*Pastinaca sativa*)
- Persian limes (*Citrus* spp.)

Plants That Are Poisonous If Ingested

Remember that many plants in the house and outdoors can be poisonous to humans and animals. If you even suspect a possible exposure, call your physician or the Poison Control Center. The poison center is available free of charge 24 hours a day at 1-800-222-1222. Don't guess; be sure!

Flowers, Perennials, and Holiday Plants That Contain Toxins

Numerous poisonous flowering plants occur worldwide, and some are found in California homes and gardens (table 1). Some of these plants, such as foxglove, have been used for centuries in both medicine and mayhem.

Calla lily (Zantedeschia spp.)

Calla lilies are elegant flowering plants that grow in the home garden and wild in the countryside. They are popular choices for bridal bouquets and cut flower arrangements. White calla lilies are the most common color, but they are also grown in green, pink, purple, yellow, and orange varieties. The calla lily grows from a rhizome and produces large green leaves. The flower blooms from the top of a thick stem and is spathe shaped. All parts of the plant contain oxalate crystals. Biting into the plant or chewing plant parts causes irritation, burning, and stinging of the mouth, lips, and tongue. Vomiting and drooling may be seen. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Easter lily (Lilium longiflorum)

Easter lilies are sold as potted plants at Easter time. They have large, attractive, fragrant, funnel-shaped white flowers. Easter lilies are not toxic to humans but are very toxic to cats.

Foxglove (Digitalis purpurea)

Foxglove is a biennial garden herb that grows 1 to 5 feet tall. It has tubular purple, pink, yellow, or white-lavender flowers with rosette-like leaves. Foxglove is the original source of the drug digitalis, which is used medicinally to stimulate a weak heart. Eating fresh or dried leaves and swallowing seeds can cause poisoning and death. Signs of poisoning include nausea, vomiting, abdominal pain, diarrhea, headache, drowsiness, dizziness, mental confusion, blurred vision, trembling, irregular heartbeat, slowed heart rate, heart block, and death.

Holly (Ilex spp.)

An evergreen shrub with sharply toothed leaves and red berries, holly is widely planted in California. Some holly species are used for Christmas decorations. This shrub is considered potentially dangerous to children because they may eat the berries in large quantities. The sharp, spiny leaves can cause mechanical injury in the mouth if eaten. The plant, and especially the berries, contain ilicin. Signs of poisoning include nausea, vomiting, diarrhea, and drowsiness. Symptoms depend on the amount of berries eaten. Lethal cases have been reported in the past, but recent poison center experience indicates that nausea, vomiting, and diarrhea are much more common. Serious symptoms occur in ingestions of very large numbers of berries only.

Hydrangea (Hydrangea macrophylla)

Hydrangeas are beautiful flowering deciduous shrubs found outdoors and also as potted flowering plants with large clusters of bold pink, white, or blue dense, globe-shaped flowers. There are numerous cultivated varieties and wild species. The leaves and buds contain hydrangin, a cyanogenic glycoside with the potential to produce cyanide. However, in the few reported poisonings,

the symptoms were limited to nausea, vomiting, and diarrhea. Weakness, light-headedness, and shortness of breath may also occur. Allergic contact dermatitis has been reported in a few cases. Animal poisonings have been reported in older literature, but no recent cases were found.

Lady's slipper orchid (Cypripedium spp.)

This beautiful orchid has blooms in shades of white, yellow, crimson pink, or purplish brown. The flowers have a pouchlike lip. The toxin, an irritant substance, possibly a fatty acid, contained in the stems and leaves frequently causes contact dermatitis. Depending on the susceptibility of the individual, skin irritation may be minor, or it may be a painful inflammation with blisters that lasts for days or weeks.

Lantana (Lantana spp.)

Lantana camara is a mounding perennial shrub, 1 to 3 feet high and 2 to 6 feet in diameter. The stems are sometimes prickly. The serrated leaves have a rough upper surface. Flower color varies according to the cultivar, including creamy white, yellow and pink, and orange and scarlet. Flowers are borne in clusters. The fruit is a berry that is green to blue before turning black. It is about ¼ inch in diameter and contains a single, hard seed. The unripe green berries contain the highest concentration of the atropine-like toxin lantadene. Symptoms of poisoning from eating unripe berries appear within about 6 hours of consuming poisonous plant parts. Symptoms include vomiting, diarrhea, dilated pupils, weakness, incoordination, lethargy, slow and labored breathing, and coma. Chewing on or eating a leaf is not known to cause symptoms in humans. However, the rough surface of the leaves can cause dermatitis. Trailing lantana (*L. montevidensis*) has a purple flower and a lower growth habit. Berries are not associated with this plant, although the stems and leaves may be irritating.

Lily-of-the-valley (Convallaria majalis)

Lily-of-the-valley is a sweet, fragrant, spring-blooming perennial herb with small, bell-shaped, white flowers. It is a good ground cover in partial shade areas. The fruit is a red-orange berry. Leaves, flowers, and berries are toxic and contain the cardiac glycosides convallarin and convallamarin. Signs of poisoning include nausea,

vomiting, stomach pain, dizziness, fatigue, headache, drowsiness, irregular heartbeat, irregular pulse, and heart block. The toxic reaction is similar to that of digitalis found in foxglove.

Mistletoes

The term *mistletoe* is used for at least three groups of plants: dwarf mistletoe, European mistletoe, and American mistletoe. The latter two are leafy mistletoes, whereas dwarf mistletoes are parasites of conifers, have plant forms unlike the leafy mistletoes, and are not used for holiday decorations; exposure to dwarf mistletoe would not be likely.

In California, American mistletoe, *Phoradendron* spp., is found on deciduous trees, such as native oaks and ash, as a woody semiparasitic evergreen shrub with greenish branches forming a dense bushy growth 1 to 6 feet in diameter. Leaves and stems are leathery in texture, about ½ to 1½ inches long. The flowers are small and inconspicuous. The fruit, produced in autumn, is a small whitish berry with a viscid pulp. Ingestion of *Phoradendron* plant parts usually results in symptoms lasting less than 6 hours. Ingesting a few of the berries would be expected to cause mild nausea, vomiting, and possibly diarrhea. Ingesting concentrated extracts of the plant or berries may produce serious poisonings with symptoms of vomiting, diarrhea, abdominal pain, confusion, drowsiness, incoordination, hallucinations, seizures, and increased rate of breathing. Information on human overdose is limited. Most data are from animal experiments in which large doses of the mistletoe extracts were injected. The toxicity of mistletoe is further confused because of the similarity of the *Phoradendron* and *Viscum* mistletoe genera.

European mistletoe refers primarily to *Viscum album*, which in California is found only in Sonoma County. European mistletoe is a green-yellow aerial semiparasitic evergreen shrub. The berries are white and sticky with one seed. European mistletoe grows on various trees but prefers apple, oak, and pear. It forms a drooping bush 2 to 5 feet in diameter. It has been used for Christmas decorations. The fresh bark and leaves of European mistletoe have a characteristic disagreeable odor and a nauseating, acrid, bitter taste. European mistletoe is considered more toxic than American mistletoe.

Ingesting a few of the berries would be expected to cause mild nausea, vomiting, and possibly diarrhea. Ingesting large amounts of plant parts or drinking concentrated extracts or teas of the plant or berries may produce serious poisonings. Symptoms could include vomiting, diarrhea, abdominal pain, confusion, drowsiness, incoordination, hallucinations, seizures, and increased rate of breathing. Information on human overdose is limited. Most data are from animal experimentation where large doses of the mistletoe extracts were injected. The toxicity of mistletoe is further confused because of the similarity of the *Phoradendron* and the *Viscum* mistletoe genera.

