

Plants causing frequent or serious poisoning



© 123 RF

Myrtle spurge (*Euphorbia myrsinites*).

A ministerial order issued by the French Ministry of Health in 2020 lists the ornamental plants available on the market that can cause serious poisoning. A study of accidental plant poisonings recorded by the poison control centres, supplemented by a literature search, identified six new plants to be included in this order and led to a list being drawn up of the wild or cultivated plants responsible for the most frequent or serious cases. With a view to future updates, ANSES has set up prospective monitoring of serious plant poisonings, as well as a literature watch.

Whether they are wild or cultivated, plants can cause poisoning through either a failure to identify them or lack of knowledge of their toxicity. Following an ANSES opinion¹, in September 2020, the Ministry of Health published a ministerial order² on the information that must be provided to purchasers of plants posing a toxic risk to human health. This order lists the ornamental (decorative) plants with the highest toxicity, whether by ingestion, mucocutaneous contact or dermal contact combined with exposure to the sun³.

In order to identify new plant species to be included in this ministerial order, the Directorate General for Health asked ANSES to study accidental plant poisonings recorded by French poison control centres (PCCs) over a 10-year period, considering both commercial and wild plants, and paying particular attention to cases of serious poisoning.

POISONING DUE TO WILD PLANTS AND PLANTS IN PARKS AND GARDENS

Between 2012 and 2021, the PCCs received calls about 23,906 cases of plant poisoning. They most often involved ornamental plants in parks and gardens (ornamental *Arum*, oleander, *Narcissus*, *Cotoneaster*, etc. – 40%), followed by wild plants (wild *Arum*, *Euphorbia*, *Heracleum*, elder, etc. – 31%), food plants (bell pepper, chilli, squash, fig, etc. – 13%) and house plants (*Alocasia*, *Ficus*, *Spathiphyllum*, etc. – 12%). In the remaining 4% of cases the plant was not identified. These cases concerned both men and women.

Nearly half of the victims were children under six years of age who had ingested a toxic plant. Ingestion was also the most common route of exposure for children over six, well ahead of skin or eye contact. Half of all poisonings (52%) occurred between May and August, with a peak in July.

In the vast majority of calls, particularly those regarding children, the poisoning was minor. Only 2.5% of cases caused severe or prolonged symptoms, of which 0.1% were life-threatening or even fatal.

¹ ANSES opinion on the draft ministerial order concerning the prior information that must be provided to purchasers of plants likely to be harmful to human health

² <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000042325453>

³ https://vigilanses.anses.fr/sites/default/files/VigilAnsesN14_Juin2021_Arreteplantes_0.pdf

Poisoning was more severe with wild plants (4.3%) than with house plants (0.6%), and when the plant or its sap had been in contact with the eyes (Table I).

ARUM: FREQUENT BUT GENERALLY MINOR POISONINGS

All plant categories combined, *Arum* were most frequently responsible for poisonings (22%). They were followed by *Euphorbia*, bell pepper and chilli, oleander, narcissus and daffodil (Figure 1).

Two species of *Arum* (*A. italicum* and *A. maculatum*) are particularly abundant in the wild. A typical case of exposure concerned a young child who was attracted by the orange-red berries and put them in their mouth. Adults tended to confuse the leaves of this plant with those of other edible plants such as sorrel, spinach or sea beet.

Arum owes its toxicity to microscopic needle-shaped calcium oxalate crystals, invisible to the naked eye, found in all parts of the plant. They are expelled when the plant is damaged or chewed and become lodged in the skin or mucous membranes, causing discomfort and sometimes painful local irritation. In rarer cases they can lead to oropharyngeal oedema or corneal damage in the event of eye contact.

Although *Arum* poisoning was the most common form, the vast majority of cases were minor: less than 0.1% were of moderate severity and none were very serious.

EUPHORBIA: FREQUENT AND SOMETIMES SERIOUS POISONINGS

Euphorbia was the second most common cause of poisoning, but tended to be more serious than *Arum* poisoning: 4.2% of cases were of moderate to high severity.

Many *Euphorbia* species can be found among the wild flora of France. Some, including exotic species, are also sold for gardens. They produce a corrosive latex which, if it comes into contact with the skin, quickly causes redness, pain, itching and even blisters. In the event of eye contact, the initial irritation is followed by conjunctivitis or even corneal damage, along with impaired vision and severe pain.

One very serious case was observed in the study: a person developed a severe corneal ulcer after splashing sap into their eye. The injury subsided after subconjunctival injection of corticosteroids and application of a bandage contact lens.

WHICH PLANTS ARE THE MOST DANGEROUS?

