

# **2009 年臺灣國際科學展覽會**

## **優勝作品專輯**

**國家：Philippines**

**編號：070008**

### **作品名稱**

**Screening of Quorum-Sensing Inhibiting Compound  
From Surface-Associated Bacteria OF Halymenia  
darveilii**

### **得獎獎項**

**Microbiology      Third Award**

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# **Screening for Quorum Sensing Inhibitors from Surface-Associated Bacteria of *Halymenia durvillaei***

## **Abstract**

Surface-associated bacteria of *Halymenia durvillaei*, a seaweed, were isolated and screened for potential quorum sensing (QS) inhibition activity to identify compounds which can effectively interfere with QS communication among bacteria, for the reduction of the virulence of the pathogenic microorganisms.

Fifty-three bacteria with distinct colonial morphologies were isolated from the seaweed *Halymenia durvillaei* and assayed for potential QS inhibition using *Chromobacterium violaceum* 12472, a biosensor whose violet pigmentation is muted by quorum sensing inhibiting compounds; and *Chromobacterium violaceum* 026, another biosensor which exhibits violet pigmentation only in the presence of exogenous acylated homoserine lactones, the class of signal molecule used by *C. violaceum*.

All isolates were observed to decolorize CV12472, indicating putative QS-inhibiting compound production. However, only one isolate (I-53) was observed to induce violet pigmentation in CV026, indicating that QS-inhibitory action is through production of acylated homoserine lactones which bind and interfere with the receptors of CV026. Supernatants of I-53 and ten other isolates which induced darkened but not purple areas in CV026 plate were assayed for inhibition of *Pseudomonas aeruginosa* biofilm, and among them, six were positive in reducing biofilm formation.

The project was able to successfully come up with six isolates that produce QS inhibitors which, when identified, could be used as a source of QS inhibiting compounds

for the formulation drugs that can effectively control the virulence of pathogens that are currently classified as drug-resistant.

## 評語

- Interesting topic is presented.
- Baterial culture analysis can be further accesses.
- Triplicate data should be obtained with statistic analysis.