

INTISARI

Bakteri asam laktat (BAL) merupakan kelompok bakteri yang mampu menghasilkan asam laktat dan bakteriosin. Bakteri asam laktat (BAL) dapat ditemukan di tanah, air, saluran pencernaan hewan, saluran pencernaan manusia, makanan dan produk fermentasi. Penelitian ini bertujuan untuk mendapatkan isolat BAL penghasil bakteriosin dari udang Jerbung (*Fenneropenaeus merguensis*) Pantai Depok, Bantul. Isolasi dilakukan dengan metode *pour plate* pada medium MRS agar yang ditambah CaCO_3 terhadap sampel usus, badan, dan kepala, isolat BAL ditandai dengan zona bening disekitar koloni. Seleksi BAL penghasil bakteriosin dilakukan terhadap bakteri indikator *Pediococcus acidilactici* LB42. Aktivitas penghambatan bakteriosin diuji terhadap bakteri penyebab penyakit udang dan ikan yaitu *Vibrio harveyi* dan *Aeromonas hydrophila*. Produksi bakteriosin dilakukan pada isolat terpilih. Hasil isolasi diperoleh 38 isolat BAL yang mampu membentuk zona bening pada medium MRS dan 10 isolat diantaranya mampu menghambat bakteri *Pediococcus acidilactici* LB42. Seleksi lanjutan dilakukan atas dasar daya hambat bakteriosin terhadap *Vibrio harveyi* dan *Aeromonas hydrophila*. Sembilan isolat mampu menghambat bakteri *Vibrio harveyi* dan *Aeromonas hydrophila* dengan penghambatan terbaik yakni isolat K26, K214, dan B35. Isolat K26 digunakan untuk uji kuantitatif terhadap kedua bakteri indikator patogen dan produksi bakteriosin. Isolat K26 mampu memproduksi bakteriosin sebanyak 5000 AU/mL dalam 24 jam inkubasi pada medium MRS.

Kata Kunci: Isolasi, Seleksi, Bakteri Asam Laktat, Bakteriosin, Udang Jerbung

Abstract

Lactic acid bacteria (LAB) are a group of bacteria capable of producing lactic acid and bacteriocins. Lactic acid bacteria (LAB) can be found in soil, water, animal digestive tract, human digestive tract, food and fermented products. This objective of study was to obtain bacteriocin-producing LAB isolates from Jerbung shrimp (*Fenneropenaeus merguensis*) at Depok Beach, Bantul. Isolation was carried out using the *pour plate* on MRS agar medium which was added with CaCO₃ from the intestine, body, and head samples, LAB isolates were indicated with a clear zone around the colony. Selection of bacteriocin-producing LAB was carried out based on the indicator bacteria *Pediococcus acidilactici* LB42. The bacteriocin inhibitory activity was tested against bacteria that cause disease on shrimp and fish, namely *Vibrio harveyi* and *Aeromonas hydrophila*. Bacteriocin production was carried out to selected isolates. The isolation results showed that 38 LAB isolates that were able to form clear zones on MRS medium and 10 isolates among of them were able to inhibit the bacteria *Pediococcus acidilactici* LB42 as an indicator. Further selection was carried out based on the bacteriocin activity to inhibit against *Vibrio harveyi* and *Aeromonas hydrophila*. Nine isolates were able to inhibit *Vibrio harveyi* and *Aeromonas hydrophila* with the best inhibition, namely isolates K26, K214, and B35. Isolate K26 was used for quantitative tests on both pathogenic indicator bacteria and bacteriocin production. Isolate K26 was able to produce 5000 AU/mL of bacteriocin within 24 hours of incubation on MRS medium.

Keywords: Isolation, Selection, Lactic Acid Bacteria, Bacteriocin, Jerbung Shrimp