

In vitro antibacterial activity of marine microalgae extract against vibrio harveyi

ABSTRACT

Marine microalgae may produce antibacterial substances. At the exponential phase of growth, four species of marine microalgae were examined for their potential to create secondary metabolites that limit the growth of *Vibrio harveyi*: *Nannochloropsis oceanica*, *Chaetoceros gracilis*, *Isochrysis* sp. and *Thalassiosira weissflogii*. *V. harveyi* is a pathogenic bacteria that can cause severe mortality and loss in aquaculture. Disc diffusion assay and co-culture assay were used to determine antibacterial activity. On TSA % NaCl media, the disc impregnated with microalgae and extracted with ethanol, methanol, saline water, and dimethyl sulfoxide (DMSO) was tested against *V. harveyi* at concentrations of 1.0×10^5 , 10^6 and 10^7 CFU mL⁻¹. The disc diffusion assay revealed that *N. oceanica* extracted with ethanol had the largest inhibitory zone against *V. harveyi*. Meanwhile, only *N. oceanica*, *Isochrysis* sp. and *T. weissflogii* reduced the growth of *V. harveyi* (10^5 CFU mL⁻¹) in the co-culture assay ($p < 0.05$). The current findings reveal that the hydrophilic chemicals in microalgae extract have antibiotic activity against the highly virulent *V. harveyi*, which causes vibriosis, a serious disease in farmed fish and aquaculture cultivation around the world.