Wild mushroom enthusiasts, check what you have picked: mushroom poisoning report for 2016

Although wild mushrooms are popular delicacies, some species are nevertheless toxic or even fatal to humans. Recommendations on picking and consumption are regularly issued by the health authorities [1]; these include getting a specialist (pharmacists, mycology associations) to check the specimens you have picked in the event of any doubt, to avoid confusion between edible and toxic species; avoiding picking near polluted sites (roadsides, industrial areas, landfills); transporting the picked mushrooms in a basket and not a plastic bag; storing them in the refrigerator to avoid the growth of micro-organisms; and the importance of always cooking species containing thermolabile toxins.

Mushrooms mainly grow in summer and autumn, although some species appear in spring (morels), while others are found until winter (milk caps, chanterelles, etc.). However, their growth can vary greatly from one year to the next depending on weather conditions (rainfall, relative humidity, temperature, light). Some mushrooms may start growing in July, or not until September-October. In general, mushrooms start growing two weeks after an increase in rainfall and a drop in temperature.

Surveillance of mushroom poisonings, for each second half of the calendar year, was set up in 2010 by the French Institute for Public Health Surveillance (InVS[1]) in conjunction with the network of French Poison Control Centres (PCCs). Its implementation was continued by ANSES after responsibility for coordinating toxicovigilance was transferred from the InVS to ANSES on 1 January 2016. This surveillance focuses on the weekly number of poisoning cases from weeks 27 to 52 (beginning of July to end of December) and the identification of severe cases, for alert and prevention purposes.

Since 2014, thanks to the national "Mycolist" network linking PCCs and mycology experts, fungi suspected of being responsible for poisonings have been identified when sufficient information is available (photographs, description, etc.); this rapid identification enables the PCCs' toxicologists to recommend the most appropriate treatment. And for the first time this year, information on how the mushrooms were obtained (foraged by individuals, purchased at a market or in a shop) was specifically studied, in order to better target possible measures to be taken: primary prevention among the population for foraged mushrooms, and management measures by the health authorities for mushrooms available for sale.

During the surveillance period, from July to December 2016, 864 cases of mushroom consumption (with or without symptoms) were reported to the PCC network. Of these, 616 were symptomatic, and in 603 of these cases the symptoms were found to be related, in varying degrees, to the mushrooms consumed.

Men and women were equally represented and ranged in age from 18 months to 90 years (median age 45.5 years).

Most of the mushrooms were picked by the consumers themselves (73%), while 6.1% (37 cases) were purchased at a market or in a shop (supermarket, grocery shop, etc.), either fresh or packaged. However, in 21% of cases, no information was provided on how the mushroom was obtained. This is because when a healthcare professional contacts a PCC about a poisoned patient, they do not always know the origin of the mushrooms at the time of the call.

In 79.4% of cases, the poisoning victims reported having consumed only one type of mushroom, while in 20.6% of cases a mixture had been eaten.

While almost all the people (97.7%) had been poisoned during a meal, 14 cases (2.3%) concerned accidental ingestion, almost exclusively by children (12 cases aged between 18 months and 7 years) or adults with mental disorders (2 cases): they had found a mushroom in a garden and had ingested it without the knowledge of their parents or carers.

On the other hand, 11 children under the age of 5 were poisoned by mushrooms served to them during a meal, even though the recommendations state that you should "never offer the wild mushrooms you have picked to young children if doubts persist about their edible nature and if they have not been identified by a specialist" [1].

Most poisonings occurred in October, with a peak of 84 cases in week 41, then in November (see Figure 1). Lastly, the proportion of poisonings associated with mushrooms purchased in shops was highest in early December (31.6% of cases in week 48, Figure 1), which can be explained by the limited growth of mushrooms at this time of year.