Poinsettia (Euphorbia pulcherrima)

Poinsettias are widely cultivated as festive holiday potted plants at the Christmas season. While the red poinsettia is most common, poinsettias come in various shades of red, pink, and yellow. Poinsettias may cause mild skin irritation and nausea or vomiting if large amounts are ingested. Poison control centers consider poinsettias safe plants to have in the household over the holidays. The myth that poinsettias are deadly results from a historical case of one death reported to be due to ingestion of a poinsettia in 1918, and there is much doubt that the plant involved was actually a poinsettia.

Tobacco, ornamental (Nicotiana spp.)

There are many species of nicotiana plants, commonly called tobacco plants. *Nicotiana tabacum* is cultivated for leaves used to make cigarettes and cigars, but it is not commonly found in California. Other nicotianas are cultivated as ornamental garden plants. All can cause nicotine poisoning if ingested. Symptoms can include rapid and spontaneous vomiting and increased heart rate and blood pressure, followed by a slowed heart rate and decreased blood pressure. Other symptoms include headache, confusion, tremors, hallucinations, weakness, paralysis, coma, respiratory failure, and death.

Weeds, Wildflowers, and Miscellaneous Plants That Contain Toxins

Of all plant categories covered in this publication, weeds are responsible for most of the deaths resulting from poisonous plant ingestion, especially among livestock. Most weeds have a variety of defense mechanisms, including very poisonous natural toxins, many of which are alkaloids (table 1). Alkaloids can be excreted in milk. Poisonings have occurred when livestock owners have consumed milk from livestock that have grazed on weeds containing alkaloids, such as lupine (*Lupinus* spp.).

Artemisia, sagebrush, and wormwood (Artemisia spp.)

Wormwood has been used for centuries as a moth repellent, general pesticide, and a tea or spray to repel slugs and snails. Before its toxicity was known, it was used as an internal deworming medicine for people and animals. It is a herbaceous perennial plant with a hard, woody rhizome. The plant grows to about 2 to 3 feet tall. The leaves are greenish gray above and white below, bearing tiny oil-producing glands. Some *Artemisia* spp. are considered to be toxic if ingested in large amounts. Many of these plants produce undesirable flavors in milk due to the volatile oils they produce. If leaf parts are crushed, the volatile oils release a distinctive sagebrush-like scent. Symptoms can include headache, dizziness, vomiting, diarrhea, sweating, and vision distortion. Ingestions of large amounts may cause seizures, coma, and respiratory failure. Dermatitis may also occur.

Castor bean (Ricinus communis)

The castor bean plant is native to the tropics but is also found along California roadsides as well as planted in gardens for its large, striking appearance. It is a herbaceous annual that can reach nearly 15 feet tall. The leaves are glossy and often red or bronze tinted when young. Flowers appear in clusters at the end of the main stem in late summer. The fruit consists of an oblong, spiny pod that usually contains three seeds. The seeds are oval and light brown, mottled or streaked with light and dark brown, and resemble pinto beans.

The seeds are attractive to children. The inner seed part is white and oily. The entire plant, but especially the seed, contains ricin, an extraordinarily potent and toxic toxin. The severity of symptoms depends on the degree the seeds are chewed. If seeds are swallowed whole or without damaging the seed coat, toxicity is less likely. Toxalbumins initially cause severe irritation of the throat or stomach, similar to alkaline caustic burns. Symptoms include bloody vomiting and diarrhea, abdominal pain, and sloughing of the stomach and bowel tissues, along with fever, drowsiness, and lowered blood pressure. Symptoms are usually seen 2 to 6 hours after exposure. Two to five days after exposure, damage to the liver, central nervous system, kidney, and adrenal glands can occur. Death in children may result from ingestion of only two or three seeds. Castor beans may cause severe allergic reactions in hypersensitive individuals.

Jimsonweed (Datura spp.)

This plant is known by several names, including jimsonweed, thornapple, stinkweed, locoweed, hell's bells, and devil's trumpet. Jimsonweed is found in foothills, dry pastures, along roadsides, and in vacant city lots nationwide. It grows to about 2 feet high and has trumpet-like white or pale violet flowers with coarsely toothed leaves. Egg-shaped fruit about the size of a large walnut are covered with spines. The plant has a strong, offensive odor. Contact with the leaves and flowers can cause dermatitis. Ingesting large amounts can be fatal. Powerful alkaloids of atropine, hyoscyamine, and scopolamine are found throughout the entire plant, and all parts are toxic. Making a tea from the plant has resulted in poisoning. Signs of poisoning include thirst, dry mouth, blurred vision, dilated pupils, increased heart rate, dry hot skin, fever, inability to urinate, constipation, delirium, and hallucinations, and these unpleasant symptoms can last for many days. Death may result.

Larkspur (Delphinium spp.)

More than 250 species of annual larkspur and perennial delphinium exist worldwide. Leaves are deeply lobed, and flowers are borne on long terminal stalks. Many species are weedy, but others are cultivated.

Leaves and seeds may cause contact dermatitis. If planted in the garden, larkspur should be out of the reach of small children because all species are toxic. The plant contains diterpenoid alkaloids, specifically delphinine. Toxicity decreases as the plants age. Eating young leaves before the flowers appear can cause poisoning. The seeds are also poisonous. Signs of poisoning include upset stomach, abdominal cramps, tremors, weakness, paralysis, and death. Eating larkspur is a major cause of cattle death.

Milkweed (Asclepias spp.)

Milkweed is a coarse, erect plant with a milky juice, hence its name. Milkweed is the sole food source of the monarch butterfly larva, and the plant is often used in butterfly gardening. The veins on the leaves are thick and yellowish. Flowers are white, greenish white, pink, orange, or rose colored, and they grow in closely rounded clusters. The fruit is a seedpod that is large, flat, and rough textured. Each pod contains many seeds and has a tuft of long, silky hairs. All parts of the plant are toxic, with highest concentrations in the stem and leaves. The plant is most toxic just before maturity, and toxicity decreases upon drying. Some of the more toxic species retain enough of the toxic principle to be dangerous when mixed with hay. The toxic chemicals present in milkweed, asclepiadin and asclepiion, are members of a group of cardiac glycosides called cardenolides. Symptoms usually appear a few hours after ingestion and can include stomach upset, loss of appetite, diarrhea, weakness, seizures in short and repeated intervals, labored breathing, rapid and weak pulse, sweating, dilated pupils, and kidney or liver degeneration. Death follows a comatose period and respiratory paralysis within one to several days after ingestion. Milkweed also contains latex that can cause mild dermatitis.

Monkshood (Aconitum spp.)

Monkshood is found along creeks, in woods, and on mountain slopes. Its showy flowers are blue, purple, white, or yellow and have a characteristic helmet shape. The plant's tuberous root has been mistaken for a wild horseradish, sometimes with fatal results. The toxic juice in the flowers, leaves, stems, roots, and black seed

contains aconitine alkaloids. Chewing the plants can cause a burning sensation in the mouth, followed by swelling or numbness of lips and tongue. Eating the plant can result in violent vomiting, diarrhea, and tingling of the fingers and toes, followed by sweating and chills, a pins-and-needles sensation on the skin, a feeling of intense cold and pain, heart rhythm irregularities, respiratory failure, paralysis, and death. Symptoms can last for several days.

Nightshades (Solanum spp.)

The genus *Solanum* includes a number of introduced weeds naturalized in waste places, cultivated fields, and around homes. Nightshade has white flowers with large yellow anthers. The fruit are dull black when fully ripe. The toxic principle, solanine, is contained in the whole plant of all *Solanum* spp. Unripe nightshade berries reportedly contain the highest concentration of solanine, whereas there is less in ripe fruit. The numerous species of nightshade, including *S. carolinense*, *S. dulcamara*, *S. gracile*, and *S. nigrum*, have common names including black nightshade, blue nightshade, common nightshade, deadly nightshade, silverleaf nightshade, woody nightshade, climbing nightshade, and poisonous nightshade. Signs of poisoning include nausea, vomiting, diarrhea, drooling, fever, dilated pupils, headache, weakness, sweating, muscle cramps, shortness of breath, and changes in heart rate. Death is possible but rare.

