SOME REPRESENTATIVE COMPOUNDS ISOLATED FROM MARINE ORGANISMS
AEROPLYSININ-1
from the sponge  *Aplysina aerophoba*

AEROTHIONIN from the sponge *Aplysina aerophoba*

NITENIN
from the sponge *Spongia nitens*

*The first furanoterpene from marine organisms*

Tetrahedron, 27, 309 (1971)
OROIDIN
from the sponge *Agelas oroides*

The first bromoalkaloid from marine organisms

Chem. Comm., 1129 (1971)
SCALARIN
from the sponge *Cacospongia scalaris*

The starting point
of the "scalarane" sesterpenes

1972

*Tetrahedron*, **28**, 5993 (1972)
AXISONITRILE-1 – AXISOTHIOCYANATE-1
from the sponge *Axinella cannabina*

The first isonitrile and isothiocyanate from marine organisms

*Tetrahedron*, **29** 4259 (1973)
1975

CALYSTEROL
from the sponge *Calyx nicaensis*

A unique cyclopropene-containing sterol

*Tetrahedron, 31, 1715 (1975)*
CAULERPENYNE
from the green alga *Caulerpa prolifera*

The well-known ecotoxin of *Caulerpa* algae

AN UNBELIEVABLE ARRAY OF NEW DITERPENE SKELETONS FROM THE RED ALGA *Sphaerococcus coroponifolius* and a biogenetic hypothesis

1976/1988

J. Org. Chem. 50, 3982 (1985)
PROPOSED MECHANISM FOR THE BIOGENESIS OF DITERPENES IN SPHAEROCOCCUS CORONOPIFOLIUS

CLATHRIDINE
FROM THE SPONGE *Clathrina clathrus*

The first marine alkaloid Zn complex

*Tetrahedron, 45*, 3873 (1989); *46*, 4387 (1990)
INCISTEROLS
from the sponge *Dictyonella incisa*

Unique sterols deriving from a dramatic biodegradation of the sterol nucleus

PLAKOSIDE A and B from the sponge *Plakortis simplex*

Unique prenylated glycolipids with immunosuppressive activity


Plakoside A: \( R = \text{prenyl group} \)

Plakoside B: \( R = \text{prenyl group} \)
CARBOXYHOMOYESSOTOXIN from contaminated *Mytilus galloprovincialis*

A major toxin present in contaminated Adriatic mussels


from contaminated *Mytilus galloprovincialis*

A unique chlorosulfolipid with a dense functionalization of the alkenyl chain with eleven chlorine atoms

![Chemical structure](image)

CLIONASTATIN A - B
from the burrowing sponge *Cliona nigricans*

- First polyhalogenated steroids found in nature
- First halogenated androstanes found in nature

*Org. Letters, 6, 1633 (2004)*

From the comment of a *Organic Letters* REFEREE:

“Short of marinating the marine sponge in bleach after collection and before extraction, I cannot see how this structure can arises, biosynthetically. It challenges the conventional wisdoms of both the nature of halogenases responsible for introduction of Cl into isoprenoid carbon skeletons and the locus and detailed steps of nor-side-chain sterol biosynthesis within invertebrates”.
Thiaplidiquinones A–B may target the plasma membrane redox system in the same way that capsaicin and resiniferatoxin. They produce both a dramatic increase in the reactive oxygen species (ROS) generation and a fall in the transmembrane mitochondrial potential inducing cell death by apoptosis.
Vesparioside B
from the sponge *Spheciospongia vesparia*

The most complex glycosphingolipid isolated from a marine sponge to date

42-Hydroxy Palytoxin

Hawaiian Palythoa toxica

Chem. Res. in Toxicol, 22, 1851 (2009)