1. The French public health agency, *Santé Publique France*.

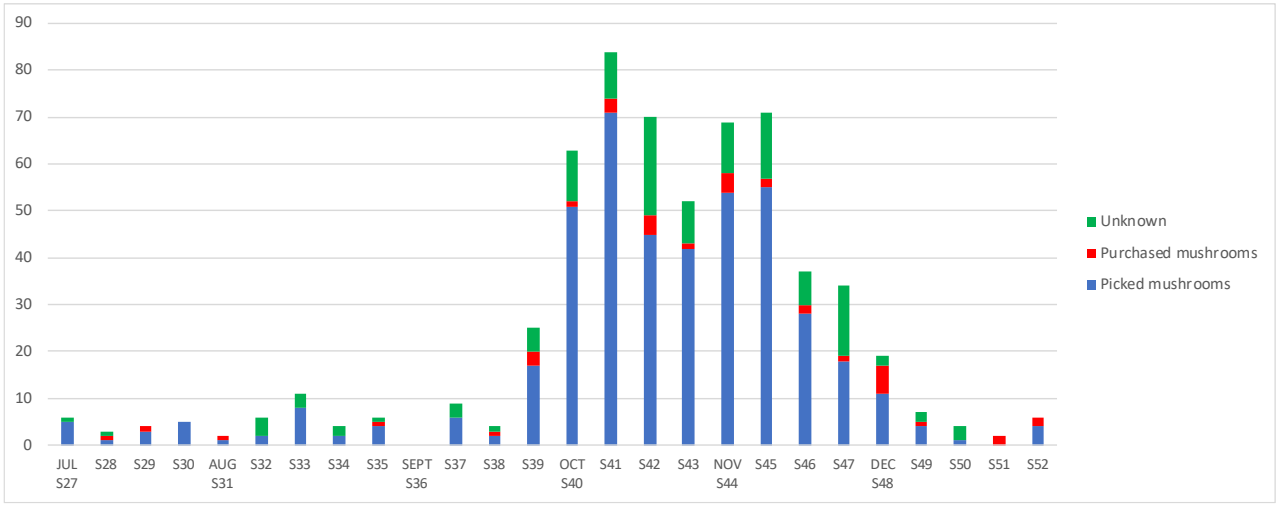

Figure 1: Weekly distribution of mushroom poisoning cases, by mode of procurement, reported to PCCs from July to December 2016 (Source: PCCs' information system)