Poison hemlock (Conium maculatum)

The toxicity of poison hemlock has been known since antiquity and, based on symptoms, it is thought to be the hemlock responsible for the death of Socrates. Poison hemlock is an extremely poisonous plant that grows along ditches, fences, and roadsides. Ingestion of poison hemlock has resulted in numerous deaths. Poison hemlock is a coarse, erect, biennial, herbaceous plant, 4 to 10 feet tall. The stems are hollow, jointed, and have many branches. The stems usually have purple spots or lines. The whole plant, especially when young, resembles carrot or parsnip plants. The taproot is white, usually unbranched, and resembles a carrot or parsnip root. Leaves resemble parsley or a fern leaf. Deaths have resulted when poison hemlock has been ingested by people thinking the plant was wild

carrot, wild parsnip, or wild parsley. Fresh leaves have a nauseating taste, and when bruised they emit a characteristic parsnip-like odor described as mousy or musty. The flowers are small, white, and borne in flat-topped clusters. The fruit is a small capsule containing the seed, which are grayish brown, oval, and flat. The whole plant contains the toxin coniine. Initial symptoms can include a burning sensation in the throat, profuse drooling, thirst, double vision, dilated pupils, nausea, vomiting, abdominal pain, headache, dizziness, lethargy, confusion, respiratory depression, kidney failure, intense muscle pain followed by muscle paralysis, seizures, coma, and death. Death is usually rapid and due to paralysis of the muscles used in breathing. Throughout this ordeal, victims may not lose consciousness. Rubbing plant parts on the skin may produce a burning sensation followed by numbness and/or dermatitis.

Poison oak (Toxicodendron diversiloba or Rhus diversilobum)

“Leaves of three, let it be!” Poison oak can be found in California from 5,000 feet down to sea level. The leaves have a characteristic three leaflets (but may have up to five leaflets), and are shiny on top and dull on the underside. In the autumn the leaves turn a deep shade of red before falling. The toxic principle, the oil urushiol, is found in all parts (roots, stems, leaves, flowers, and fruit) and can cause severe dermatitis. Urushiol is not volatile, so the plant must be touched if dermatitis is to occur. Urushiol binds to skin proteins within about a minute, so immediate washing is necessary if it is to be removed.

A common route of exposure is via tools or clothing that have touched the poison oak plant, since the oil adheres to these surfaces and retains its toxicity. Onset of symptoms can range from 8 hours to 2 weeks. Severity of the reaction depends on the patient’s degree of skin sensitivity, the amount of contact, and areas of skin exposed. Repeated exposure seems to increase sensitivity. Face and genitals are more sensitive than other areas of skin to the toxicant. Skin eruptions are characterized by streaks of redness and blisters in groups or lines that may be accompanied by significant swelling, especially if contact is on the face. However, the fluid exudate from blisters cannot cause additional blisters to form. Dermatitis can

affect large areas of skin and in severe cases requires hospitalization, including immunosuppressant medications.

Skin exposure to poison oak does not result in systemic toxicity. However, ingestion of poison oak is a different story and may lead to skin flushing, itching and burning of the lips, mouth, and anus as the plant passes through the body. Headache, abdominal pain, diarrhea, nausea, and vomiting were reported in patients ingesting poison oak. Also, breathing of soot particles from plants as a result of brush fires or forest fires is dangerous, since urushiol bound to inhaled particulates can cause swelling in lungs, requiring hospitalization.

Stinging nettles (Urtica dioica)

Stinging nettles are a bothersome annual or perennial herb that can grow up to 6 feet tall. The stems and coarsely toothed leaves are covered with stinging hairs. The flowers are small, greenish, without petals, and growing in loose clusters. None of the nettles are considered to have toxic properties when ingested, but they can cause severe reactions on contact with skin.

More than two dozen chemical agents have been isolated from nettles. Symptoms from skin exposure include intense burning, itching, inflammation, and blisters. Symptom severity usually depends on individual sensitivity and the amount of contacted skin surface. Each stinging hair has a bladder-like base filled with the irritant chemical; upon skin contact with the plant hair, the chemical is pressed into the skin from the bladder, injecting the chemical irritant into the skin. The stinging sensation can be severe and may last up to 12 hours.

Water hemlock (Cicuta douglasii)

Water hemlock is found along streams and in swamps, damp meadows, and wetlands. It rarely grows above 8,500 feet in elevation. It is a perennial that grows from a thick root and is usually 2 to 4 feet tall. Leaflets range from 1 to 4 inches long. The flowers have small, white petals. All parts are toxic, but the toxicity is greater in the lower part of the stems and roots. The toxic agent is cicutoxin.

The rootstock of the water hemlock plant is a single large root that has been mistaken for parsnip, turnip, and wild carrot. A mouthful could be fatal. Humans have been poisoned by ingesting the underground parts, having mistaken them for edible wild vegetables. Water hemlock can be differentiated from wild vegetables by cutting open its thick rootstock. The root of water hemlock has numerous hollow chambers rather than being solid. Toxicity of roots is not lost upon drying, and roots exposed by plowing fields can be a source of livestock poisoning. Symptoms in humans are many and include nausea, vomiting, diarrhea, convulsions, tremors, extreme stomach pain, drowsiness, dilated pupils, fever, increased heart rate, hallucinations, altered level of consciousness, pins-and-needles sensation, amnesia, kidney failure, heart failure, respiratory depression, and death. Seizures can occur within 5 minutes to 2 hours after ingestion. Death may occur from 15 minutes after ingestion to 8 hours.

Vegetables That Contain Natural Toxins

Common vegetables can produce natural toxins that cause skin rashes, upset stomachs, and, rarely, death (see table 1). Two very potent toxins are produced by diseased celery and potatoes (see below). Diseased celery produces a toxin activated by sunlight that can cause a severe skin rash known as celery picker's disease.

Asparagus (Asparagus officinalis)

Asparagus is a perennial vegetable, and, after flowering, red berries form on feathery branches. Prolonged, repeated handling of asparagus can cause dermatitis. Steroidal saponins are most likely involved in poisonings, but little is known of their effect. Asparagin and the glucoside vanillin have been identified, but the sensitizing agent has not been found. Signs of poisoning vary from mildly reddened skin to painful swelling accompanied by blisters and itching. Severity depends on the amount of exposure and individual sensitivity.

Eggplant (Solanum melongena)

While the fruiting body of the eggplant is safe to eat, the green parts—leaves and stems—contain solanine. Signs of poisoning

include nausea, vomiting, prolonged diarrhea, drooling, drowsiness, fever, and weakness.

Potato (Solanum tuberosum)

Potato tubers are very nourishing, but eating potato leaves, sprouts, vines, and potatoes with green skin caused by exposure to sunlight has caused poisonings. Because heat does not destroy the toxin solanine associated with green parts of the plant, remove green spots and sprouts before cooking potatoes. Signs of poisoning include nausea, vomiting, prolonged diarrhea, drooling, drowsiness, weakness, and fever.

Rhubarb (Rheum spp.)

Rhubarb leaves are large, heart shaped, dark green, and about 1 to 1½ feet long, with wavy edges. The leaf stems or stalks (petioles) are edible, and are used in pies, sauces, and jam. They are long, red to greenish red, depending on the variety. Flowers are small, greenish, whitish, or reddish, and borne in clusters. The leaf blades contain oxalates and possibly other toxins. Poisoning has resulted when people have cooked rhubarb leaves and served them as greens. Possible symptoms include vomiting, diarrhea, weakness, drowsiness, reduced blood clotting, and kidney and liver damage. The leaf blade is reported to have caused dermatitis.

Tomato (Lycopersicon esculentum)

The annual garden tomato is related to the deadly nightshade. For centuries, some Europeans thought that tomato fruit was poisonous and cultivated the plant only as an ornamental. Although fresh tomatoes are harmless, controversy still exists regarding the toxicity of green leaves and vines (stems), which may contain the toxicant solanine. Signs of poisoning include nausea, vomiting, diarrhea, drooling, drowsiness, fever, and weakness. Until more research is done, caution should be used before deciding whether tomato vines and green leaves are safe for human consumption.

