

Confusion between autumn crocus and wild garlic: beware of severe poisoning!

Autumn crocus is a poisonous or even deadly plant that grows in the same places as wild garlic, an edible wild plant popular in salads or home-made pesto. Wild garlic is harvested in spring before its flowers – and those of autumn crocus – appear, which can lead to confusion. This article describes cases of confusion between autumn crocus and wild garlic or, more rarely, another edible wild plant, many-flowered garlic, recorded by French poison control centres (PCCs) between 2020 and 2022. The poisoning cases were sometimes responsible for serious health effects, including death. ANSES and the PCCs are reiterating their recommendations for avoiding such confusion.



In 2020, following a death, ANSES and the PCCs issued a warning about the risks of mistaking autumn crocus (*Colchicum autumnale*), a plant that is toxic and even fatal to both humans and animals, for wild garlic (*Allium ursinum*), which is edible [1].

Despite this warning, cases of poisoning caused by confusion between autumn crocus and wild garlic, or more rarely between autumn crocus and another edible plant, many-flowered garlic (*Allium polyanthum*), are still regularly reported to poison control centres.

Autumn crocus, wild garlic and many-flowered garlic grow in the same undergrowth or meadows, in damp or shady areas (see box). Autumn crocus flowers are very different from those of wild garlic or many-flowered garlic but, they only appear at the end of summer. In spring, the season when people forage for wild garlic and many-flowered garlic, the lack of flowers to tell these plants apart can contribute to confusion.

The toxicity of autumn crocus is due to colchicine, a very potent alkaloid found in all parts of the plant (leaves, flowers, seeds and roots). It blocks cell division in the body, which explains its particular digestive and haematological toxicity, as gastric, intestinal and bone-marrow cells must be rapidly renewed.

The first signs of poisoning are digestive and occur a few hours after ingestion: intense abdominal pain, vomiting and profuse diarrhoea may occur, leading to severe dehydration, which in turn causes a drop in blood pressure and a risk of cardiorespiratory arrest. Other serious problems appear later: bone marrow failure¹, which causes a drop in the number of circulating blood cells, may appear around the third day and entails a risk of infection and haemorrhage. Hair loss may occur around the tenth day.

1. Inability of the bone marrow to produce blood cells normally.

2. Phytoliste: a secure email distribution list connecting PCC toxicologists with experienced botanists, who can rapidly identify the plant species responsible for the poisoning (based on photographs, a description of the plant, etc.).

What are the different cases of confusion?

To improve understanding and prevention, ANSES and the PCCs studied cases of confusion between autumn crocus and wild or many-flowered garlic recorded by the PCCs between 1 January 2020 and 31 December 2022.

All dossiers coded on the agents "autumn crocus", "wild garlic" or "many-flowered garlic", recorded during this period in the PCCs' information system (SICAP), were extracted and reviewed. In each case, the patient thought they had eaten wild or many-flowered garlic, but then developed symptoms after the meal.

The case definitions in the study were as follows:

A *confirmed case of autumn crocus poisoning* corresponded to one in which autumn crocus had been identified among the leftovers by a member of the Phytoliste, and in which the patient had presented with clinical signs suggestive of colchicine poisoning.

Cases of poisoning in which no autumn crocus was identified by the Phytoliste and no meal was shared with a confirmed case of autumn crocus poisoning were described as *suspected cases of consumption of a plant mistaken for wild or many-flowered garlic*. Confusion with a toxic plant was suspected, but could not be proved.

From 2020 to 2022, the PCCs recorded 28 confirmed cases of poisoning due to autumn crocus being confused with wild garlic (22 cases), many-flowered garlic (two cases), or both at the same time (four cases). In addition, there were 127 cases of poisoning following the suspected consumption of a toxic plant mistaken for wild garlic (121 cases) or many-flowered garlic (six cases).

The 155 poisoning victims were aged between 3.8 and 74 years (average: 38.7 years). Of these, 38% were men and 60% women (the remaining 2% were not specified).

The same meal may have been shared by several diners and poisoned from one to four people. There were 17 meals associated with the consumption of autumn crocus and 102 meals containing a plant mistaken for wild or many-flowered garlic.

Cases of confusion during springtime mainly observed in the eastern half of the country

There were more confirmed cases of autumn crocus being mistaken for wild or many-flowered garlic in 2021 than in 2022 or 2020 (Figure 1).

