



## Transmission pathways of the Hepatitis E virus

Infections with the hepatitis E virus (HEV) can result in acute liver inflammation. The number of reported cases of hepatitis E in humans in Germany has increased considerably in recent years. Research findings of the BfR in cooperation with other institutes have shown that HEV is widespread in domestic pigs and wild boars in Germany. The virus has also been sporadically found in deer. The distinct pathways by which the patients become infected with the virus are currently unclear. Direct virus transmission – for example from game to hunter – and indirect pathways via food made from infected animals are possible. Recent studies by the BfR show that HEV can be detected in various sausage products marketed by the German retail sector. What is still not known is whether the virus in these products is still infectious or whether it is destroyed during the production of the food. In the past, studies necessary to determine the infectivity were complicated by the fact that HEV is very difficult to cultivate in the laboratory. The initial results of tests performed using a novel cell culture system developed at the BfR indicate that HEV is heat-sensitive but can remain infectious for several weeks during cooling or at room temperature.

## Algal toxins in tropical fish

Food poisoning caused by ciguatoxins – algal toxins that can occur in tropical edible fish like barracuda, snapper or grouper – used to be found predominantly in the Tropics. As a consequence of the globalised food chains, however, cases of ciguatera are now occurring with increasing frequency in Europe, and since 2012 also in Germany. One of the problems is that no analytical method is currently available for the routine testing of fish for ciguatoxins. As there are only few laboratories worldwide that are able to detect ciguatoxins in fish, the “EuroCigua” of the European Food Safety Authority (EFSA) was launched with the aim of, among other things, improving analytical methods and measuring the prevalence of ciguatoxic fish in Europe. The BfR is supporting the project by providing data on cases of ciguatoxin poisonings in Germany. The algal toxins that make people ill accumulate in predatory fish via the ecological food chain and are very stable. They cannot be destroyed by heating or deep-freezing. When consumers eat the contaminated fish, poisoning accompanied by sometimes severe or long-lasting impairments to the nervous system may occur. Patients suffering from ciguatera experience normal cold stimuli as being unusually painful.



## Alkaloids in lupin seeds

Lupin seeds are in vogue, both for use in processed products and as a snack. However, these seeds can also contain toxicologically relevant bitter quinolizidine alkaloids (QA), which is why the BfR is assessing the corresponding health risks. The QA content of lupin seeds varies depending on their botanical and geographic origin. Due to their higher QA content, seeds from “bitter lupins” are not suitable for consumption unless they are treated accordingly by means of “debitting”, as these seeds can lead to poisoning symptoms in humans. Lupin varieties, from which seeds with low alkaloid content are derived from, are called “sweet lupins”. Sweet lupins are also suitable for consumption without debittering. There have been single cases of poisoning due to bitter lupin seeds in Germany. The BfR therefore advises producers to only bring whole lupin seeds on to the market that are suitable for consumption without additional debittering processes. Producers who make flour from lupin seeds should use low-alkaloid or adequately debittered seeds.