German Federal Institute for Risk Assessment

FAQ

14 March 2025

Poisonous plants – how to protect yourself and what to do in case of poisoning?

Plants are part of our environment. They provide oxygen, ensure favourable climatic conditions and are an important part of our diet. However, many plants contain substances that can have harmful effects on human health. These natural toxins often serve as a defense mechanism for plants against herbivores. They include a wide range of chemical compounds, such as alkaloids, glycosides, saponins, or essential oils, which can affect various organ systems in the human body, including the nervous and cardiovascular systems.

The following questions and answers provide information on how frequently plant poisonings occur in Germany and what to do in the event of a suspected poisoning. Most importantly, if poisoning is suspected, it is essential to contact a poison centre or consult a doctor as quickly as possible. The text also outlines possible symptoms and offers guidance on how to prevent poisoning in the first place.

How common is plant poisoning?

Around 10 - 15 percent of all enquiries to poison centres (PC) in Germany relate to plants. For example, in 2023, the GIZ Nord recorded nearly 4800 enquiries concerning actual or suspected plant poisonings (accounting for approximately 10 percent of all cases). In Freiburg, the figure was 4054 plant-related enquiries in 2022, representing 13 percent of total calls. This places plants third among the most common reasons for contacting poison centres, following medications and chemicals. Children are the most frequently affected: in recent years, approximately 80 percent of reported plant exposures involved children aged 0 to 9, with a large proportion of these cases involving toddlers (1 to 4 years).

Most cases involve only mild symptoms or none at all. In most instances, children eat fruits, but leaves or other parts of plants are also consumed or put into the mouth.

What are the poison centres?

Germans poison centres, operated by the federal states ("Bundesländer") provide 24/7 advise to consumers, hospitals, and medical professionals in cases of poisoning or suspected poisoning – every day of the year.

You can find an overview of the poison centres in Germany here

- List of poison centres

Each year, the poison centres receive approximately 250,000 calls related to actual or suspected poisoning cases. Until now, however, this information has not been compiled or systematically analysed at the national level. That is set to change with the German Poisoning Registry, which will be established at the German Federal Institute for Risk Assessment (BfR) starting January 1, 2026.

How often do severe plant poisonings occur?

In most cases, only mild or no symptoms occur, meaning that no treatment is necessary, and patients only need to be monitored. The percentage of moderate and severe cases ranges from about 2 to 3 %, with fatalities being very rare (usually suicides or, in isolated cases, confusion between edible and poisonous plants).

What to do if you come into contact with a potentially toxic plant?

Immediately remove any plant material from the mouth (keep plant remains for the doctor's visit). Call a **poison center** or go to a doctor's office or hospital. The following information is important:

- **Which plant** is involved?
- **Which parts** of the plant were eaten? **How much** was consumed?
- **How long** ago were the plant parts ingested?
- **Age and weight** are especially important when consulting by phone, particularly for children, to assess the risk of poisoning.

- When visiting a doctor`s office or hospital, bring the plant/plant parts with you. If necessary, vomit can also help with identification. Additionally, taking photos of the plant with a smartphone can be useful, especially if it involves trees or shrubs. Inform the doctor about the advice provided by the poison centre.
- As a **first measure**, you can drink **one or two glasses of water or tea** (dilution effect). Please do not use milk or saltwater, as milk can promote the absorption of certain toxins and saltwater can be life-threatening, especially for young children. Do not induce vomiting.
- Further measures should not be taken without prior medical advice.

Which plants are most commonly responsible for poisonings?

The most frequently inquired-about plants with moderate poisoning risks include common yew, elderberry, lily of the valley, uncooked garden beans, common laburnum, arum, daffodils, arborvitae (Thuja), spurge, virginia creeper and oleander.

The most common enquiries regarding plants with severe poisoning risks involve monkshood), autumn crocus, deadly nightshade, hemlock, thorn apple, castor oil plant and angel's trumpet.

It is also important to remember that some edible plants can cause poisoning when consumed unripe or undercooked. In these cases, gastrointestinal symptoms such as abdominal pain, nausea, diarrhea, and vomiting often occur. Examples include potatoes, beans and elderberries.

Which edible plants are often confused with poisonous plants?

Ramsons (wild garlic, *Allium ursinum*) is sometimes collected in the spring as a culinary spice. Because of the similarity of the leaves, it can be confused with the poisonous **lily of the valley** (*Convallaria majalis*) and the very poisonous **autumn crocus** (*Colchicum autumnale*). Fatal poisoning can occur after ingesting the autumn crocus. Therefore, wild garlic should only be harvested independently if there is a good understanding of the differences between it and its toxic lookalikes.

For more information on the risks of confusing wild garlic with other plants, click here:

https://www.bfr.bund.de/en/press_information/2024/04/wild_garlic__poisonous_doppelgangers-315133.html

The **cow parsley** (meadow chervil, *Anthriscus sylvestris*) has a pleasantly spicy, slightly sweet taste and is also used in cooking. Due to its similarity to the highly toxic **poison hemlock** (*Conium maculatum*), there is a potentially fatal risk of confusion. It is strongly advised not to collect this herb unless you have an excellent knowledge of plant identification.

