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The Effect of Carbon and Nitrogen Supplementation on Bacteriocin Production of Lactic Acid Bacteria from Pickled Yellow Bamboo Shoots (*Dendrocalamus Asper*)

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Six selected lactic acid bacteria (LAB) isolates from pickled Yellow Betung bamboo shoots were grown in the Mann Rogosa Sharpe-Broth (MRSB) media with different supplementation combination. The cell-free supernatant were evaluated for their ability to produce bacteriocin by adjusting its pH to 6.0 in order to remove organic acid effects. The bacteriocin activity was assayed by agar-well diffusion method. The inhibitory activity calculated in Activity Unit (AU in mm² mL⁻¹) of bacteriocins. The aims of this paper is to explore the effect of different medium compositions on bacteriocin production and its inhibitory activity against pathogenic bacteria (*Listeria monocytogenes* FNCC 0156, *Staphylococcus aureus* FNCC 0047, and *Escherichia coli* FNCC 0091). Supplementations of carbon and nitrogen sources induced production of bacteriocins. LAB isolates grown in media without supplementation could not produce bacteriocins. Growth of isolate D44 in the presence of 2% of glucose and 2% of yeast extract yielded the largest bacteriocin inhibitory activity levels of 3179 AU mL⁻¹ against *Listeria monocytogenes* FNCC 0156, 4663 AU mL⁻¹ against *Staphylococcus aureus* FNCC 0047, and 3109 AU mL⁻¹ against *Escherichia coli* FNCC 0091.

Key words: bacteriocin, lactic acid bacteria, pickled bamboo shoots, supplementation

Enam isolat bakteri asam laktat terpilih (LAB) yang diisolasi dari acar rebung bambu kuning ditumbuhkan di media Mann Rogosa Sharpe-Broth (MRSB) dengan kombinasi suplementasi yang berbeda. Supernatant bebas sel diatur pH menjadi 6,0 untuk menghilangkan efek asam organik dan dievaluasi aktivitas bakteriosinnya. Aktivitas bakteriosin diuji dengan metode difusi agar-well. Aktivitas penghambatan dihitung dalam Unit Aktivitas (AU dalam mm² mL⁻¹) bakteriosin. Tujuan dari penelitian ini adalah untuk mengeksplorasi pengaruh komposisi medium yang berbeda pada produksi bakteriosin dan aktivitas penghambatannya terhadap bakteri patogen (*Listeria monocytogenes* FNCC 0156, *Staphylococcus aureus* FNCC 0047, dan *Escherichia coli* FNCC 0091). Suplementasi sumber karbon dan nitrogen menginduksi produksi bakteriosin. Isolat LAB yang tumbuh di media tanpa suplementasi tidak dapat menghasilkan bakteriosin. Pertumbuhan isolat D44 dengan adanya 2% glukosa dan 2% yeast extract menghasilkan aktivitas penghambatan bakteriosin terbesar, yaitu 3179 AU mL⁻¹ terhadap *Listeria monocytogenes* FNCC 0156, 4663 AU mL⁻¹ terhadap *Staphylococcus aureus* FNCC 0047, dan 3109 AU mL⁻¹ terhadap *Escherichia coli* FNCC 0091.

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