

DB 15-945  
6:19

A B S T R A C T

CIGUATOXIN

Wataru Takahashi and Paul J. Scheuer

Hawaii Institute of Marine Biology  
University of Hawaii  
Honolulu, Hawaii

Ciguatoxin as isolated from the flesh of *Gymnothorax javanicus* is a labile yellowish oil with an LD<sub>100</sub> of 0.1 - 0.5 mg/kg (intraperitoneal injection in mice). It lacks distinctive ultraviolet absorption, but its infrared spectrum reveals the presence of hydroxyl and carbonyl moieties. Functionality tests fail to detect the presence of primary amino groups but indicate the presence of a quaternary amine moiety. Elemental analyses suggest an approximate empirical formula of C<sub>35</sub>H<sub>65</sub>NO<sub>8</sub> thus indicating a highly oxygenated molecule.

Mild acid or base hydrolysis liberates glycerol, fatty acids, water-soluble and organic soluble amine products. Gas-liquid chromatography reveals that the fatty acids are mixtures of which the major components are myristic, palmitic, palmitoleic, stearic, and oleic acids. High resolution mass spectral measurements of the water-soluble products indicate a large molecule with three nitrogen atoms. The organic soluble degradation product contains a quaternary amine function.

Oxidation followed by vigorous acid hydrolysis resulted in additional products. One of the fragments is non-nitrogenous and contains a linear hydro-carbon chain of about thirty carbon atoms. Another degradation product contains a quaternary amine moiety attached to a large alkyl group. A number of water-soluble amine fragments were also isolated. Chemical degradations and mass spectral measurements indicate that ciguatoxin is a large complex molecule in which the nature and exact number of nitrogen atoms are not yet known.

11

2004-05-01 00:00:00 2004-05-01 00:00:00 2004-05-01 00:00:00  
2004-05-01 00:00:00 2004-05-01 00:00:00 2004-05-01 00:00:00  
2004-05-01 00:00:00 2004-05-01 00:00:00 2004-05-01 00:00:00

[illegible]

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

1. The first condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 2. The second condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 3. The third condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 4. The fourth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 5. The fifth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 6. The sixth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 7. The seventh condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 8. The eighth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 9. The ninth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study. 10. The tenth condition is that the subject must be a member of the community. This is a necessary condition for the subject to be eligible for the study.