

Aspects of interest on ciguatera in Cuba

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Abstract: Caribbean fishermen boast of being able to discover when a fish is “ciguato” (contaminated with ciguatera toxins) using own methods, as to carry out bioassay like to give a piece from the fish to a cat, verifying if a recently captured fish drops scales or if its eyes are voluminous or with little shine and which the fishermen believe vehemently that they are appropriate tests. Epidemiological records in the Cuban sample collect two Ciguatera Fish Poisoning (CFP) outbreaks due to fish consumption in the same region of the country associated with the ingestion of this fish species, at that time not well identified as *Caranx fallax*. There is an urgent need to identify economic techniques for the detection of different ciguatera toxin complexes included palytoxins and diarrhetic toxins in the polluted fish.

Key words: ciguatera, Caribbean fish, *Caranx latus*, economic impact, Cuba.

Introduction

For the whole Caribbean the fishermen according to the area have always spoken of the possibility to detect or to know when a fish is ciguato using locally-focused methods more than traditional for tossing the is intended to be eaten up to a cat, or observing if it drops its scales in the case of a recently fished animal or if the eyes are salient and other many procedures narrated by fishermen in a vehement way.

In San Andrés Island, Colombia, fishermen allege that they can recognize safely the “ciguato” picúa by the color of its blood.

They tell that after having captured it they make a longitudinal cut by the spine and if the blood comes out black, the animal is ciguato and they throw it away into the sea and of the contrary if it doesn't come out dark the fish can be eaten up with safety, because it doesn't have anything bad.

Undoubtedly all these popular methods are not sustained scientifically on solid or demonstrated bases so they don't surpass the anecdotic thing, however recently I had to listen from a well-known family about a case of intoxication that happened in the city of Trinidad (21°05′ - 21°15′ N, 79°45′ - 80°07′ W) (Figure 1), Cuba, where a family of fishermen ate “jurel” (horse-eye jack) (*Caranx latus*, Agassiz, 1831) and one hour after the ingestion the parents and the two children presented clear intoxication symptoms that were diagnosed and treated as ciguatera by the local medical authorities.

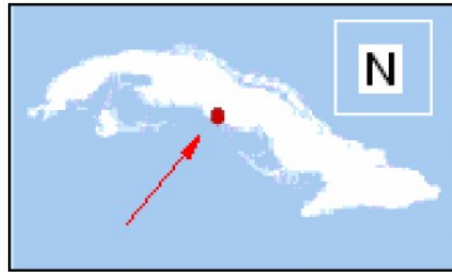


Fig. 1 The city of Trinidad in southern Cuba

Up to now there isn't anything outstanding if one keeps in mind that intoxication by ciguatera is a frequent wrongdoing in the Caribbean and in Cuba itself, independently to the fact that the country has an efficient epidemiological surveillance and of legal controls of fishing on the part of the Ministry of the Fishing Industry to avoid such events, but it is the case that the mentioned family had tossed it to a cat, the house pet, a fish chunk that as I could know, was of great size and its weight was superior to 3 Kg and it had ingested it without any trouble, neither rejection and after one and a half hour when the family already was enjoying the food that was prepared with horse-eye jack, for more than 30 minutes the cat began to show clear symptoms of uneasiness and apparent inconveniences with a non-habitual behavior for the animal. This behavior of the cat ended in vomiting the food, on the part of the feline, but for the family it was late and there was nothing else to do but to wait for the reaction in them that in a little time became evident. The systems of public health corroborated from the symptoms presented that it was ciguatera so treatment was conducted to those intoxicated.

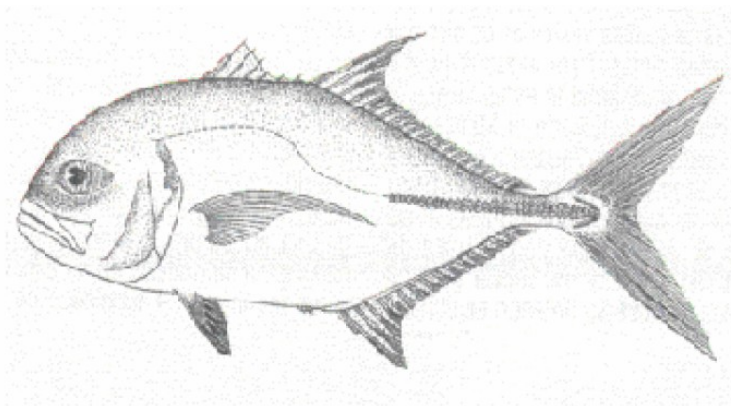


Fig. 2 Horse-eye jack or Gallego (*Caranx latus*)

In Cuba resolution # 457/96 of the Ministry of the Fishing Industry (MIP), prohibits for the whole national territory the capture, landing and commercialization of the species considered potentially as toxic and this case can be placed within the resolution due to its importance and I learned that the fish was a gift from another fisherman friend, that is to say outside of the legal system of commercialization.

