Living With Poisonous Plants

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The word POISON too often creates fear when it should suggest a warning. Many chemicals or common household substances used incorrectly, usually in the wrong quantity, can cause illness or even death; this is also true with certain plants. Left alone they are harmless. Bruised, crushed, or eaten in varying quantities, they may provoke effects which are upsetting, painful, or even fatal to man.

The plant is the product of a series of chemical reactions. These reactions produce useful materials such as carbohydrates, fats, proteins, enzymes, gums and resins as well as other chemicals which may adversely affect men or animals.

Plant chemicals are known to cause irritating reactions in the human body. Certain chemicals on leaf surfaces or in plant juices may be irritating to the skin, inducing blisters, swelling or reddening. They also sometimes effect chemical changes leading to light sensitivity, discoloration, and in extreme cases, an actual erosion of skin tissues.

Some other plant effects are strictly mechanical. Punctures or tears by spines, thorns, or the small protuberances on microscopic pollen grains may cause irritation, with subsequent swelling. Hypodermic-like hairs of the Stinging Nettle, for example, puncture the skin and forcibly inject a chemical which creates a sensation of violent pain or burning. Latex or milky juices of certain plants coagulating in the throat or drying on the skin produce an uncomfortable tightening sensation that could induce panic in the small child.

In some parts of a plant potentially injurious chemicals accumulate in quantity as storage products. This occurs in seeds or roots and occasionally in leaves. Thus, a small volume of the plant tissue may contain a relatively large amount of toxic material.

Man throughout his years on earth has learned by trial and error which plants threaten his well-being and has passed on this information. However, neither the modern botanist nor the physician can predict the possible human reaction to all plants nor the quantities of reputedly toxic ones necessary to cause illness.
Today there is an urgent need for public information and awareness of potentially hazardous plant materials. Our increased contact with them in and about the home, as well as in the country; the trend to using natural foods, to eating wild plants, to living off the land has led many people to try strange plants as food. Often mistakes have been made in identification, while in other cases plant products have not been prepared properly and illness and poisoning have resulted.

Although adults obviously are vulnerable, our primary concern is the inquisitive child. Relatively small amounts of potentially toxic material are necessary to cause severe or even fatal consequences in a small body, whereas the same volume might have little or no effect on a teenager or adult.

During the Second World War, staff members of the Arnold Arboretum produced survival manuals for the military forces and conducted training programs which led to the establishment of the air-sea rescue services. Special emphasis was placed on the edible and poisonous plants and animals of each area of operation, with simple general rules of safety included. For adults these guidelines are valid today in and around the home as well; however, children should be taught not to put any unknown plant material in their mouths.

Safety Rules

1. Avoid eating all plants that have milky or colored juices: this includes members of the Milkweed, Poison Ivy, Spurge and Poppy families. Needless to say, there are exceptions to all general rules, for the young shoots of the Milkweed plant are edible and even Lettuce has a milky juice.

2. Avoid all unknown white or red fruits. Poison Ivy, Poison Sumac, and some species of Baneberry have white fruits and are poisonous. Strawberries, Apples and Tomatoes are red, but these are known. The majority of unrecognized red fruits are potentially toxic.

3. Avoid eating wild seeds, for the seed of the plant usually has the greatest accumulation of chemical which may be toxic. In general the toxicity of plants is greatest in the storage organs of seeds, fruits, roots and tubers. Young plants or young fruits may be less toxic than the same parts in mature condition. However, some plant poisons are breakdown products, and wilted leaves may often be more dangerous than fresh material.

4. Avoid all fruits which are three-angled or three-lobed and thereby eliminate the potential dangers of the Spurge, Soapberry, Horsechestnut, Amaryllis and Lily families. Some of
the world's most infamous poisonous plants belong to these families.

5. Avoid all bulbs that lack the smell of Onions or Garlic. Some members of the Lily and Amaryllis and related families with basal bulbs may kill you if eaten in quantity.

6. If you must experiment in eating unknown plant materials, it is a rule of safety to cook the plant parts in two changes of water. Then sample a small bit before consuming a lot. If the cooked material tastes unpleasant, don't eat it. Your own reaction may be the sensible one. Many plant poisons are water-soluble or destroyed by heat. Cooking and discarding two changes of water lessens the amount of poisonous material or removes it completely.

What To Do If Poisoning Is Suspected

Seek information as soon as possible. Plant poisons may cause an immediate reaction in the human body or may be delayed in their effects for several hours. Residents of cities that have poison centers or large botanical gardens may get information from either source. Look under “Poison” in the emergency pages of your telephone book. Before you call have a piece of the plant in your hand so you can give a description of it. The person answering will ask questions according to the time of the year, for he probably knows what poisonous plants are most conspicuous at each season in woodlands, cultivated out of doors, or in your home. His questions may involve the size of the plant, the presence of spines or thorns, the position of the leaves (opposing each other or alternating on the stem), the color of the fruit, seed or flower, and whether a juice is present or lacking. He will need to know the age or size of the child and how much he may have consumed. If you know a name for the plant, volunteer this information but remember that common names vary with locations. For example “Dog Berry” generally applies to a non-poisonous plant in Massachusetts and to a toxic plant in Maine. Frequently “Mayflower” and “May Apple” are confused (the latter may be poisonous) and “Ivy” can apply to a dozen different plants, some toxic and others harmless.

The doctor or the botanist who answers the call will recommend the action you should take. It is not always desirable or necessary to have the child vomit; when it is advised, don’t hesitate. The direction will generally be to administer one tablespoon of Ipecac syrup for children over one year. This is an emetic which can be purchased without prescription in one
ounce quantities at drug stores and should be on hand for emergencies in every home with small children. If vomiting is not induced within fifteen minutes, a second dose of one tablespoon may be given; then notify your physician. If vomiting still does not occur, take the child to the emergency room of a hospital. In serious cases a doctor may wish to use special methods to clean out the stomach, or to keep the child under observation. Sometimes the irritating or potentially poisonous material would be spread if vomiting occurred. In such cases ipecac syrup is not recommended, and the alternative suggestion is to dilute the substance by feeding the child. Some materials such as the latex of Spurges are best treated by feeding dry crackers or bread. In other instances involving plant oils, the recommendation may be for large amounts of peanut butter and jelly, cereal, or even ice cream.

This is a guide to the most common plants of woodlands, gardens, and homes which are potentially dangerous if misused. It is based on the collaboration of medical consultants and the staff of the Arnold Arboretum experienced in answering questions from residents of the northeastern states referred to us by the Boston Poison Information Center.

Obviously, not all potentially poisonous plants from this area or others can be included. We have omitted mushrooms, toadstools and fungi because there are poisonous mushrooms which are very difficult to identify. Always call the poison center for suspected cases of mushroom poisoning and carefully follow the advice of the specialist.

Comprehensive reference volumes are available for the person who wishes larger lists of edible or potentially toxic plants; such references form the bibliography of this guide.

As a service to the community at large, the Arnold Arboretum has just produced a 26-minute, color and sound educational movie on 78 poisonous plants. The film may be borrowed by groups wishing to show it for educational purposes. Reservations should be requested well in advance by writing to the Arnold Arboretum, Jamaica Plain, Mass. 02130.

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