These poisonings occurred mainly in spring, at the start of the leaf-growing season for these three plants. April saw a peak in suspected cases of consumption of a plant mistaken for wild or many-flowered garlic (40% of meals in this category) (Figure 2). One case of poisoning resulted from consumption of a plant mistaken for wild garlic that had been used to prepare pesto, which was then stored in the refrigerator. This occurred in August, long after the season. Another occurred in December, and was due to consumption of a plant mistaken for wild garlic that had been frozen. The confirmed cases of autumn crocus ingestion were all observed between March and May.

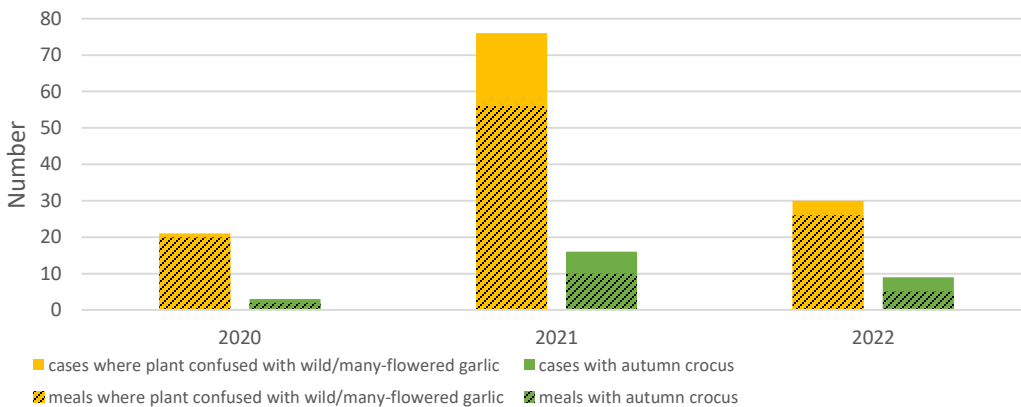


Figure 1 : Annual breakdown of the number of poisoning cases and meals where several diners may have eaten autumn crocus, or a plant mistaken for wild or many-flowered garlic. 2020-2022. Source: SICAP.

Half of the meals containing autumn crocus were in Auvergne-Rhône-Alpes (53%, nine meals) and one third in Grand-Est (35%, six meals). Such confusion between autumn crocus and wild garlic is regularly described in continental Europe [2, 3]. Suspected consumption of a plant mistaken for wild or many-flowered garlic was also dominant in Auvergne-Rhône-Alpes (46%, 47 meals) and Grand-Est (22%, 22 meals), and occurred to a lesser extent in the other regions of France.

Wild plants gathered from the countryside

In more than three-quarters of the meals, the diners themselves had picked the plant responsible for poisoning (respectively 76% (13/17 meals) and 78% (80/102 meals) of confirmed cases of confusion with autumn crocus, and suspected cases of confusion with wild or many-flowered garlic) (Figure 3). Plants given by a third party accounted for 7% (8/119 meals) of the meals causing poisoning, which also calls for vigilance.

Wild garlic was purchased commercially for six meals: in an organic shop or from a market gardener (one meal each), and in a supermarket or from a market (two meals each). Poisoning cases involving a commercially purchased plant were never confirmed as being due to autumn crocus.

Prepared in pesto or marinade in almost half of all meals

Wild garlic is used in many culinary recipes: in almost half of all meals (44%), the leaves were prepared raw in pesto or marinade (Figure 4). This method of preparation requires a large quantity of leaves to be picked and used, increasing the risk of confusion and poisoning.

The leaves were also eaten raw, in a salad or on bread for 22% of meals, or cooked in a quiche or pan-fried dish for 21% of meals (Figure 4).