Some plants can cause life-threatening or fatal poisoning. Of the 42 very serious poisoning cases in the study, which included seven deaths, *Datura* and autumn crocus were the most frequently incriminated (each one was responsible for 15% of cases). Then came foxglove (12%), followed by white hellebore (9%), wolfsbane (5%) and water dropwort (5%). The deaths were due to the ingestion of water dropwort (in two cases), autumn crocus, foxglove, yellow oleander, wolfsbane and oleander.

		Percentages of moderate to high severity poisonings / poisonings of all severities	Number of poisonings of all severities
Age groups	0-5 years	0.7%	10,733
	6-19 years	1.5%	3,837
	20-39 years	4.4%	3,192
	40-59 years	5.5%	2,854
	60 years +	7.6%	2,146
Plant categories	Wild	4.3%	7,502
	Food	3.3%	3,148
	Parks and gardens	1.5%	9,525
	House	0.6%	2,928
Routes of exposure	Eye	5%	2,085
	Skin	2%	4,020
	Oral	1%	18,175

Table 1 – Moderate to high severity poisonings according to victim age, plant category and route of exposure. 2012-2021. Source: SICAP

In all the serious cases, the victims – all adults apart from one child – had consumed large quantities of the plant. They had most often confused the poisonous plant with a food plant: *Datura* (jimsonweed) with New Zealand spinach⁴, autumn crocus with wild garlic⁵, foxglove with comfrey, white hellebore with gentian or ginseng, water dropwort with wild carrot, deadly nightshade with wild grapes or wolfsbane with striped hemlock.

In other cases, people had consumed a plant thought to be edible without realising it could be toxic (taro, pine, *Daphne mezereum* berries, liquorice, *Aphloia theiformis*, star anise, bitter almond) or a plant for therapeutic or slimming purposes (white hellebore, *Tinospora crispa*, nutmeg, candlenut, broom).