House Plants That Contain Toxins

Numerous houseplants belonging to the Araceae (arum family) contain various forms of oxalic acid, often found as sharp, needlelike oxalate crystals in plant tissues (see table 1). Crushing, breaking, or chewing the plant causes the release, or “firing,” of these crystals. The crystals are extremely irritating, and you may have noticed your fingers or arms itching after handling one of these plants. Fortunately, if a child or pet bites into a leaf, the irritation in and around the mouth and throat, while painful, is usually not severe enough to require emergency medical attention. Common houseplants that contain oxalates are listed below. Different parts of different house plants have different degrees of toxicity.

Arrowhead vine, nephthytis, and trileaf wonder (Syngonium podophyllum)

The arrowhead vine is an easy-to-grow cultivated houseplant. Identification may be difficult, since the leaves of the juvenile plant are arrowhead shaped, whereas the leaves of the adult are usually three-parted, each part with 3 to 13 segments. The juvenile plant is most often seen in cultivation. Leaves are green or sometimes variegated with silver, cream white, or yellow. Flowers are spathe shaped and green, but not often present. The fruit is a brown berry that is fused together in clusters. The entire plant contains toxic calcium oxalate crystals. Signs of poisoning include burning and stinging of the lips, mouth, and tongue immediately after chewing on plant parts. Vomiting and drooling may occur. In severe cases, swelling can make talking and breathing difficult. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Caladium (Caladium spp.)

Cultivated for its beautiful leaves, caladium is used extensively as a houseplant and as a summer bedding plant. Leaves are colored with bands and blotches of white, silver, red, pink, rose, and green. A tuberous-rooted perennial with white flowers, caladiums have

a bitter juice containing toxic calcium oxalate crystals. Signs of poisoning include burning and stinging of the lips, mouth, and tongue immediately after chewing on plant parts. Vomiting and drooling may be seen. In severe cases, swelling can make talking and breathing difficult. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Dumbcane (Dieffenbachia spp.)

These evergreen foliage plants are favorite indoor ornamentals for homes, apartments, and businesses. They have large leaves with variegations in pattern and color, including white, pale cream, lighter green, and bluish. The commonly cultivated species, *Dieffenbachia picta* and *D. seguine*, are called dumbcane because chewing on the leaves may paralyze the vocal chords and tongue and lead to temporary loss of speech. Leaves and stems are poisonous because they contain needlelike calcium oxalate crystals. Signs of poisoning include intense burning and irritation of lips, mouth, and tongue after biting or chewing the stem or leaves. Swelling may interfere with breathing and cause choking. Death can occur if the swelling of the tongue blocks the air passage to the throat. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Peace lily (Spathiphyllum spp.)

The peace lily is cultivated in greenhouses for sale as potted plants and cut flowers. This plant is not a true lily; the white or green flowers are spathes rather than the tubular flowers of lilies. Leaves arise directly from the rhizome on long stems; they are dark green and from 1 to 5 feet long and 2½ inches to 6 inches wide. Berries, borne eventually in clusters on the flower stalk, are not often seen. The entire plant contains calcium oxalate crystals. Biting into the plant or chewing plant parts causes irritation, burning, and stinging of the mouth, lips, and tongue. Vomiting and drooling may occur. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Philodendron (Philodendron spp.)

Philodendron spp. and *Monstera deliciosa* (split-leaf philodendron) are among the most popular houseplants. They are cultivated in containers and large tubs for their attractive, deep green, glossy foliage. Leaves and stems contain toxic calcium oxalate crystals that can penetrate the mucus membranes of the tongue, lips, and mouth, causing intense burning and irritation. Signs of poisoning include burning and stinging of the lips, mouth, and tongue immediately after chewing on plant parts. Vomiting and drooling may occur. In severe cases, swelling can make talking and breathing difficult. Intense pain in the mouth usually prevents ingestion of large amounts of the plant.

Pothos or devil's ivy (Epipremnum aureum or Scindapsus aureus)

Epipremnum aureum and *Scindapsus aureus* are very similar plants that differ only in the number of seeds they produce. Both of these species, and their various cultivars, are called pothos, devil's ivy, and other common names. Pothos plants are commonly grown as indoor vining potted plants and as ornamentals grown outside in warm climates. The leaves are heart shaped, shiny bright green, and splotched or marbled with yellow or white. In the tropics, the vines of mature plants can reach 40 feet. The flowers are spathe shaped but are not seen on younger plants. The whole plant contains calcium oxalate crystals. Biting into the plant or chewing plant parts causes irritation, burning, and stinging of the mouth, lips, and tongue. Vomiting and drooling may occur. Intense pain in the mouth usually prevents ingestion of large amounts of the plant. Dermatitis has also been reported from plant exposure.

Shrubs and Vines That Contain Toxins

In general, shrubs cause very few of the cases of accidental poisoning reported to the California Poison Control System, but the category contains one very notable exception: oleander. More commonly, the Poison Control Center receives numerous calls about honeysuckle and berries from pyracantha, heavenly bamboo, holly, privet, and

cotoneaster shrubs (see table 1). Fortunately, other than oleander, most of the others are not highly dangerous.

Angel's trumpet (Brugmansia spp.)

These plants are large semitropical shrubs or small trees whose common name, angel's trumpet, refers to the dramatic, large, pendulous, trumpet-shaped flowers that can be 5 to 10 inches long and 4 to 7 inches across at the open end. The flowers are shades of white, yellow, pink, orange, or red, depending on species and cultivar. Some have a delicate, attractive scent that is most noticeable in early evening. *Brugmansia* spp. plants are close relatives of jimsonweed (*Datura* spp.), and all parts of the plant possess toxic alkaloids of atropine, hyoscyamine, and scopolamine that can cause toxicity symptoms similar to jimsonweed poisoning. The leaves and seeds contain the highest concentration of toxin. Symptoms include thirst, dry mouth, blurred vision, dilated pupils, increased heart rate, dry and red-hot skin, fever, inability to urinate, constipation, delirium, hallucinations, and death. Unpleasant symptoms can last for days.

Azalea and rhododendron (Rhododendron spp.)

There may be 1,000 species of rhododendrons. A generalized description includes evergreen, semievergreen, or deciduous shrubs that range from 2 feet to more than 20 feet in height. The flowers come in various shades of red, pink, white, yellow, orange, and lavender. The entire plant contains grayanotoxin resins, but the toxin is concentrated in the foliage. Toxicity may occur from eating plant parts or contaminated honey and depends on the amount eaten. Symptoms include burning of the mouth, numbness and tingling of the mouth, drooling, nausea, vomiting, diarrhea, sweating, dizziness, decreased blood pressure, slowed heart rate, coma, fainting, altered mental status, and seizures. Deaths have been recorded in old literature, but no reports of death have occurred in modern medical literature. The signs and symptoms of poisoning generally last no more than 24 hours.

Cotoneaster (Cotoneaster spp.)

Members of the rose family, cotoneaster species vary from ground-hugging prostrate plants about 1½ feet tall to erect shrubs and small trees up to about 15 feet tall. There are semi-evergreen and deciduous species. The small flowers are produced in late spring through early summer and can be single or in clusters of up to 100. Flowers are typically white to creamy white. The fruit is a small red-to-orange berry (some species) or maroon or black berry (other species) that contains one to three (rarely up to five) seeds. Berries contain cyanogenic glycosides in low concentrations. There is very little information concerning the toxicity of this plant because the concentration is too low to cause a problem unless very large amounts are eaten.

