# Novel Polyacetylenes from the sponges *Petrosia* sp. and *Haliclona osiris*

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Long-chain acetylenes and polyacetylenes are widely recognized as a representative group of sponge metabolites. Although these compounds are found in a few families of sponges, sponge-derived polyacetylenes vary greatly in both chain-length and functional groups. Several spong-derived polyacetylenes exhibit potent bioactivities including antimicrobial, cytotoxic, antiviral, RNA-cleaving, and enzyme-inhibitory activities as well as brine-shrimp lethality. In our search for novel bioactive substances from the marine organisms, we collected a genus of *Petrosia* and *Haliclona osiris* from the Korean Waters and Guam, respectively.

Petrocortynes A-H and petrosiacetylenes A-D, novel long-chain polyacetylenes have been isolated from a sponge of the genus *Petrosia*. Petrocortynes A, B, and D are $C_{46}$ linear tetraacetylenes structurally related to petroformynes while petrocortyne C possessed an unusual $\gamma$-pyrone ring formed by an oxidative cyclization of a diacetylenic carbinol functionality. Petrocortynes E-H possess an additional allylic-hydroxyl group. Petrosiacetylenes A-D are highly symmetric $C_{30}$ linear polyacetylenes in that petrosiacetylenes C and D were isolated as unseparable mixtures of diastereomers. The structures of these compounds have been elucidated by combined chemical and spectral methods. Absolute stereochemistry has been determined by the modified Mosher's method. The compounds exhibited significant brine-shrimp lethality, RNA-cleaving activity, and/or moderate inhibitory against $PLA_2$ and $Na^+/K^+$ ATPase. Ten acetylenic enol ethers of glycerols including six new compounds and a linear acetylenic alcohol were isolated from the same sponge. Some of these compounds exhibited weak cytotoxicity against a human leukemia cell-line(K562).

Osirisynes A-F, highly oxygenated $C_{47}$ polyacetylenes have been isolated from the sponge *Haliclona osiris*. These compounds possess a diacetylenic carbinol and an $\alpha$-acetylenic carboxylic acid as common structural features. The structures of osirisynes have been determined by combined spectroscopic methods. These compounds exhibited moderate cytotoxicity and inhibitory activities against $Na^+/K^+$-ATPase and reverse transcriptase(RT).