

Preventive Effect of Three Kinds of Bacteriophages to Control *Vibrio coralliilyticus* Infection in Oyster Larvae

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Abstract : *Vibrio coralliilyticus* is a well-known pathogen of coral. It is also infectious to a variety of shellfish species, including Pacific oyster (*Crassostrea gigas*) larvae. *V. coralliilyticus* is remained to be a major constraint in marine bivalve aquaculture practice, especially in artificial seed production facility. Owing to the high mortality and contagious nature of the pathogen, large amount of antibiotics has been used for disease prevention and control. However, indiscriminate use of antibiotics may result in food and environmental pollution, and development of antibiotic resistant strains. Therefore, eco-friendly disease preventative measures are imperative for sustainable bivalve culture. The present investigation proposes the application of bacteriophage (phage) as an effective alternative method for controlling *V. coralliilyticus* infection in marine bivalve hatcheries. Isolation of phages from sea water sample was carried out using drop or double layer agar methods. The host range, stability and morphology of the phage isolates were studied. In vivo phage efficacy to prevent *V. coralliilyticus* infection in oyster larvae was also performed. The isolated phages, named pVco-5 and pVco-7 was classified as a podoviridae and pVco-14, was classified as a siphoviridae. Each phages were infective to four strains of seven *V. coralliilyticus* strains tested. When oyster larvae were pre-treated with the phage before bacterial challenge, mortality of the treated oyster larvae was lower than that in the untreated control. This result suggests that each phages have the potential to be used as therapeutic agent for controlling *V. coralliilyticus* infection in marine bivalve hatchery.

Keywords : bacteriophage, *Vibrio coralliilyticus*, Oyster larvae, mortality

Conference Title : ICFAS 2017 : International Conference on Fisheries and Aquatic Sciences

Conference Location : Bangkok, Thailand

Conference Dates : December 18-19, 2017