English ivy and Algerian ivy (Hedera helix, H. canariensis)

English and Algerian ivies are well-known woody climbing evergreen vines that are cultivated throughout the warmer parts of the United States for ground cover and for climbing on walls, fences, and trellises. Leaves are lobed on juvenile plants but become squarish and lack lobes on flowering branches of mature plants. The flowers are small, green, and inconspicuous, appearing in rounded clusters of 4 to 10. The fruit is a black berry. All parts, especially the leaves and berries, contain hederagenin (a saponic glycoside) and several other saponins, which are potent skin sensitizers that cause dermatitis. The leaves are more toxic than the berries. Leaves may cause allergic contact dermatitis, with blisters and skin pigmentation. If poisonous parts are consumed in quantity, symptoms can include drooling, nausea, vomiting, abdominal pain, severe diarrhea, headache, fever, thirst, incoordination, weakness, difficult breathing, and coma.

Firethorn (Pyracantha spp.)

Another member of the rose family, the clusters of red-to-orange berries from the pyracantha shrub seem almost irresistible to young children. The plant is nontoxic, although the berries are bland and not very appealing in taste. The raw berries are considered edible

and can be made into jams and jellies. If ingested in large quantities, nausea and diarrhea may occur. The long, sharp pyracantha thorns may cause dermatitis if they break the skin.

Flax (Linum usitatissimum)

Flax has long been cultivated for its linen fibers and seed oil (linseed oil). The flowers are pale blue or whitish and last only 1 day. The fruit are dry capsules, each containing 10 glossy, brown seeds. Common flax can be found growing wild in areas of California. The whole plant, especially the immature seeds, contain cyanogenic glycosides. Ingesting large quantities of seeds, which have higher concentrations of nitrates and cyanide, can be fatal. Symptoms of poisoning include rapid breathing, progressing to shortness of breath and gasping, staggering, weakness, paralysis, convulsions, coma, and death. The toxin concentration varies among varieties of this plant, and those with low concentration are used as food sources. Cooked flax is considered edible.

Heavenly bamboo (Nandina domestica)

Nandina is an evergreen shrub up to 8 feet tall with narrow, 2-inch-long leaflets that turn red in the fall. The flowers are small and white. It has small red berries. There has been no record of toxic ingestion from this plant in humans. There is a single case of a dog that chewed on branches and stems and developed symptoms similar to cyanide poisoning. It is unknown why human poisonings have not occurred. It may be because humans eat only small amounts of plant parts or because the concentration in the berries may be very small. Ingestion of small numbers of berries is considered nontoxic.

Holly (Ilex spp.)

See the section “Flowers, Perennials, and Holiday Plants That Contain Toxins,” above.

Honeysuckle (Lonicera spp.)

Honeysuckle is a fragrant shrub that grows from 3 to 12 feet tall. Vining forms of honeysuckle are also found. The sweet-smelling

flowers are creamy white to yellow and grow in pairs. Children may suck the sweet nectar out of the flowers, although that practice should be discouraged, as they may think that the nectar of all flowers is safe. The fruit is a red berry. Ingestion of berries from some European species has been reported in Europe to be fatal, but no toxic ingestions have been reported in the United States.

Hydrangea (Hydrangea spp.)

See the section “Flowers, Perennials, and Holiday Plants That Contain Toxins,” above.

Lantana (Lantana spp.)

See the section “Flowers, Perennials, and Holiday Plants That Contain Toxins,” above.

Morningglory (Ipomoea spp.)

Morningglory is a common name for over 1,000 species of flowering vine plants. The flower usually opens in the morning and closes in the afternoon. Some morningglories, such as *Ipomoea muricata*, are night-blooming flowers. Flowers are tubular with flaring rim, to 4 inches long, purplish blue to rose-lavender or white. The fruit is a papery-thin tan capsule, splitting to release small, black-pointed seed. There is some confusion as to which morningglory species are toxic. It is thought that all cultivars of *Ipomoea tricolor* are hallucinogenic and all species should be suspect. Seeds may contain LSD-like substances. There is a record of a 24-year-old male who chewed 300 heavenly blue seeds and killed himself after experiencing hallucinogenic flashbacks. However, toxicity is unlikely due to the low concentrations, and a child who ingests a single flower is not going to develop symptoms of toxicity. Several major suppliers of *Ipomoea* seeds now dust the seed with a noxious chemical fungicide to discourage consumption.

Oleander (Nerium oleander)

Oleander is a low-maintenance drought-tolerant evergreen shrub with showy, long-lasting clusters of blooms in white, pink, magenta,

or dark red. Oleander can grow to 20 feet high, is cultivated as an outdoor ornamental, and is frequently grown in the median of California freeways. It has a bean-shaped fruit 4 to 7 inches long containing small seeds. The entire plant, including dried leaves, contains the potent cardiac glycosides oleandrin, oleandroside, and neriin that affect the heart if ingested. While the entire plant is very toxic, it is rare that a child would be poisoned from small, accidental taste exposures, partly because of the bitter taste of leaves. However, poisoning from large exposures would be expected to cause significant toxicity. Smoke from burning oleander affects sensitive people. Poisoning symptoms can include nausea, vomiting, abdominal pain, lethargy, and decreased heart rate. In more severe cases, symptoms include heart block, electrolyte imbalance, shock, and death. Skin contact with oleander leaves and branches may also cause dermatitis. Oleander wood should never be used as a cooking skewer. Although there are stories of people suffering fatalities from cooking food with oleander skewers and from using oleander branches or leaves in campfires, these reports are undocumented.

Pittosporum (Pittosporum spp.)

These evergreen trees and shrubs are widely planted in California. Controversy exists over the toxicity of this plant because it is also known as mock orange, but that common name is also used for *Philadelphus* spp. There is no evidence that pittosporum is toxic.

Privet (Ligustrum spp.)

Privet is an evergreen to deciduous shrub or small tree to about 30 feet tall with simple, dark green leaves 1 to 2½ inches long. Some varieties may differ in leaf coloring, exhibiting white or yellow variegation. The flowers are small, white, and funnel shaped, appearing in clusters. Privets have drooping clusters of blue to black wax-coated berries that bear one to four seeds. A case was reported in 1984 regarding a 5-year-old who suddenly developed severe abdominal pains, vomiting, and watery, yellowish diarrhea. He had no fever but did have a rapid pulse. The child was not hospitalized

but died later that day at home. The father reported that the child had been seen eating berries of an unnamed ornamental hedge, but the evidence implicating privet berries was circumstantial. In over 55 other reported cases involving ingestion of privets, only vomiting and diarrhea were seen. Most reports of fatalities due to privet ingestion are poorly substantiated and over 100 years old.

Wisteria (Wisteria spp.)

Wisteria is a woody vining shrub or small tree (up to 35 ft tall) that bears drooping clusters of fragrant flowers. The flower is similar in shape to the sweet pea and can be white to pink, blue, or purple. The plant usually blooms before it is in full leaf. The leaves have 13 to 19 oval leaflets that are about 3 inches long. Seeds are contained in fuzzy 6-inch-long, pea-shaped pods. The pods and seed are the main toxic parts, containing lectin and wisterin (glycosides), but all parts should be considered toxic. Symptoms include burning in the mouth, vomiting, stomach pain, and diarrhea that usually last about 1 to 2 days.

Yellow jessamine, Carolina jessamine (Gelsemium sempervirens)

Yellow jessamine is an evergreen found in home landscapes and also in freeway landscapes as a ground cover or climbing vine. The leaves are shiny dark green, and the plant has very fragrant, tubular, bright yellow flowers. It is one of the earliest plants to bloom each spring. The fruit is a small capsule with winged seed. The entire plant contains the alkaloid gelsemine. Even small amounts can be toxic to children. Children have been poisoned from sucking the nectar from the blossoms or chewing on leaves or flowers. The nectar can poison bees, and honey made from the nectar is toxic. Flowers, leaves, and roots can also cause dermatitis. Poisoning symptoms include dizziness, headache, dry mouth, difficulty swallowing or talking, seizures, shortness of breath, dilated pupils, double vision, muscle rigidity, decreased heart rate, and death from respiratory failure.

