

SOUTH PACIFIC COMMISSION

SEMINAR ON ICHTHYOSARCOTOXISM

(Rangiroa, French Polynesia, 16th - 22nd August, 1968)

COMMENTS ON SOME CASES OF CIGUATERA  
OBSERVED IN AMERICAN SAMOA

by

Dr. Ernest Thompson\*

INTRODUCTION

The Samoan group of islands lies in the South Pacific, the exact location being between 169 degrees and 173 degrees longitude West, and 13.5 degrees and 14.5 degrees latitude South. All the islands of the Samoan group lie in a line from East to West. The islands are of volcanic formation, except Rose Island which is of coral formation. The Samoan group consists of ten islands, four of which belong to Western Samoa and six to Eastern Samoa.

This paper will deal only with Eastern Samoa which, for the benefit of this writing, consists of five islands lying in an east-west direction; Ta'u being easternmost while Tutuila is farthest west.

The author will at times in the course of this writing use Samoan terms to identify certain seaweeds or fishes, the technical names of which are beyond the knowledge of the author at the time of this writing. This, of course, will not limit the search for that which needs to be uncovered.

DISCUSSION

It is probably well-known that at least three different types of fish poisoning have been established by laboratory studies (Tetraodon, Scombroid and Ciguatera poisoning). The author will, more or less, because of insufficient evidences and brief investigation, confine himself to Ciguatera, although there have been cases resembling Tetraodon poisoning which is caused by "eating the flesh or visceral organs of various species of puffer fishes,"(1) and Scombroid poisoning which is caused by "eating the flesh of tunas or mackerel-like fish which have been subject to pre-putrescent bacterial action."(2) The reason for this is that the author, from his limited search not only from cases recorded, but also from personal conversation with elders of certain villages, found that the red snapper (*Lutjanus Bohar*) seems to be one of the species of snappers (*Lutjanidae*) that is most implicated.

The seaweed AGA (Samoan term) grows on the reef throughout the year. Towards the middle of the year it begins to wither, only to bloom about the month of August. Towards the end of the year the AGA grows more abundantly, and upon it the MU (Samoan term), or red snapper (*Lutjanus Bohar*) feeds. This goes on through the beginning and towards the middle of the following year. The AGA is always poisonous. At the

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time of this paper, the author had not had the opportunity to thoroughly evaluate the nature of the toxic substance in the AGA by laboratory means. It is the intention of the author to resume this research in the future.

The AGA, fortunately, is found only in certain areas. On the easternmost part of the Manu'a group of islands (Ta'u), this seaweed is found more plentifully on the southern coast, whereas in Tutuila the AGA grows abundantly on the north coast of the western part of the island. Snappers caught on or about the mentioned areas are considered poisonous. However, there have been cases where the implicated fish caught in the deep sea inflicted effects of toxicity upon the consumers. The only explanation available is that those fish may have had their feed on or about the reefs, then moved on to the deep where they were caught, prepared and consumed.

The Samoans for ages tried several tests for toxicity, including the following:

- (1) The Fly Test. It was believed that flies will alight only upon the flesh of a fish that is not poisonous. However, there have been cases where flies alighted upon the flesh of a fish that afterwards cost the consumers days to recuperate.
- (2) The Coin Test. Fish were cooked with a coin embedded in the flesh. If the coin became discoloured (rusty), the fish was considered toxic and was fed to the dogs (or cats) to the dismay of the onlookers. It was often found that three hours to three days later the dogs (or cats) remained in the best, if not better than best, of health - to the disappointment of those who fed them the supposedly cursed flesh.

There seems to be only one fish poison test that remains effective, and that is the "Try-it-out" test. If you don't get it, the fish is good. If you do, well - there is no denying you shouldn't have taken it.

No amount of cooking will render a toxic fish non-toxic. Immediate evisceration will not reverse the toxicity of the flesh. The toxin is not a result of bacterial action or putrefaction.

Symptomatology varies. The usual time of onset of symptoms is about three to four hours post-prandial. Initial symptoms may be a tingling sensation or numbness of lips and/or tongue, nausea, vomiting, abdominal cramps, and general weakness. In more severe cases, there may be a pinprick sensation of the skin when it comes in contact with water. There may be dizziness and faintness. Mild hypotension is not uncommon. The author reports no fatality in the past four years within which time he concentrated his search. The author also knows of cases who developed more severe symptoms after mild ones on their first experience.

Treatment has always been symptomatic and fluid replacement. The author knows of no case where cortisone, vitamins or neostigmine therapy was resorted to.

Complete recovery is anywhere from four days to two weeks.

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(1) Yudkin, 1944; Halstead, 1959.

(2) Kawabata, et al., 1956; Kinata in Borgstrom, 1961.

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ABSTRACT

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The author wishes to point out the fact that at this point there is no specific method available to the people of Samoa by which they could recognize which fish is toxic, excepting of course the unfortunate "Try-it-out" test; that the toxin is thermostable and is not water soluble; that an attack of poisoning will not impart immunity; that the toxin is not the result of bacterial action or putrefaction; that the body's adaptive and defensive processes are slow in neutralizing or eliminating the toxin; and, finally, that the seaweed AGA (Samoan term) and the toxin it bears is to be further investigated.

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