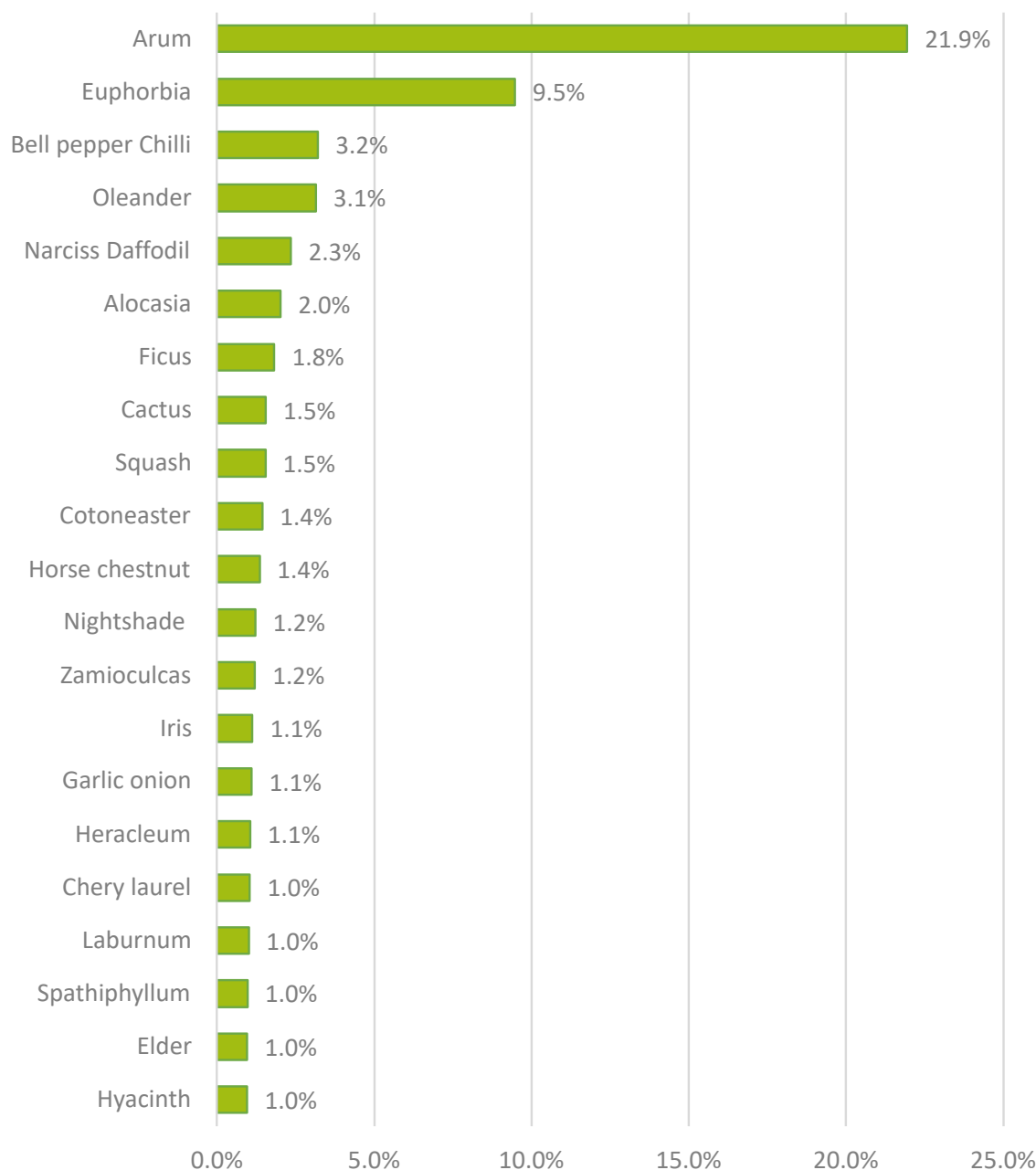


Figure 1 – Percentages of accidental plant poisonings.
Plants that accounted for less than 1% of poisonings are not shown. 2012-2021. N = 22,383.
Source: SICAP.

⁴ <https://www.anses.fr/en/content/severe-poisoning-after-consumption-toxic-jimsonweed-leaves-vegetable-patch>

⁵ https://vigilances.anses.fr/sites/default/files/VigilAnsesN20_Novembre2023.pdf

WHAT SHOULD BE DONE TO AVOID PLANT POISONING?

- Choose non-toxic ornamental plants for areas frequented by young children;
- Keep children away from plants that can cause poisoning;
- Avoid skin contact with plants responsible for abnormal skin reactions following exposure to the sun: wear gloves and protective clothing.

TO AVOID CONFUSION BETWEEN TOXIC AND EDIBLE PLANTS

- Do not eat a plant in the event of any doubts about its identity, whether it has been picked from the wild or from the vegetable garden;
- Take photographs of the plants that have been picked for easier identification in the event of poisoning;
- Stop eating the plant immediately if it has an unusual or unpleasant taste;
- Do not pick plants by the armful to avoid gathering several different species by mistake and mixing toxic and edible plants;
- Wash and sort plants thoroughly before eating.

WHAT SHOULD BE DONE IN THE EVENT OF PLANT POISONING?

- In the event of severe problems or life-threatening symptoms (difficulty breathing, loss of consciousness, etc.), dial 15 or 112 (or 114 for the hearing impaired).
- In all other cases of ingestion of a plant suspected to be or identified as toxic, even if there are no symptoms, seek advice from a poison control centre on +33 (0)1 45 42 59 59 (24/7 emergency number).

SIX PLANTS TO BE ADDED TO THE MINISTERIAL ORDER ON TOXIC PLANTS AVAILABLE ON THE MARKET

Data from the PCCs showed that colocynths⁶, or ornamental gourds, should be added to the Ministerial Order of 4 September 2020. The other plants causing serious poisoning were already listed in the order or were outside its scope, such as food or medicinal plants.

The literature search carried out on 28 other plant species also identified a further five plants sold in France that can cause serious poisoning in humans.

ANSES therefore recommended updating the Ministerial Order of 4 September 2020 to include six new plants: colocynths, opium poppy, sea squill, rosary pea, henbane and redoul.

Besides these, three other plant species were identified in another ANSES opinion⁷ specifically concerning ornamental plants posing a toxic risk to human health in Reunion Island and Mayotte: gout plant, physic nut and century plant.

To ensure the ongoing identification of new plants that could cause human poisoning, in 2025 ANSES set up prospective monitoring for serious plant poisonings recorded by poison control centres, as well as a literature watch.



Sandra Sinno-Tellier (ANSES)
and **Gaël Le Roux (Angers PCC)**

FIND OUT MORE

ANSES. (2025). Accidental plant exposure and poisoning: a study of cases recorded by poison control centres from 2012 to 2021. Toxicovigilance study report. Request No 2022-SA-0042. ANSES. Maisons-Alfort. 184 p. <https://www.anses.fr/sites/default/files/Toxicovigilance-2022-SA-0042-RA.pdf>

⁶ https://vigilances.anses.fr/sites/default/files/VigilAnsesN3_October2017_Squash.pdf

⁷ <https://www.anses.fr/fr/system/files/Toxicovigilance2021SA0032.pdf>