Trees That Contain Toxins

Trees are not the most common cause of accidental poisonings around the home, but a few species may present a hazard (see table 1). Handling the wood from alder, ash, beech, birch, cedar, elm, maple, mesquite, oak, pine, poplar, and spruce trees may result in dermatitis.

Apple (Malus domestica) and pear (Pyrus spp.)

Several hundred named varieties of apples and pears are grown in orchards and gardens throughout the United States. All varieties of apple and pear plant parts (excluding the fruit) contain cyanide, but the black seeds inside the fruit core have the highest concentration. Seeds must be well chewed to release the cyanogenic compound, amygdalin. While eating seeds of the apple and pear is not recommended, eating an apple or pear, seeds and all, will not result in any danger to a child or an adult. Accidental ingestion of whole seed is unlikely to result in cyanide toxicity, and cases of poisoning are very rare. Fatalities have occurred from intentionally eating (chewing) large quantities of apple or pear seed. Symptoms from eating large quantities of chewed seed include shortness of breath, weakness, light-headedness, seizures, stupor, heartbeat irregularities, cardiovascular collapse, coma, and death.

Black locust (Robinia pseudoacacia)

Black locust trees can grow to 50 feet tall. They have stout, woody thorns along the trunk and branches. The leaves are compound, having 7 to 19 oval leaflets 1 inch long. The white to purple flowers are fragrant and grow in drooping clusters. The tree has a seedpod about 4 inches long. The flowers are nontoxic. The bark, leaves, and seed contain phasin, robin, and robitin (toxalbumins). The severity of symptoms depends on the amount of seed chewed. Toxalbumins cause severe irritation of the throat or stomach, similar to alkaline caustic burns. Symptoms include bloody vomiting and diarrhea and abdominal pain, with sloughing of the stomach and bowel tissues. Fever, drowsiness, lowered blood pressure, and shock can also occur. Symptoms are usually seen in 2 to 6 hours after exposure.

Two to five days after exposure, damage to the liver, central nervous system, kidney, and adrenal glands can occur. If the seeds of these plants are swallowed whole, symptoms are much less likely to occur.

Buckeye and horsechestnut (Aesculus spp.)

Many species of *Aesculus* are found as deciduous trees. Horsechestnut (*A. hippocastanum*) is used extensively as a street tree in Europe, but is not common in California. The native California buckeye (*A. californica*) is found in the Sierra foothills, recognizable by its showy white flower clusters appearing in May followed by leaf loss beginning in July. This species, also found as a large multitrunked shrub, has 1 to 6 brown, shiny seeds about 1 inch in diameter within a green, husked, valved capsule. The seed has a conspicuous pale scar resulting in the term buckeye. All parts are toxic, although many of the reported cases of ingestion are of the seed. Aesculin is the glycoside found in the leaves and bark of various species. Older literature, not well documented, suggests that severe poisoning has resulted when children have repeatedly ingested significant quantities of the plant. In these old cases, symptoms include mouth irritation, fever, dilated pupils, vomiting, diarrhea, incoordination, muscle weakness, muscle twitching, paralysis, and central nervous system depression. Very few cases of human exposure have been reported in the literature. In modern times, horsechestnut or buckeye poisoning in humans resulting from single-seed ingestion usually causes only nausea, vomiting, and diarrhea. Significant poisoning from these plants is unlikely because the taste is too bitter to allow swallowing and the toxic substance is not well absorbed.

Chinaberry (Melia azedarach)

The chinaberry, a deciduous tree that can grow to be 20 to 30 feet tall, with a rounded umbrella-like shape, is adapted widely throughout California. The tree has clusters of fragrant, light to dark purple flowers in spring or early summer, followed by formation of hard, yellow, berry-like fruit that stay on the tree over winter.

The ripe fruit is considered more toxic than the unripe fruit, but the bark, leaves, and flowers should also be considered toxic. The toxic principles are tetranortriterpene neurotoxins and an unknown gastroenteric toxin. Livestock and human poisoning cases have been reported in Africa and Australia. Northern hemisphere varieties do not seem to be as toxic. Signs of poisoning include nausea, vomiting, diarrhea, elation or depression, irregular breathing, incoordination, mental confusion, fainting, stupor, kidney damage, seizures, paralysis, and coma. Fatalities have been reported in other parts of the world.

Fig (Ficus spp.)

The *Ficus* genus holds a number of species with wide variation of size and other horticultural characteristics, including large trees grown as shade trees in warmer parts of California and small trees used as indoor plants. Edible figs are borne on deciduous trees grown in home orchards or for commercial production. Skin irritants that can cause dermatitis are present in the milky sap found in stems, leaves, and immature, unripe fruit. Sap is released when stems are cut, leaves are broken, or unripe fruit is picked. The irritants (no specific toxin) in the milky sap may cause itching, burning, redness, or blistering on contact. Symptoms can occur around the mouth if raw, unpeeled fruit is eaten or if young children chew on leaves of the plant.

Oak (Quercus spp.)

About 400 species of oak trees grow in North America, with numerous additional species found in Europe and the Middle East. Most are deciduous, but some retain their leaves during the winter and are known as live oaks. All produce an acorn (the seed) with species-specific characteristics of size and shape. The flowers appear in drooping clusters (catkins) in the spring. Oak pollen can cause allergies. Many species contain high concentrations of tannins and quercetin in their leaves, young sprouts, buds, and unleached or raw acorns. Native Americans made a flour out of acorns, but only after treatment to leach out the toxic principles. Children should be told

not to chew on acorns. Fortunately, rather large quantities of raw acorns must be eaten before toxicity develops. In humans, signs of oak poisoning appear after several days or weeks. Symptoms include abdominal pain, constipation, thirst, frequent urination, bloody diarrhea, rapid but weak pulse, liver and kidney damage, and death. Oak galls of more than 100 kinds are found in California. One form is that of an irregular ball, a lightweight, black and tan, corky sphere about the size of a golf ball. Oak galls may attract the attention of young children or dogs when they fall from trees. Oak galls are a deformation of oak tissue resulting from insect activity, and they are not considered to be more or less toxic than other parts of the oak tree.

Peach, plum, cherry, apricot, and nectarine (Prunus spp.)

These plants, like apples and pears, are in the rose family. Hundreds of varieties of peaches, plums, cherries, apricots, and nectarines are grown in home orchards and commercially throughout the United States. The familiar, fleshy edible fruit surrounds a hard, stony layer (endocarp) that contains a single seed. This seed, or kernel, is the most toxic part of the plant and must be well chewed to release the cyanogenic compound amygdalin. All parts of the trees (except the fruit) contain cyanide-producing compounds that are released when bark or leaves are eaten. The kernels have poisoned adults. Children have died from eating the kernels, chewing on twigs, or making tea from leaves. However, most of those cases were due to these plants being used as food in less-developed countries. Accidental ingestion of whole seed or pits is unlikely to result in acute cyanide toxicity, and cases of poisoning are rare. Symptoms from eating large quantities of chewed seed include shortness of breath, weakness, light-headedness, seizures, stupor, heartbeat irregularities, cardiovascular collapse, coma, and death.

