

INTISARI

Bakteri asam laktat (BAL) merupakan kelompok bakteri Gram positif yang dapat menghasilkan bakteriosin dan asam laktat serta dapat diisolasi dari jaringan udang dan ikan segar. Pantai selatan daerah Cilacap merupakan salah satu sumber udang krosok (*Parapenaeopsis sculptilis*) perairan dalam yang menyimpan potensi ditemukannya spesies baru BAL penghasil bakteriosin. Tujuan penelitian ini adalah untuk mendapatkan BAL penghasil bakteriosin dari udang krosok pantai selatan daerah Cilacap. Metode dalam penelitian meliputi isolasi, seleksi, kemampuan penghambatan terhadap bakteri penyebab penyakit ikan dan udang yakni *Aeromonas hydrophila* dan *Vibrio harveyi*, dan produksi bakteriosin oleh isolat terpilih. Isolasi dilakukan pada sampel badan, kepala, dan usus udang dengan metode *pour plate* medium MRS yang ditambah CaCO_3 , koloni dengan zona bening disekitar koloni merupakan isolat BAL. Seleksi dilakukan atas dasar kemampuan isolat membentuk zona bening, *bioassay test* terhadap bakteri indikator *Pediococcus acidilactici* F11, dan kedua bakteri patogen terhadap udang dan ikan. Produksi bakteriosin dilakukan terhadap isolat terpilih. Hasil penelitian menunjukkan diperolehnya 43 isolat asal udang krosok yang menunjukkan penghasilan zona bening pada medium MRS dan 25 isolat diantaranya mampu menghambat bakteri indikator *Pediococcus acidilactici* F11. Seleksi lanjutan secara kualitatif dilakukan atas dasar daya hambat bakteriosin terhadap *Aeromonas hydrophila* dan *Vibrio harveyi*. Hasilnya menunjukkan bahwa 11 isolat mampu menghambat salah satu atau kedua bakteri patogen indikator, dan isolat B5, B7, dan B8 memberikan penghambatan terbaik diantara isolat uji. Isolat B8 dipakai sebagai kandidat uji kuantitatif terhadap kedua indikator patogen dan produksi bakteriosin. Produksi oleh isolat B8 pada skala erlenmeyer menghasilkan bakteriosin sebanyak 4000 AU/ml pada jam ke 28.

Kata Kunci: isolasi, seleksi, produksi, bakteriosin, BAL, dan udang krosok

ABSTRACT

Lactic acid bacteria (LAB) are a group of Gram-positive bacteria that can produce bacteriocin and lactic which can be isolated from fresh fish and shrimp tissue. The Southern Coast of Cilacap is a source of deep water rainbow shrimp (*Parapenaeopsis sculptilis*) which has the potential for the discovery of new bacteriocin-producing LAB species. The purpose of this study was to find out bacteriocin-producing LAB from rainbow shrimp. The research methodology includes isolation, selection, ability to inhibit fish and shrimp pathogens, such as *Aeromonas hydrophila* and *Vibrio harveyi*, and bacteriocin production by selected isolate. Isolation was carried out on body, head, and intestine part of shrimp by using pour plate method with MRS medium added with CaCO₃, which produced colony with clear zone around it. Selection was carried out based on the ability of the isolates to form clear zone, bioassay test against indicator bacteria *Pediococcus acidilactici* F11, and both fish and shrimp pathogens. Bacteriocin production was carried out by selected isolate. The results of experiment showed 43 LAB isolates found from rainbow shrimp which showed clear zone production in MRS medium and 25 among of them were able to inhibit the indicator bacteria *Pediococcus acidilactici* F11. Further qualitative selection was carried out based on bacteriocin inhibition against *Aeromonas hydrophila* and *Vibrio harveyi*. The results of experiment showed that 11 isolates were able to inhibit one or both of the pathogenic indicator bacteria, and isolates B5, B7, and B8 gave the best inhibition among the tested isolates. Isolate B8 was used as a quantitative test candidate against pathogenic indicator bacteria and bacteriocin production. The bacteriocin production by isolate B8 on erlenmeyer scale produced bacteriocins of 4000 AU/ml at 28 hours.

Keywords: isolation, selection, production, bacteriocin, LAB, and rainbow shrimp