Banned rat poison causing death and serious poisoning in children in France

ANSES was recently alerted to the death of two very young children after they ingested an imported Chinese rat poison that is prohibited in France, yet seems to be widely used in French Guiana. Analysis of the product found a substance that has never been authorised in France: sodium monofluoroacetate, and not bromadiolone as indicated on the packaging. Other cases of poisoning with rat poison sold in the same packaging have been reported to poison control centres over the past five years, including two severe cases in young children. This is not the first time that deaths have been caused by banned products. ANSES and the poison control centres are therefore alerting consumers to the hazards of these products, and recommending they use only products authorised in France and comply with their conditions of use.

The alert

In April 2021, ANSES was informed by the network of poison control centres of the death of two one-year-old children in metropolitan France after they ingested rat poison brought back from French Guiana. The children had swallowed food impregnated with the product that they had found on the floor.

The product in question was a rat poison manufactured in China and smuggled from Suriname into French Guiana. The information on the packaging was written in Chinese and required a translator to confirm that the product was a rat poison and that the packaging indicated the presence of bromadiolone only, at a concentration of 0.5%. Bromadiolone is an anticoagulant whose use is strictly regulated in France. Presentations in the form of 0.5% concentrated liquids (as in this case) are now prohibited and were, even before their ban, reserved for professional rat controllers. However, poisoning by bromadiolone, a substance with delayed toxicity, could not explain the rapid deaths in these cases. Analysis of the product by an expert laboratory found no bromadiolone or other anti-vitamin K (AVK)[1] rat poison, but rather the presence of sodium monofluoroacetate, a substance that is not authorised in France.

It has severe acute toxicity: ingestion of even a small quantity can cause the death of an adult, let alone a low-weight person such as a child.

In French Guiana, over the period from 1 January 2017 to 30 August 2021, 32 cases of exposure to rat poison with packaging similar to that of the product that caused the two above-mentioned deaths were reported to poison control centres. The victims were mainly young children (median 2.4 years). In several cases the user had impregnated foodstuffs with the product. These included two high-severity cases (PSS3[2]) in two-year-old children suggestive of neurological and cardiac toxicity, four cases of moderate severity (PSS2), three of low severity (PSS1) and 24 asymptomatic cases (PSS0).

This suggests that these rat poisons manufactured in China may contain active substances different from those mentioned on the packaging. Some of them probably contained an AVK because some patients had a decrease in prothrombin levels, a characteristic marker of the action of this anticoagulant. Poisonings with neurological signs (mainly convulsions) were instead suggestive of the presence of a neurotoxic substance (strychnine, fluoroacetate, alphachloralose).

1. Substance with anticoagulant properties.
2. Clinical severity was assessed using the method for calculating severity in toxicovigilance, adapted from the "Poisoning Severity Score (PSS)" for acute poisoning. Persson HE, Sjöberg GK, Haines JA, Pronczuk de Garbino J. Poisoning severity score. Grading of acute poisoning. J Toxicol Clin Toxicol. 1998;36(3):205-13.

Products containing AVKs in concentrated liquid form are banned for sale to the public (access is restricted to professionals), and the only bromadiolone products intended for the public are solid baits containing a maximum of 25 ppm of active substance (i.e. a concentration of 25 mg/kg) and a bittering agent[3]. Similarly, the various neurotoxic rodenticides potentially causing some of these poisonings are highly regulated because they can cause severe accidental poisoning in children and adults, even if only small quantities are ingested. Only baits containing alphachloralose and a bittering agent are allowed to be sold to the general public.

The Paris Poison Control Centre[4] reported these cases to the Central Office for Combating Damage to the Environment and Public Health (OCLAESP), the French Guiana Regional Health Agency (ARS), and the Suriname Ministry of Health to alert them to the danger posed by this product and the associated risk of severe accidental poisoning.

Similar cases already reported to poison control centres

Unfortunately, this is not the first time that such a tragedy has occurred in France. A few years ago, two young children and a 20-year-old woman inhaled the fumes of CELPHOS®, a banned product, after it had been applied in their bedroom to control bedbugs. One of the children died as a result. The illegally-imported product had been purchased from a French market and contained aluminium phosphide, which caused the poisoning.

Controlling pests such as rodents, insects, bedbugs, etc. is generally difficult, especially since resistance to conventional products is developing. Powerless consumers then turn to parallel markets (on the internet or from street vendors) to purchase banned products containing particularly hazardous substances, without being informed of the danger.

A persistent risk of poisoning by banned products that has already been identified

A toxicovigilance study on reports to Poison Control Centres of cases of poisoning by plant protection products[5] containing active substances banned in France had shown that these products were nevertheless still in use. This could be due either to storage of old products at home after their ban came into effect, or fraudulent use through illegal importation from the border countries where they were sold (such as the introduction of products from Suriname into French Guiana).