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Table 1. Selected poisonous plants of the home, landscape, and garden found in California

Scientific name	Common name	Toxic part ¹	Toxin ²	Effect ³
<i>Acokanthera</i> spp.	bushman's poison	WP	—	very toxic
<i>Aconitum</i> spp.	monkshood (aconite)	WP (UP, SD)	A, CT	GI, severe NS
<i>Adonis</i> spp.	pheasant's eye	LF, ST	G	GI
<i>Aesculus</i> spp.	buckeye, horsechestnut	SD, LF, FL	G	GI, NS
<i>Agave americana</i>	century plant	LF, SP	O, OX	GI, SK
<i>Aglaonema</i> spp.	chinese evergreen	AG	OX	GI, SK
<i>Ailanthus altissima</i>	tree-of-heaven	LF, FL	—	SK
<i>Amaryllis belladonna</i>	belladonna lily (naked lady, pink lady, resurrection lily)	UP	A	NS, RP
<i>Anemone tuberosa</i> (<i>A. patens</i>)	anemone (pasque flower)	WP, FL	—	GI, SK
<i>Anthurium</i> spp.	flaming flower	WP	OX	GI, SK
<i>Apium graveolens</i> ⁴	celery	AG, SP	FU	severe SK
<i>Arceuthobium</i> spp.	dwarf mistletoe	WP	P	CV, GI
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	WP	OX	GI, SK
<i>Artemisia</i> spp.	wormwood, sagebrush, mugwort	LF	O	GI, NS, SK
<i>Arum maculatum</i>	lords and ladies	WP	OX	GI, SK
<i>Asclepias</i> spp. ⁵	milkweed	WP	A, G, R	severe NS
<i>Asparagus densiflorus</i> 'Myers' and 'Sprengeri'; <i>A. setaceus</i>	asparagus fern	AG	—	SK
<i>Asparagus officinalis</i> (garden asparagus)	asparagus	AG	—	SK
<i>Baileya multiradiata</i>	desert marigold	WP	—	—
<i>Brassica nigra</i>	mustard	UP, SD	—	SK
<i>Brugmansia</i> spp.	angel's trumpet	WP	A	severe NS
<i>Buxus microphylla</i> , <i>B. sempervirens</i>	boxwood	FL, ST (WP)	A, R, O	GI
<i>Caesalpinia</i> spp. (<i>Poinciana</i> spp.)	bird of paradise (red, yellow, Mexican)	SD	UNK	GI
<i>Caladium bicolor</i>	caladium	WP	OX	GI, SK
<i>Cephalanthus occidentalis</i>	buttonbush	LF	G	—
<i>Cestrum</i> spp.	cestrum (night-blooming jessamine)	LF, ST	—	—
<i>Chamaedorea</i> spp.	bamboo palm, parlor palm	FR	OX	SK
<i>Chenopodium album</i>	lambsquarters (goosefoot)	WP	N, OX	BL, GI, SK
<i>Chrysanthemum</i> spp.	chrysanthemum	AG	PN	SK
<i>Clematis</i> spp.	clematis (virgin's bower)	WP	G, O	GI, SK
<i>Clematis vitalba</i>	traveler's joy	LF	G, O	GI, SK
<i>Colchicum autumnale</i>	autumn crocus (meadow saffron, naked ladies)	WP	COL	GI
<i>Colocasia antiquorum</i>	elephant's ear	WP	OX	GI, SK

Table 1. Selected poisonous plants of the home, landscape, and garden found in California (continued)

Scientific name	Common name	Toxic part ¹	Toxin ²	Effect ³
<i>Conium maculatum</i>	poison hemlock	WP	A	NS, RP
<i>Convallaria majalis</i>	lily-of-the-valley	WP	CARD	severe CV
<i>Corynocarpus laevigata</i>	kara nut; laurel	SD	—	—
<i>Crinum asisticum</i>	crinum lily	UP	A	GI
<i>Crotalaria</i> spp.	canary bird bush	WP	A	—
<i>Cyclamen purpurascens</i>	cyclamen	WP	G	GI
<i>Cypripedium</i> spp.	lady's slipper orchid	LF, ST	—	SK
<i>Daphne</i> spp.	daphne	ST	—	very toxic
<i>Datura stramonium</i> ⁶	jimsonweed	WP	A	severe NS
<i>Daucus carota</i>	carrot	SP	FU	SK
<i>Delphinium</i> spp.	delphinium (larkspur)	WP, SC	A, CT	GI, NS
<i>Delphinium virescens</i>	larkspur	WP	A, CT	GI, NS
<i>Dianthus</i> spp.	carnation	AG	—	GI, SK
<i>Dicentra</i> spp.	bleeding heart	LF, UP	A	NS
<i>Dieffenbachia</i> spp.	dumbcane	WP	OX	GI, SK
<i>Digitalis purpurea</i>	foxglove	WP	CARD	severe CV
<i>Duranta repens</i>	golden dewdrop	FR, LF	G	GI
<i>Echium vulgare</i>	blue weed	LF, ST	—	SK
<i>Epipremnum aureum</i> , <i>Scindapsis aureus</i>	pothos	LF	OX	GI, SK
<i>Eriobotrya japonica</i>	loquat	LF, SD	CG	ETS
<i>Eschscholzia californica</i> (<i>E. mexicana</i>)	California poppy	WP	A, G	NS
<i>Euonymus europaea</i> , <i>E. spp.</i>	euonymus, European burning bush	LF, FR	—	—
<i>Eupatorium regosum</i>	white snakeroot	LF, ST	—	—
<i>Euphorbia lactea</i> , <i>E. grandicornis</i>	candelabra cactus	FL, ST, SP	PH	GI, SK
<i>Euphorbia milii</i>	crown of thorns	WP	PH	GI, SK
<i>Euphorbia pulcherrima</i>	poinsettia	SP	PH	SK, GI
<i>Euphorbia</i> spp.	euphorbia (snow-on-the-mountain, crown of thorns)	SP	—	SK
<i>Euphorbia</i> spp.	spurge (ground, spotted, thyme leaved)	SP	PH	SK
<i>Ficus</i> spp.	fig, rubber tree	SP	OX	GI, SK
<i>Gelsemium sempervirens</i>	yellow jessamine	WP	A	GI, SK, RP
<i>Ginkgo biloba</i> (female plants)	ginkgo, maidenhair tree	FR	—	SK
<i>Gloriosa</i> spp.	climbing lily	WP	A	NS
<i>Hedera helix</i>	English ivy	FR, LF	G	GI, NS, SK
<i>Helenium</i> spp.	sneezeweed	WP	G	GI

Table 1. Selected poisonous plants of the home, landscape, and garden found in California (continued)

Scientific name	Common name	Toxic part ¹	Toxin ²	Effect ³
<i>Helleborus</i> spp.	hellebore (Christmas rose)	WP	G	GI, SK
<i>Heteromeles arbutifolia</i>	toyon, Christmas berry	LF	—	—
<i>Hippeastrum</i> spp.	amaryllis	UP	—	GI
<i>Hyacinthus orientalis</i>	hyacinth	UP	OX	GI, SK
<i>Hydrangea</i> spp.	hydrangea	WP	CG	ETS, GI
<i>Hymenocallis aviatica</i>	spider lily	UP	A	GI
<i>Hypericum perforatum</i> ⁷	St. John's wort	WP	—	SK
<i>Ilex aquifolium</i>	English holly	FR	GI, NS	—
<i>Ilex</i> spp.	holly	FR	G	GI
<i>Impatiens</i> spp.	impatiens	WP	—	—
<i>Ipomea alba</i>	moonflower	SD	—	—
<i>Ipomea tricolor</i>	morningglory	SD	NAR	NS
<i>Iris</i> spp.	iris	LF, UP	CG	ETS
<i>Juglans</i> spp.	walnut	SP	—	SK
<i>Kalmia latifolia</i>	mountain laurel	LF	—	—
<i>Laburnum anagyroides</i>	golden chain tree	WP	A	GI, severe NS, RP
<i>Lantana camara</i>	lantana	FR	—	GI
<i>Lantana</i> spp.	lantana	WP	—	GI, CV
<i>Lathyrus odoratus</i> spp.	sweet pea	WP	P	NS
<i>Laurus nobilis</i>	sweet bay, bay leaf	LF, ST, FR	O	SK
<i>Ligustrum</i> spp.	privet	LF, FR	A, G	GI
<i>Linum usitatissimum</i>	flax (requires large quantity of a flax product in order to create toxicity)	WP, esp. SD	N, cyanide	RP
<i>Lobelia</i> spp.	lobelia	WP	—	SK
<i>Lupinus</i> spp.	lupine	WP	A	severe NS, RP
<i>Lycopersicon esculentum</i>	tomato	LF, ST	A, S	GI ?
<i>Macadamia ternifolia</i>	Queensland nut (not the edible species)	LF	CG	ETS
<i>Maclura pomifera</i>	osage orange	SP	—	SK
<i>Malus domestica</i>	apple	SD, LF	CG	ETS
<i>Manihot esculenta</i> (uncooked)	cassava	UP	CG	ETS
<i>Melia azedarach</i>	chinaberry, umbrella tree	FR	complex	GI, NS
<i>Mirabilis jalapa</i>	four-o'clock (marvel of Peru)	SD	weak A	GI
<i>Monstera deliciosa</i>	monstera (split-leaf philodendron)	FR, LF	OX	GI, SK
<i>Morus</i> spp.	mulberry	FR (unripe), SP	unknown	mild GI
<i>Myoporum laetum</i>	ngaio (myoporum)	LF	—	very toxic

