Nature's weapon

Plants have to withstand to many pests. Some – like the potato – produce substances for this purpose that can also be toxic to humans.

Consider it from a potato's point of view: humans are just another thing at the end of a long line of creatures that want to eat it. Even before this, the tuber fights against all kinds of pests and pathogens.

Not just a good spud

Potatoes are part of the solanaceous herb family. In addition to many valuable ingredients, they can contain "glycoalkaloids". These substances, that this plant family uses to protect itself from pests, include α-solanine and α-chaconine. They can leave a bitter taste and a burning sensation in the mouth when the concentration in the potato exceeds a certain amount. In mild cases, glycoalkaloids cause nausea, abdominal pain, vomiting and diarrhoea, sometimes accompanied by fever. Severe cases of poisoning can lead to consciousness and impairment of respiration, circulation and brain functions. However, there have hardly been any cases observed in the last 100 years.

There is no need for any serious worry these days: when properly grown, harvested and stored, potato varieties on the market usually contain α-solanine and α-chaconine only in quantities where health risks are unlikely. They are mostly found in the peel, and greenish coloured areas. Shoots and shoot buds ("eyes") also have a higher alkaloid concentration. For this reason, it is advisable to be careful when preparing potatoes: some of the alkaloids pass into the water during cooking – it should not be reused. Potatoes should be stored in a cool, dark and dry place. Old, dried, green, sprouting or damaged ones should not be eaten; green areas and shoot buds should be properly removed. The BfR also advises against small children eating the skins. ◘

More information:
BfR Opinion No. 010/2018 of 23 April 2018

A herb with adverse effects

Other candidates from nature's poison kitchen are pyrrolizidine alkaloids (PA for short). Some of these substances can damage the liver and animal experiments have shown that they can alter genetic material and cause cancer. PA are primarily produced by plants from the composite family, the borage family and the legume family. PA can find their way into herbal and rooibos teas and even into spice and herb mixtures via these wild herbs on areas where crop plants are grown. Even food supplements containing borage, coltsfoot or boneset , for example, may also contain considerable PA concentrations. Those who consume a wide variety of food and drink and demonstrate expertise in collecting herbs do not ingest too much PA. Incidentally, the butterfly species Utetheisa ornatrix uses the effect of PA for itself and, even as a caterpillar, deliberately eats plants that defend themselves against external attacks with PA. This makes the butterfly inedible for predators, such as birds or spiders.