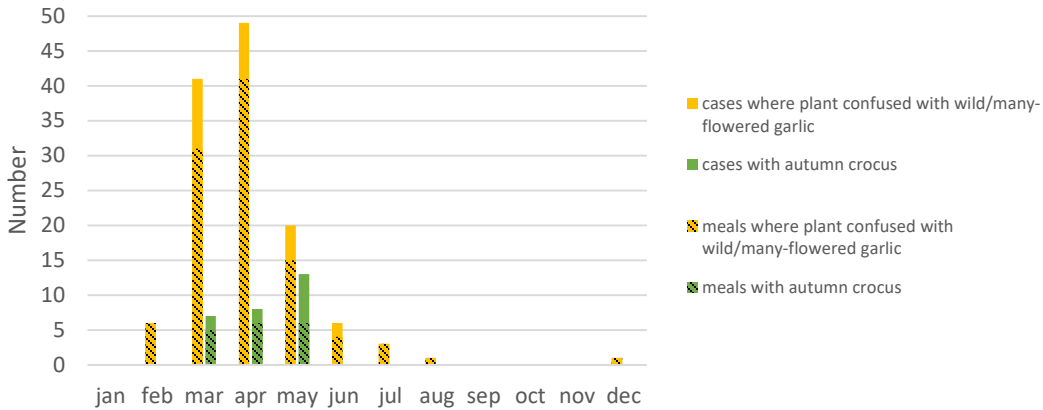


Figure 2 : Cumulative monthly breakdown of the number of poisoning cases, and meals where several diners may have eaten autumn crocus or a plant confused with wild or many-flowered garlic. 2020-2022. Source: SICAP.

Although it was not possible to estimate precisely the quantity of leaves collected from the information in the dossiers, the ingestion of a single autumn crocus leaf or teaspoon of pesto was enough to cause poisoning.

Cases of confusion responsible for deaths

Among the 28 people poisoned by autumn crocus, 93% (26 cases) presented with digestive symptoms: diarrhoea (79%), vomiting (68%), abdominal pain (46%) and nausea (18%).

Half of the patients (14 cases) had pronounced or prolonged signs (persistent diarrhoea or vomiting), and four of them had severe life-threatening symptoms, such as serious liver disorders (two cases) or haematological disorders (three cases).

A fatal outcome was reported for two patients:

the first death involved a person familiar with collecting wild garlic, who had picked a large quantity of leaves. They died of multiple organ failure five days after a meal containing "home-made" pesto. Colchicine was found in all the patient's biological samples (blood, urine, gastric fluid).

the other person had eaten a quiche supposedly made with wild garlic, picked that day. They died at home the following day. Analysis of the quiche leftovers showed the presence of colchicine. A second person who had shared the meal presented with signs of severe colchicine poisoning. The outcome was favourable after treatment in intensive care.

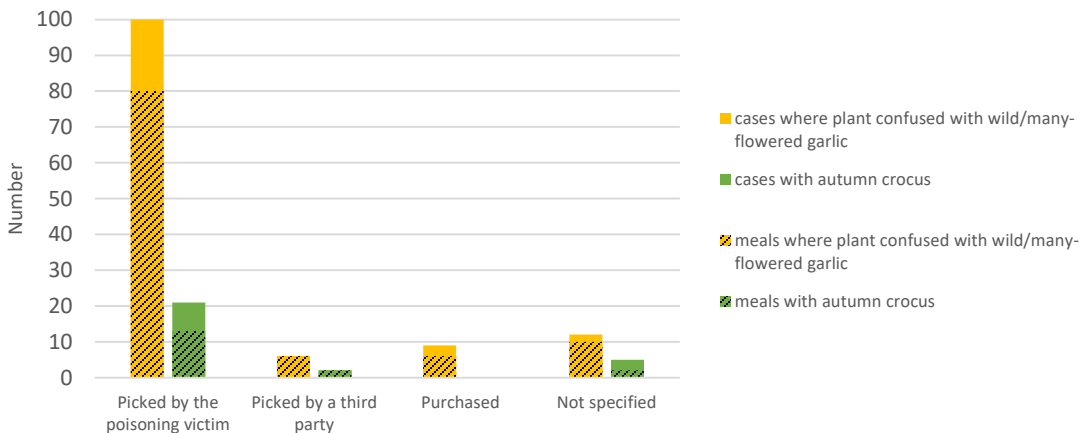


Figure 3 : Method of obtaining the plant in poisoning cases and meals where several diners may have eaten autumn crocus or a plant mistaken for wild or many-flowered garlic. 2020-2022. Source: SICAP.