Table 1. Selected poisonous plants of the home, landscape, and garden found in California (continued)

Scientific name	Common name	Toxic part ¹	Toxin ²	Effect ³
<i>Narcissus</i> spp.	narcissus, daffodil	UP	OX	mild GI
<i>Narcissus tazetta</i>	narcissus	UP	—	GI, NS, SK
<i>Nerium oleander</i>	oleander	WP	CARD	CV, GI
<i>Nicotiana</i> spp.	nicotiana	WP	A	NS
<i>Ornithogalum</i> spp.	star-of-Bethlehem	WP	CARD, strong CT	CV, GI
<i>Oxalis</i> spp.	oxalis (Bermuda buttercup)	WP	OX	GI, SK
<i>Papaver somniferum</i>	opium poppy	FR	NAR	NS, GI
<i>Parthenocissus quinquefolia</i>	Virginia creeper (American ivy)	FR, LF	OX	GI, SK
<i>Philodendron</i> spp.	philodendron	WP	OX	GI, SK
<i>Phoradendron</i> spp.	American mistletoe	WP, esp. FR	P	CV, GI
<i>Pittosporum</i> spp.	pittosporum	LF, ST, FR	—	
<i>Primula</i> spp.	primrose	WP	—	SK
<i>Prunus amara</i>	bitter almond (not the almond of commerce, which is <i>P. dulcis</i>)	FR	CG	ETS
<i>Prunus</i> spp.	apricot, cherry, peach, plum	SD, LF, ST	CG	ETS
<i>Pteridium aquilinum</i>	bracken fern	WP	CG	BL, CAR
<i>Pyracantha</i> spp.	firethorn, pyracantha	FR	—	severe SK
<i>Pyrus</i> spp.	pear	SD (large quantity)	CG	ETS
<i>Quercus</i> spp.	oak	FR, LF	tannin	mild GI
<i>Rheum</i> spp. ⁸	rhubarb	LF (blade, not petiole)	OX	GI, SK
<i>Rhododendron</i> spp.	azalea and rhododendron	WP	CT, R	CV, GI
<i>Ricinus communis</i>	castor bean	young LF, esp. SD	RS, LF, SD	CV, severe GI, RP, SK, esp. SD
<i>Robinia pseudoacacia</i>	black locust	ST, SD, LF	G	GI, BL
<i>Rumex</i> spp.	dock	LF	OX	GI, SK
<i>Sambucus</i> spp.	elderberry	FR (raw)	A, CG	GI
<i>Saponaria vaccaria</i>	cow cockle	SD	G	GI
<i>Schefflera</i> spp.	schefflera	AG	OX	GI, SK
<i>Senecio jacobaea</i>	common ragwort	WP	A	—
<i>Senecio mikanioides</i>	German ivy	LF, ST	—	—
<i>Sesbania punicea</i> (<i>Daubentonia punicea</i>)	rattlebox, scarlet wisteria	SD	—	—
<i>Solandra</i> spp.	cup-of-gold vine	LF, FL	—	—
<i>Solanum dulcamara</i>	bittersweet	LF, FR	A	NS
<i>Solanum melongena</i>	eggplant	LF, ST	A	GI
<i>Solanum pseudocapsicum</i>	Jerusalem cherry (winter or Christmas cherry)	WP	strong CARD	CV

Table 1. Selected poisonous plants of the home, landscape, and garden found in California (continued)

Scientific name	Common name	Toxic part ¹	Toxin ²	Effect ³
<i>Solanum</i> spp. ⁹	nightshade	LF, FR, WP, especially FR	A, CARD	NS, CV
<i>Solanum tuberosum</i>	potato	G	A	LV
<i>Spathiphyllum</i> spp.	peace lily	WP	OX	GI, SK
<i>Syngonium podophyllum</i>	arrowhead vine, nephthytis	WP	OX	GI, SK
<i>Tanacetum vulgare</i>	common tansy	LF	—	—
<i>Taxus</i> spp.	yew	WP (SD)	strong A	NS, GI
<i>Thevetia peruviana</i>	yellow oleander	WP	—	—
<i>Toxicodendron diversilobum</i> (<i>Rhus diversiloba</i>)	poison oak	WP	O	severe SK
<i>Toxicodendron</i> (<i>Rhus</i>) <i>rydbergii</i>	poison ivy	WP	O	severe SK
<i>Tulipa</i> spp.	tulip	UP	OX	GI, SK
<i>Urtica dioica</i>	stinging nettle	LF, ST	M	SK severe
<i>Veratrum californicum</i>	false hellebore (skunk cabbage)	WP	A	NS, RP
<i>Veronica virginica</i>	culvers root	UP	—	—
<i>Viscum album</i>	European mistletoe, Christmas mistletoe	WP	P	CV, GI
<i>Wisteria</i> spp.	wisteria	WP, esp. SD	G	strong GI
<i>Zantedeschia</i> spp.	calla, calla lily, arum lily	WP	OX	GI, SK
<i>Zephyranthes</i> spp.	zephyr lily	LF, UP	OX	GI

Notes

—: Information on the toxic part, toxin, or effect could not be found or is unknown.

¹Toxic parts: AG = aboveground parts; FL = flower; FR = fruit; G = green parts; LF = leaf; SD = seed; SP = sap; ST = stem; UP = underground parts; WP = whole plant.

²Toxins: A = alkaloid; CARD = cardiac glycoside; CG = cyanogenic glycoside; COL = colchicine; CT = cardiotoxin; FU = furocoumarin; G = glycoside; M = multiple agents; NAR = narcotic; N = nitrate; O = oil; OX = oxalate; PH = phorbol; P = proteins or amino acids; R = resin; RS = ricin; S = saponin; UNK = unknown.

³Effect (organ system[s] affected): BL = blood; CAR = carcinogen; CV = cardiovascular; ETS = cell respiration, electron transport system; GI = gastrointestinal; LV = liver; NS = nervous system; RP = respiratory paralysis; SK = skin irritation.

⁴Toxins are produced almost solely by *Apium graveolens* (celery) infected by pink rot fungi.

⁵All *Asclepias* spp. should be considered poisonous, even those cultivated as ornamentals.

⁶*Datura* spp. in general are toxic.

⁷*Hypericum perforatum* is not the commonly used species in California, which is *Hypericum calycinum*.

⁸Because of the lethal amounts of oxalic acids concentrated in its leaf blade, rhubarb (*Rheum* spp.) is considered one of the most dangerous of all plants in a garden.

⁹All ornamental and wild *Solanum* spp. (nightshade) should be considered poisonous.

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Publication 8560

ISBN-13: 978-1-60107-958-9

This publication is based on “Poisonous Plants,” by J. A. Alsop and J. F. Karlik, chapter 20 in D. Pittenger, ed., *California Master Gardener Handbook*, 2nd ed. (Oakland: University of California Agriculture and Natural Resources Publication 3382, 2015).

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This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by ANR Associate Editor for Environmental Horticulture

Janet Hartin.

web-4/16-SB/CR