In Puerto Rico, the bigger size horse-eye jacks and the barracudas have the bad reputation of being bearers of harmful quantities of the toxins that cause the poisoning known as ciguatera and therefore the selling of these fish is prohibited in the island.

Here one could see in a relatively evident way how a simple test could constitute a second alert, because the first one should have been the current resolution; nevertheless it is only the observation of an event which I narrate, without the aim of demonstrating anything and even less to encourage such non-scientific neither established practices.

Epidemiological and hygienic studies exist in the country that you/they tell about 2 outbreaks of food intoxication with the ingestion of this species of horse-eye jack, but incorrectly called *Caranx fallax* in the report, coming also from this area to the southern center of Cuba. This 1986 report informs about 26 people sick due to horse-eye jack consumption and about clinical and epidemiological characteristics of evident ciguatera. Coincidentally and as a curious fact for this study a toxicity bioassay of the fish samples is used in kittens. This tendency in toxicity studies was abandoned in the country, but other research used juvenile cats to detect ciguatera fish.

The so called *Caranx fallax* horse-eye jack in some epidemiological studies as the one mentioned of Rojas Valladares *et al.*, in 1986, the revision of Cáceres Manso and Hernández Álvarez (1997) the revision of the one of Alonso Cordero *et al.* (2006), they receive a wrong identification as the correct name of the species reported for Cuban waters is *Caranx latus* (Figure 2), from the *Carangidae* family and it is known with the common name of jurel or "gallego". This family has other two species in the Cuban platform described and prohibited by resolution of the Ministry of the Fishing Industry (MIP 457/96) that are the "cibi amarillo" (yellow jack) (*Caranx bartholomaei*) and the "tiñosa" or "tiñosa prieta" (black jack) (*Caranx lugubris*), but that they don't offer possibilities of confusion for the fishermen. As for other species of the family described as potentially toxic there are the "jiguagua" (common jack) (*Caranx hippos*) and the "cibi carbonero" (bar jack) (*Caranx ruber*) (MIP 457/96; Baisre Álvarez, 2004).

In Cuba resolution # 457/96 of the Ministry of the Fishing Industry, prohibits for the whole national territory the capture, landing and commercialization of the species considered potentially as toxic, nevertheless ciguatera continues being a latent phenomenon because between 2001 and 2006, of 570 cases reported as intoxication with fishing products (Castro, 2007) 72% constitute ciguatera. Being also pointed out that the two species of more incidence were "picúa" (barracuda) and horse-eye jack with a 43 and 16% respectively.

Countries like Puerto Rico, United States and Cuba with the aim of protecting the consumer and public health have among their legislations provisions that prohibit the fishing and commercialization of a fish group that has been demonstrated as potentially toxic or of high

risk, but this unfortunately is not a majority in the region, where the lack of governments' information and **little regard** to important economic impacts have not given relevance to such control measures.

In Puerto Rico, the larger horse-eye jacks and the barracudas have the bad reputation of being bearers of harmful quantities of toxins that cause the poisoning known as ciguatera. The selling of these fish is prohibited in the island.

Ciguatera in the Caribbean continues being a problem of public health and of serious economic impact, mainly for countries of the area that don't have a well-structured medical system and aimed toward such alimentary intoxication, because the population and medical personnel's ignorance in some cases make them to mistake the symptoms with another sea products indigestion type. Science continues without being able to put into practice a viable and practical technique from manipulation up to costs to appropriately detect sick fish or those bearers of the biotoxins that cause ciguatera, even when one knows that it is very common that the intoxication is present as a consequence of a mixture of different biotoxins. The analyses for biotoxin determination as methods that allow a rational exploitation of the affected marine resources have not arrived yet, because the available ones are expensive and laborious and they are not possible to apply in a massive way to potentially toxic products, therefore it is not even glimpsed an industrial solution for the appropriate and sure exploitation of species of commercial value.

The IOC ANCA work group is worried concerning these problems in the region for more than one decade and it promotes among its objectives the popularization of basic aspects of the intoxication relative to the fish that provoke it, areas of greater risks and characteristic symptoms of the area of the Caribbean where there is a clear prevalence of intestinal symptoms, different to the Pacific area where those of neurotoxic character prevail.

For all this it is necessary to consider all the aspects that impact in this phenomenon and to deepen in the level of popular knowledge on the topic, in a way of reverting him in favor of the population and their public health with wide popularization campaigns to the coastal communities and the tourism at least in a prophylactic way.

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