Exploring the Bioactive Components from Symbiotic Bacterium, *Microbulbifer variabilis* C-03 and Marine Fungus, *Nemania maritima*

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Taiwan is located at intersection of the tropical and subtropical area, in which the special geographical characteristics and climate make the abundant biodiversity of marine organisms, specifically the intertidal zones. Literature surveys marine invertebrates are regarded sources of bioactive metabolites with great potential for development as drugs. Till 2013, seven natural products from marine invertebrates have been approved by U.S. Food and Drug Administration (FDA) as anticancer, anti-viral and pain-relief agents, and so on. In many cases, some studies indicated these success entities should partially originate from marine microbes symbiotic with those invertebrates.

In our lab, we isolated symbiotic bacteria from marine invertebrates and evaluated their anti-microbial ability by the flip-flop method. Among them, we found that one symbiotic bacterium (Strain C-03) from the zoanthid *Palythoa* sp., collected in Wan-Li Tong, Pingtung, Taiwan, showed significant inhibitory activity against *Staphylococcus aureus* and *Bacillus cereus*. Based on 16S rRNA gene sequencing analysis, this strain was identified as *Microbulbifer variabilis* (C-03). Besides, a marine fungus, *Nemania maritime*, isolated from dead wood of *Kandelia candel*, also showed anti-microbial inhibitory effect against *B. cereus*. We plan to explore the bioactive components from both marine microbes by chromatographic methods. In the present poster, nine diketopiperazines, six nucleotides and one phenazine have been isolated from the ethyl acetate extract of *M. variabilis* C-03. And, two diphenyl ethers, one nucleotide, and one steroid were isolated from *N. maritime*. Among them, phenazine showed significant anti-microbial activity against to *S. aureus* and *B. cereus*, which is regarded as the principle of *M. variabilis* (C-03). More detailed studies on the bioactivity of these isolates are under investigation.