Bacteriostatic effect of marine microalgae on *Vibrio parahaemolyticus* responsible of acute hepatopancreatic necrosis disease in penaeid shrimp

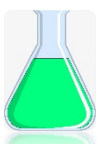
Sonia A. Soto-Rodriguez*[1], Paola Magallón Servín[2], Melissa López Vela[2]
[1]Centro de Investigación en Alimentación y Desarrollo, A.C. Mazatlán, México
[2] Centro de Investigaciones Biológicas del Noroeste, S.C. La Paz, México. *soto@ciad.mx

Background

Isochrysis sp., *Chaetoceros* sp. and *Tetraselmis* sp., are microalgae commonly used in shrimp larviculture. Although they have shown antibacterial activity against *Vibrio* sp., to date does not exist preventive or therapeutic approaches to control *V. parahaemolyticus* (Vp), the causal agent of acute hepatopancreatic necrosis disease (AHPND), a devastating shrimp disease. This works is a new approach to study the interaction between Vp (AHPND+) and relevant microalgae in larviculture.

Methods

Individual and co-culture assays



10^5 microalgae cells/ml

Chaetoceros calcitrans
Thalassiosira weissflogii
Tetraselmis suecica
Nannochloropsis sp.

+

1.0 x 10^5 CFU/ml

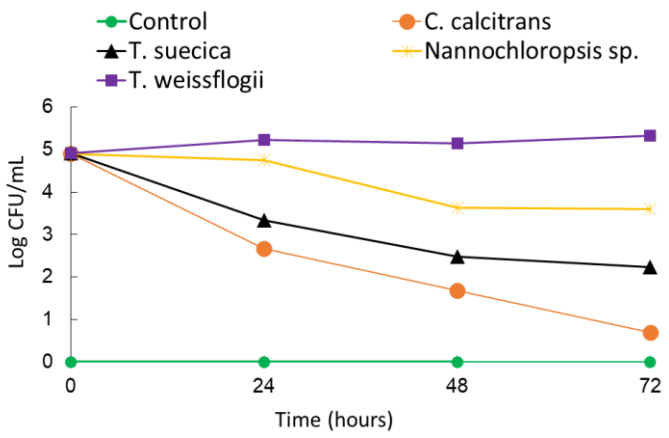
AHPND+ Vp M0904 | **Innocuous Vp M0702** | **Un-inoculated control**

Sampling at 0, 24, 48 and 72 hr

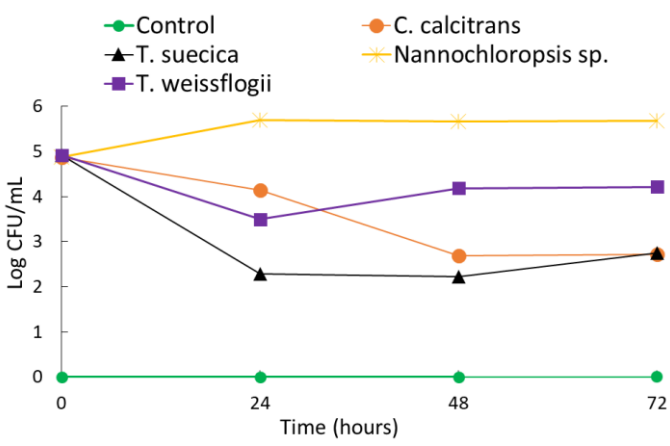
- Microalgae density (cells/ml).
- Bacterial growth on TCBS (CFU/ml).
- Percentage of total lipids and carbohydrates.

Results

Growth Vp M0904 in co-culture



Growth Vp M0702 in co-culture



Conclusions

- The growth of microalgae were not affected negatively by the *Vibrio* strains.
- *C. calcitrans* and *T. suecica* showed higher bacteriostatic effect on AHPND and innocuos Vp strains.
- No significant variations were found in the lipids and carbohydrate metabolism of microalgae inoculated with both strains.

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