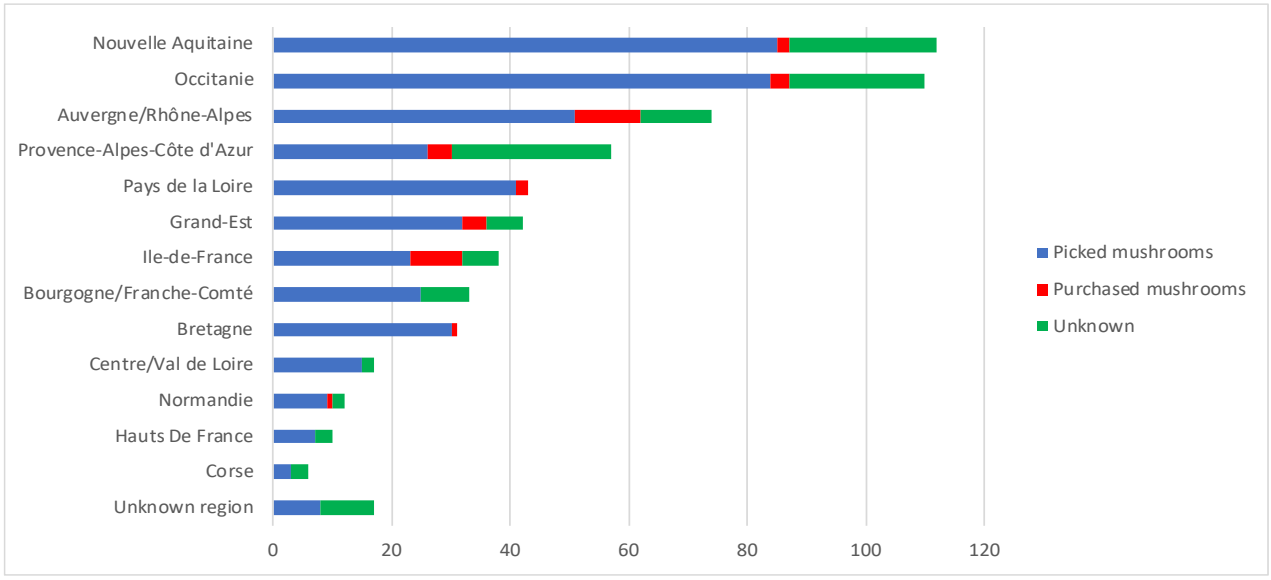

Figure 2: Regional distribution of mushroom poisoning cases, by mode of procurement, reported to PCCs from July to December 2016 (Source: PCCs' information system)

The regions most concerned by these poisonings were, in terms of gross number of cases, Nouvelle Aquitaine (18.6%), followed by Occitanie (18.2%) and Auvergne Rhône-Alpes (12.3%) (see Figure 2). The Ile-de-France region had the highest proportion of poisoning by mushrooms purchased in shops (23.7%) (see Figure 2).

The clinical signs or symptoms reported by the poisoning victims were mainly digestive, since 511 cases (84.7%) presented with at least one digestive sign (vomiting, nausea, diarrhoea or abdominal pain). General signs were also observed in 15.7% of cases (asthenia, tremors/shivers, discomfort, excessive perspiration, etc.), as well as neurological signs in 11.1% of cases (headaches, dizziness, etc.). Lastly, some people showed dermal signs (4.6%), mainly skin rash.

Nine cases were of high severity[2], with life-threatening symptoms. Amanita poisoning[3], responsible for the most serious cases of poisoning in France, was observed in six of them. However, no deaths were reported during the 2016 surveillance period.

Despite the investigation of poisoned individuals by the PCCs, in a quarter of cases the type of fungus involved (species or genus) could not be identified.

The mushroom species considered to be edible that gave rise to symptoms were cep, edible boletus, parasol, sweet tooth, clouded agaric, chanterelle, horn of plenty, fairy ring mushroom, field mushroom, etc. The poisoning may have been due to consumption of a specimen in poor condition, one that was undercooked or eaten raw, or to an "unverifiable" confusion with a toxic fungus species, despite the poisoned individual's reassuring description of the mushroom.

In addition, it is important to mention that some cases of poisoning were reported after the consumption of toxic, even potentially fatal species, identified subsequently by mycology experts (Jack o'lantern, *Entoloma sinuatum*, Satan's bolete, yellow stainer, death cap, European destroying angel).

This nationwide seasonal surveillance of mushroom poisoning helps with the dissemination of prevention messages each year during the mushroom season [2], which are relayed in the field by the press and regional mycology associations or societies. This surveillance, which since 2010 has relied on a network of experts with complementary skills (epidemiologists, toxicologists and mycologists), is increasingly precise and since 2016 includes information on how the mushrooms were obtained.

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References

[1]http://socialsante.gouv.fr/actualites/presse/communiques-de-presse/article/intoxications-liees-a-la-consommation-de-champignons-restez-vigilants
[2]http://invs.santepubliquefrance.fr/Actualites/Actualites/Intoxications-liees-a-la-consommation-de-champignons-au cours-de-la-saison-2015.-Point-de-situation-au-05-10-2015.-Donnees-consolidees-au-05-10-2015

TO FIND OUT MORE, VISIT:

On 04/04/2017, ANSES published an "opinion on a draft order on edible varieties of cultivated and wild mushrooms". This opinion identified a list of 146 cultivated and wild edible mushrooms, along with their edibility conditions and the risks of confusion with toxic species. This list is updated according to new scientific knowledge and the observations reported to the vigilance networks.
https://www.anses.fr/fr/system/files/ERCA2015SA0180.pdf

2. Severity assessed based on the Poisoning Severity Score (Persson HE, Sjöberg GK, Haines JA, Pronczuk de Garbino, J. J Clin Toxicol. 1998;36 (3):205-13).
3. A syndrome manifested by digestive, liver and kidney disorders, which can be fatal if left untreated. It is caused by certain *Amanita*, *Lepiota* and *Galerina*.