Additionally, other edible plants can be confused with toxic ones, such as edible **sorrel** with the poisonous **arum**, edible **bilberry** with the toxic deadly nightshade and **comfrey** with the toxic **red** foxglove.

How can I protect myself from plant poisoning?

The German Federal Institute for Risk Assessment (BfR) advises foragers to avoid consuming wild herbs and plants if there is any doubt about their safety.

As a general rule, plants should only be collected for consumption if you are absolutely certain in your ability to distinguish them from poisonous varieties. An alternative is to purchase garden herbs, fruits and vegetables from trusted sources such as greengrocers offering produce from controlled cultivation. Buying plants from specialized retailers or growing your own on a windowsill or in the garden are also safe options. Young children should always be supervised in nature, gardens, or on balconies, and should be taught early on about potential dangers.

The “Plant Toxicity” Committee of the BfR Commission on “Poisoning Assessment” has undertaken a re-evaluation of the poisoning risks associated with plants. As part of this process, reports of plant exposure from two poison information centers were analysed and compared with data from the scientific literature. The committee’s work formed, among other things, the basis for the updated version of the “List of Particularly Toxic Garden and Native Wild Plants” published in the Federal Gazette (“Bundesanzeiger”, language German). This list includes plants that can cause moderate to severe poisoning and should not be planted in areas where children spend time or play.

https://www.bundesanzeiger.de/pub/publication/cb9rFDxrsetJdU4RBZu/content/cb9rFDxrsetJdU4RBZu/BAnz%20AT%2002.07.2021%20B4.pdf?inline

When choosing suitable plants for a child-friendly garden, it is advisable to avoid highly toxic species such as monkshood (*Aconitum napellus*), as well as plants that can cause severe skin irritation or are phototoxic, such as giant hogweed species (*Heracleum spec.*). The brochure „Kinderfreundliche Pflanzen“(“Child-Friendly Plants”, language German) can be downloaded free of charge from the website of the Federal Office for Agriculture and Nutrition (BLE).

- https://www.ble-medienservice.de

The re-evaluation of plant-related poisoning risks in young children has also been incorporated into the BfR app ‘Vergiftungsunfälle bei Kindern‘(Poisoning accidents concerning children). This app was developed as an information and reference tool to help prevent poisoning incidents involving children. In an emergency, users can directly call the poison center responsible for their federal state (Bundesland) from within the app. The BfR app is available for smartphones running Android and iOS and can be downloaded free of charge from the respective app stores (language German).

- https://www.bfr.bund.de/de/apps_vergiftungsunfaelle.html

What reactions can occur after consuming poisonous plants?

Reactions to poisonous plants can vary greatly in both severity and type of symptoms.

Common symptoms include digestive issues such as nausea, vomiting, abdominal cramps, and diarrhea. In some cases, more serious symptoms may occur, such as circulatory problems, heart rhythm disturbances, paralysis, and—very rarely—the consumption of poisonous plants can even lead to death.

Can plants also cause poisoning through the skin?

In addition to poisoning through ingestion, some plants can cause skin irritation upon contact – for example, giant hogweed or various species of spurge (Euphorbia). This can lead to skin rashes, itching, burning sensations, and swelling, and in some cases even to burn-like symptoms such as redness or blistering. In all cases, it is important to wash your hands as soon as possible after contact to remove any toxic substances from the skin.

In principle, two different mechanisms of action can be distinguished.

In plants such as those from the spurg family (*Euphorbiaceae*), the compounds found in their milky sap can themselves be irritating. This group also includes common houseplants like the **poinsettia** (*Euphorbia pulcherrima*).

In other cases, the compounds in certain plants are transformed into toxic substances upon exposure to sunlight. This can lead to increased sensitivity to the sun and, in some instances, severe burn-like skin reactions. **Giant hogweed** (*Heracleum mantegazzianum*), for example, is well known for its strong phototoxic effects. It's important to note, however, that some common garden plants—such as parsley, carrot leaves, and many citrus plants—also contain such substances. Wearing gloves and long-sleeved clothing while gardening can help protect against exposure. After contact, direct sunlight should be avoided on the affected skin areas for several days.

A special case is the blue **monkshood** (*Aconitum napellus*), which is considered the most toxic plant in Central Europe. While most plants typically cause only local symptoms after skin contact, monkshood can induce systemic effects after prolonged skin contact, meaning poisoning symptoms that affect the entire body. This plant should generally only be touched while wearing gloves.

Further information on the BfR website on the subject of plant poisoning

The free BfR app 'Vergiftungsunfälle bei Kindern' (Poisoning accidents concerning children) provides first aid measures for cases of poisoning while travelling (in german only):
https://www.bfr.bund.de/de/apps_vergiftungsunfaelle.html

Important tips and information on poisoning in the "A-Z Index":
https://www.bfr.bund.de/en/a-z_index/intoxication___poisoning-130156.html

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. The BfR advises the Federal Government and the States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

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