

PENGARUH KONSORSIUM BAKTERI INDIGENOUS DARI AREAL PERTAMBAKAN DI GRESIK TERHADAP KUALITAS AIR DAN SURVIVAL *Penaeus monodon* (Fabricius)

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui peran bakteri *indigenous* yang diisolasi dari air tambak di Desa Tajungwidoro, Kabupaten Gresik dalam memelihara parameter kimia air dan mendukung *survival Penaeus monodon*. Penelitian ini dibagi menjadi dua tahap yaitu: 1) isolasi dan identifikasi genus bakteri *indigenous* potensial proteolitik, amilolitik, lipolitik, denitrifikasi dan antagonis terhadap *Vibrio harveyi* yang selanjutnya dipakai sebagai penyusun konsorsium bakteri. 2) uji kemampuan variasi konsentrasi inokulum konsorsium bakteri *indigenous* potensial yang telah diperoleh, terhadap parameter kimia air dan *survival Penaeus monodon*. Penelitian ini merupakan penelitian eksploratif dan experimental. Hasil isolasi dan identifikasi bakteri potensial dianalisis secara deskriptif, sedangkan hasil perlakuan variasi konsentrasi inokulum konsorsium bakteri dianalisis secara statistik. Penelitian ini menghasilkan 6 isolat bakteri potensial yang digunakan sebagai penyusun konsorsium bakteri, yaitu meliputi 2 isolat bakteri potensial proteolitik dengan kode P1 dan P3 dari genus *Enterococcus*, 2 isolat bakteri potensial amilolitik dari genus *Lactobacillus* (kode A1) dan *Pediococcus* (kode A3), 1 isolat bakteri potensial lipolitik dengan kode L9 dari genus *Pediococcus* dan 1 isolat bakteri denitrifikasi yang juga mempunyai kemampuan antagonis terhadap *Vibrio harveyi* dengan kode N6 dari genus *Pediococcus*. Semua isolat bakteri potensial yang diperoleh dapat bersinergi satu dengan lainnya dan tidak patogen terhadap *Penaeus monodon*. Variasi konsentrasi inokulum konsorsium bakteri *indigenous* sejumlah $10^3 - 10^5$ cfu/mL secara statistik tidak berpengaruh terhadap parameter kimia air yang meliputi pH, kadar *DO* dan kadar amonia. Tapi, berpengaruh secara signifikan terhadap lebih rendahnya kadar *Total organic carbon (TOC)* dengan nilai Sig. = 0,035. Secara deskriptif konsentrasi konsorsium bakteri *indigenous* sejumlah $10^4 - 10^5$ cfu/mL mempunyai pengaruh yang paling baik terhadap penurunan jumlah total *Vibrio sp.*, sedangkan pada konsentrasi sejumlah $10^3 - 10^5$ cfu/mL berpengaruh pada peningkatan jumlah total bakteri heterotrof dan lebih tingginya *survival Penaeus monodon* bila dibandingkan kontrol yang tanpa menggunakan konsorsium bakteri.

Kata kunci : Konsorsium bakteri *Indigenous*, *Vibrio harveyi*, *survival Penaeus monodon*

ABSTRACT

The aims of this research was to know the role of indigenous bacteria which were isolated from pond water at the Village of Tajungwidoro at Gresik Regency, to maintain the chemical water parameters and support the survival of *Penaeus monodon*. The research was divided into two phases: 1) isolation and identification of indigenous potential bacteria with the ability proteolytic, amylolytic, lipolytic, denitrification and antagonistic against *Vibrio harveyi*, which were then used as the constituent of bacteria consortia. 2) test the ability of concentration variations of indigenous bacteria consortia inoculums (which have been obtained) on chemical water parameters and survival of *Penaeus monodon*. This research were exploratory and experimental research. The results of isolation and identification of potential bacteria were analyzed descriptively, while the results from treatment of concentration variations of indigenous bacteria consortia inoculums were analyzed statistically. This research obtained 6 bacteria isolates which were then used as a constituent of potential bacteria consortia, which includes 2 potential proteolytic bacteria isolates with code P1 and P3 from the genus of *Enterococcus*, 2 amylolytic potential bacteria isolates from the genus of *Lactobacillus* (code A1) and *Pediococcus* (code A3), 1 lipolytic potential bacterial isolate with code L9 from the genus of *Pediococcus* and 1 denitrification bacteria isolate that also have the ability to antagonistic against *Vibrio harveyi* with code N6 from the genus of *Pediococcus*. All potential bacteria isolates obtained can synergize with each other and were not pathogenic to *Penaeus monodon*. Statistically, the concentration variations (10^3 - 10^5 cfu/mL) of indigenous bacteria consortia inoculums were not affect to the water chemical parameters, including pH, DO and ammonia levels. But, significantly influence to the lower levels of total organic carbon (TOC) with value (Sig. = 0.035). Descriptively, the concentrations (10^4 - 10^5 cfu/ mL) of indigenous bacteria consortia have the best effect on reducing the number of total *Vibrio sp.*, whereas concentrations (10^3 - 10^5 cfu/mL) have the best effect on increasing the number of total heterotroph bacteria and higher of survival of *Penaeus monodon* when compared to control (without using a bacteria consortia).

Key words : Indigenous bacteria consortia, *Vibrio harveyi*, survival of *Penaeus monodon*