

Increase in ciguatera fish poisoning cases in Europe

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The substance ciguatoxin is only found in fish from tropical and subtropical seas. For some years now, cases of ciguatera have been reported with increasing frequency in Europe, in particular on the Spanish and Portuguese islands in the Atlantic but also in Germany. New information indicates that these toxins are increasingly prevalent in the Mediterranean. The global trade of imported fish is another reason for the increasing occurrence of ciguatoxin poisoning in Europe. "Fish should be a regular part of the diet", says BfR-President Professor Dr. Dr. Andreas Hensel. "Ciguatera is a very rare form of fish poisoning in Germany. The reported cases have been caused by the consumption of contaminated tropical predatory fish such as various snapper species." These include *Lutjanus bohar* (two-spot red snapper), *Lutjanus argentimaculatus*, *Lutjanus erythropterus* (crimson snapper) or *Pinjalo pinjalo*.

European scientists have combined their expertise in the EuroCigua project on the "determination of the incidence and epidemiological characteristics of ciguatera cases in Europe". The aim is to characterise the risks of ciguatoxin poisoning in Europe. The EuroCigua project is developing reliable methods for the identification and quantification of ciguatoxin in fish and microalgae in European waters. Under the umbrella of the European Food Safety Authority (EFSA), 14 further European organisations from six member states are involved in the project, including the BfR.

Ciguatoxin poisoning is triggered by metabolites of microalgae whose

natural habitat is in the coral reefs of the Caribbean as well as the Pacific and Indian Oceans. Herbivorous fish feed on these microorganisms. If the small fish are eaten by larger predatory fish, the ciguatoxins can accumulate and subsequently find their way into the human food chain. The initial focus of the EuroCigua project is to determine the frequency of ciguatera cases and ciguatoxic fish in Europe. Alongside this, the involved parties are developing and establishing new, reliable methods to detect the presence of ciguatoxin in fish and microalgae. The detection of ciguatoxins is putting high demands on the analytical methods, as the toxins are effective in very low concentrations. Moreover, these toxins occur in many different chemical structures—depending on the catch area. At the present time, no analytical methods are available for the routine testing of fish for ciguatoxins.

While ciguatera cases used to be confined to tropical and subtropical regions of the world, Spain and Portugal have been reporting outbreaks of ciguatoxin poisoning on the Canary Islands and Madeira since 2008. In Germany as well, there has been at least one ciguatera outbreak with up to 20 affected people every year since 2012. By means of the EuroCigua project, the scientists hope to gain a better understanding of the time-based and geographic distribution in European waters of the *Gambierdiscus* spp. microorganism responsible for poisoning. They are also investigating whether fish from EU waters might contain ciguatoxin.

One important part of the project is ciguatera prevention. The experts have created a leaflet outlining recommendations to reduce the risk of food poisoning in the affected regions. Fish should be a regular part of the diet, but the experts advise against eating the offal of tropical predatory fish, as they contain the highest [ciguatoxin](#) levels. Ciguatoxin is heat-stable and is therefore not destroyed during the preparation of [fish](#). It is colourless, odourless and tasteless and can therefore not be detected by the naked eye. Ciguatoxin poisoning is accompanied by a variety of clinical symptoms, including gastrointestinal and especially

neurological disorders such as the reversal of cold-hot sensitivity. When the first symptoms appear, the affected persons should seek immediate medical attention and inform the competent veterinary authority.

Provided by BfR Federal Institute for Risk Assessment

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