

Ciguarisk

Team

The partners belong to five research centers of three national institutions in Spain: the University Institute for Animal Health and Food Safety (IUSA), the Spanish Bank of Algae (BEA) and the Canarian Observatory of Harmful Algae (OCHABs) within the University of Las Palmas de Gran Canaria (ULPGC), the State Agency for the Higher Council for Scientific Research (IDAEA-CSIC) and the Institute of Agrifood Research and Technology (IRTA).



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CIGUARISK is a research project...

which focuses on the evaluation of the possible risk of food poisoning by ciguatera in the Canary Islands and the Balearic Islands.

What is ciguatera?

Ciguatera is a food poisoning produced by the consumption of marine fish that contain ciguatoxins (CTXs).

What are ciguatoxins and what is their origin?

They are powerful neurotoxins that can cause general, digestive, cardiac and neurological symptoms. CTXs are produced by various species of microalgae of the genera *Gambierdiscus* and *Fukuyoa*, and can be accumulated through food webs. Although these harmful microalgae are typical of tropical regions, it has been observed that in recent years their geographic distribution is wider, also being found in temperate regions.

Ciguatoxin-producing microalgae in Europe

The first indigenous outbreak of ciguatera on European coasts was reported in 2004 in the Canary Islands. In the Mediterranean Sea, no cases of ciguatera have been published, but the presence of ciguatoxin-producing species of *Gambierdiscus* and *Fukuyoa* has been reported in the Balearic Islands as well as in Cyprus and Crete have been described.

Objectives of the project

Within this project, CIGUARISK, we want to know the distribution and abundances of *Gambierdiscus* and *Fukuyoa* in the two study areas (Balearic and Canary Islands) and evaluate whether or not they produce CTXs. When CTX are detected, the CTXs analogues they produce will be determined and whether they are transformed through food webs. This will allow us to better advise the fishing productive sector and protect the consumer.

To do this, we ask the following questions:

-In what habitats and times of the year are these harmful microalgae found in the Canary Islands and the Balearic Islands? And what is their abundance?

-Can we detect CTXs in some of the study species? If there is a positive case, what CTX analogues are present and how do they change through food webs?

-How do CTXs bioaccumulate in fish? Do the fish show any behavioral changes? To answer these questions, a controlled laboratory test will be carried out where the feeding and behaviour of the fish will be evaluated.

With all the information obtained through this project, we will carry out an integrated assessment of the possible risk in the study areas. Currently in the Canary Islands there is already a control laboratory for this group of toxins, while in the Balearic Islands CTXs have not been detected in fish and in the Mediterranean Sea no proven cases of ciguatera have been published.

Project duration

June 2020 - May 2023

Project structure