A total of 408 cases of exposure (symptomatic or not) were recorded by the network of poison control centres over the period 2012 to 2016, 62% of which were accidental. The substances most often incriminated were dichlorvos, paraquat and aldicarb. The origin of the products was obtained for 60 cases (14.7%): 30 indicated home storage of old products and 30 came from illegal importation. Of the 408 identified exposure cases, 21 patients had died (all in a context of suicidal behaviour) and 51 patients experienced severe or life-threatening symptoms [1][2].

The results of the Pesti'home study [3] on the use of pesticides in the home, published by ANSES in 2019, showed that more than a quarter of households was still storing at least one plant protection product banned from sale. ANSES recommended that old, used or banned plant protection products should not be thrown in the bin or poured down the sink, but taken to a waste disposal centre or similar facility provided by the local municipal authorities.

Conclusion and recommendations

These tragedies illustrate the highly dangerous nature of products that may be effective in controlling pests but are banned in France because of their toxicity.

The regulations and controls put in place in Europe ensure the safety of the biocidal and plant protection products on the market and their use. On the other hand, banned products are either products that were never placed on the market because their safe use could not be guaranteed, or products that were withdrawn from the market due to new scientific data on their toxicity.

To avoid this type of accident, consumers should be reminded not to use banned products, whether they are brought in from abroad, or purchased on the internet or from street vendors. To avoid the risk of unwittingly buying a product containing a banned substance, consumers should preferably buy this type of product through conventional channels (shops, supermarkets, specialised shops). The exact ingredients, indications and safety information must appear on the box and must be written in the official language(s) of the country (in this case French). Any other situation should alert the consumer to the risk that the product is not authorised and is therefore dangerous.

3. Bittering agents are substances added to a product to give it a bitter taste and prevent ingestion.
4. The emergency telephone hotline for French Guiana is operated by the Paris poison control centre.
5. Plant protection products are designed to protect plants and crops and include insecticides and herbicides.

Moreover, even for products authorised in France, it is still essential to comply with the conditions of use mentioned on the packaging. Lastly, children are particularly vulnerable because of their low weight (they reach the toxic doses more easily even after ingesting just a small amount), their inability to perceive the risk and their propensity to put everything in their mouths. This is why it is essential to prevent them from accessing toxic products (not just rat poison and insecticides, but also household products, detergent tablets, etc.).

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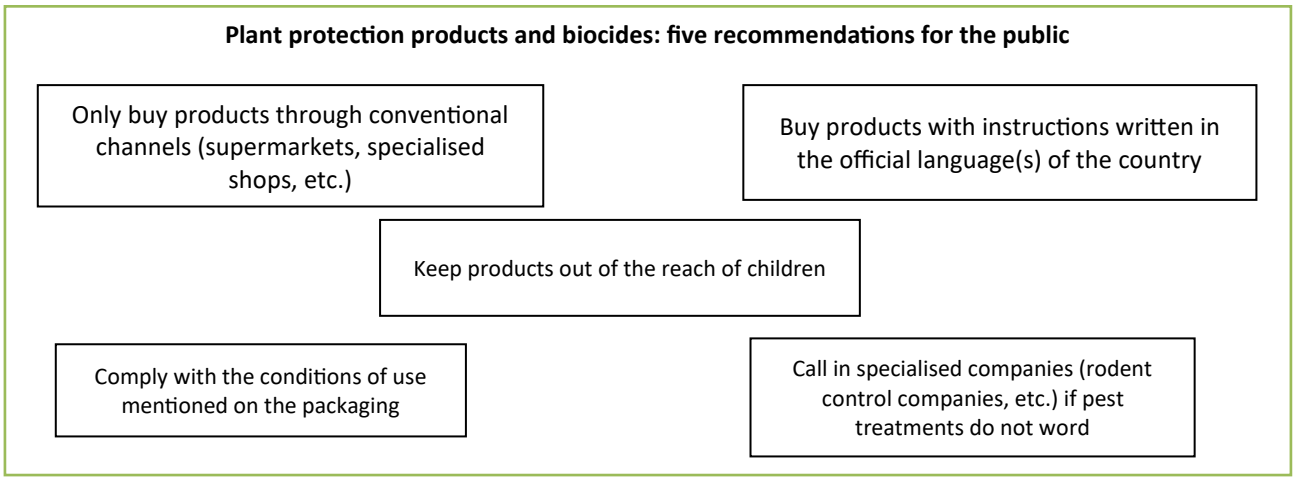

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