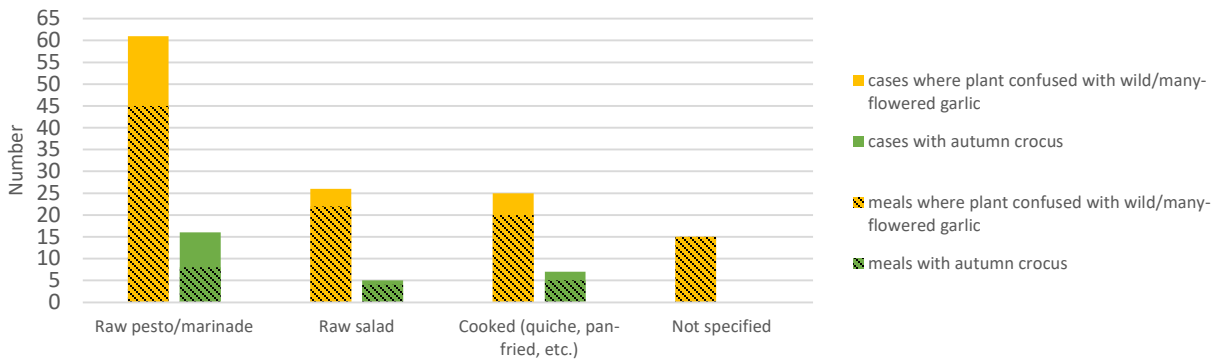


Figure 4 : Method of preparing the plant in poisoning cases and meals where several diners may have eaten autumn crocus or a plant mistaken for wild or many-flowered garlic. 2020-2022. Source: SICAP.

Symptoms were mild in the remaining ten poisoning cases (36%).

In addition, all the people involved in suspected consumption of a plant mistaken for wild or many-flowered garlic had mild symptoms (127 cases). While digestive signs predominated (84% of cases), oropharyngeal pain or irritation was reported in 15% of cases. Confusion with another toxic plant (autumn crocus, arum, lily of the valley, crocus, etc.) could therefore not be ruled out.

Recommendations for avoiding confusion between plants

Following this review, ANSES and the poison control centres renewed their recommendations on picking wild or many-flowered garlic [4]:

- Make sure you know the plant you are picking;
- Do not eat a plant if you have any doubts about its identity;
- Do not pick leaves by the armful to avoid mixing toxic species with edible ones;
- When picking wild garlic, check that each leaf has a garlic odour when rubbed;
- Take photographs of the plants you pick before eating them, for easier identification in the event of poisoning;
- Stop eating the plant immediately if it has a bitter or unpleasant taste;
- Contact a poison control centre immediately if you have any doubts after ingestion, or if you experience any digestive or other symptoms within hours of eating a dish supposedly containing wild garlic or many-flowered garlic.

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TO FIND OUT MORE:

[Confusions alimentaires de colchique et d’ail des ours ou de poireau sauvage. Bilan des cas enregistrés par les centres antipoison \(de 2020 à 2022\). Rapport d’étude de toxicovigilance](#)

	Autumn crocus	Wild garlic	Many-flowered garlic
Toxic substance	Colchicine Resistant to cooking and freezing (thermostable) All parts of the plant	Edible plant	Edible plant
Growing location	Meadows, wet grasslands, shady edges of woodland, mountains	Undergrowth, damp, shady areas Deciduous and alluvial forests Up to 1600 m altitude	Limestone vineyards, meadows and gardens in wine-growing regions
Leaves	Long and spear-shaped No stem or petiole Seem to emerge directly from the ground <i>Grow in spring</i>	Oval and spear-shaped Long petiole Strong garlic smell <i>Grow in spring</i>	Very elongated, parallel edges Sheath the stem at the base Smell of leek <i>Grow in spring</i>
Flowers	Mauve, pale lilac <i>From September to November</i>	White, in umbels <i>From April to June</i>	Purple, spherical <i>From June to July</i>
Fruit	Large capsules between the leaves	Small capsules	Small capsules
Bulbs	Large, scaly bulb (corn)	Thin, elongated bulb	Numerous round bulblets

References

[1] Press release by ANSES and the poison control centres of 4 May 2020 "Confusion between autumn crocus and wild garlic: a fatal case of poisoning reported by the poison control centres".

<https://www.anses.fr/en/system/files/PRES2020CPA08EN.pdf>

[2] BfR – German Federal Institute for Risk Assessment. Wild garlic: confusion often leads to poisoning, 04.04.2023.

https://www.bfr.bund.de/en/press_information/2023/07/wild_garlic_confusion_often_leads_to_poisoning-310525.html

[3] Razinger, Gasper, Gordana Kozelj, Vojka Gorjup, Damjan Grenc, and Miran Brvar. 2021. "Accidental poisoning with autumn crocus (*Colchicum autumnale*): a case series". *Clinical Toxicology* 59 (6): 493-99.

<https://doi.org/10.1080/15563650.2020.1832234>.

[4] ANSES news item of 19 April 2023 "Confusion between autumn crocus and wild garlic can lead to fatal poisoning". <https://www.anses.fr/en/content/actu-en-confusion-between-autumn-crocus-and-wild-garlic>