

Ketahanan Hidup dan Kemampuan *Lactobacillus* (*L. plantarum* dan *L. casei* AP) Menghasilkan Short Chain Fatty Acid dan Conjugated Linoleic Acid dalam Medium Nira Kelapa

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INTISARI

Nira kelapa merupakan cairan bening yang diperoleh dengan cara menyadap tandan bunga kelapa yang belum terbuka. Nira mengandung gula, lemak, mineral, vitamin dan protein yang merupakan media terbaik untuk pertumbuhan mikrobial, sehingga berpotensi untuk dijadikan minuman probiotik. Penelitian ini bertujuan untuk melihat kemampuan tumbuh dan ketahanan hidup *Lactobacillus casei* AP dan *Lactobacillus plantarum*, serta kemampuan menghasilkan senyawa Short Chain Fatty Acid (SCFA) dan Conjugated Linoleic Acid (CLA) dalam medium nira kelapa. Pengujian kemampuan tumbuh *Lactobacillus casei* AP dan *Lactobacillus plantarum* dilakukan dengan melihat pola pertumbuhan bakteri pada jam ke-0, 3, 5, 7, 9, dan 12 dan menguji viabilitas sel dengan Total Plate Count (TPC). Konsentrasi glukosa dan kemampuan menghasilkan SCFA diukur dengan High Performance Liquid Chromatography (HPLC), sedangkan CLA diukur dengan Gas Chromatography - Mass Spectrometry (GC-MS). *Lactobacillus casei* AP dan *Lactobacillus plantarum* mampu tumbuh dalam medium nira kelapa sebesar 7,858 dan 6,399 log CFU/mL dari proses inokulasi sekitar 6 log CFU/mL, dan mampu mempertahankan viabilitasnya pada penyimpanan selama 14 hari pada suhu 4 °C. *Lactobacillus casei* AP dan *Lactobacillus plantarum* mampu menghasilkan SCFA berupa butir-butir, tetapi tidak dapat menghasilkan senyawa CLA. Dari penelitian ini, dapat disimpulkan bahwa baik *Lactobacillus casei* AP dan *Lactobacillus plantarum* mampu tumbuh dan bertahan hidup dalam medium nira kelapa selama 14 hari penyimpanan pada suhu 4 °C dan mampu mensintesis SCFA, sehingga fermentasi nira kelapa berpotensi dijadikan minuman probiotik.

Kata kunci: ketahanan hidup, SCFA, CLA, *Lactobacillus*, nira kelapa.

Survival and Ability *Lactobacillus* (*L. plantarum* dan *L. casei* AP) Produce Short Chain Fatty Acids and Conjugated Linoleic Acids in Coconut Neera Medium

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ABSTRACT

*Coconut neera is a clear liquid obtained by tapping coconut flowers that are not yet open. The neera contains sugar, fat, minerals, vitamins and protein which are suitable media for microbial growth, making it easier to make probiotic beverages. This study aimed to look at the growth ability and survival of *Lactobacillus casei* AP and *Lactobacillus plantarum*, and the ability to produce Short Chain Fatty Acids (SCFA) and Conjugated Linoleic Acids (CLA) in coconut neera. Testing the growth ability of *Lactobacillus casei* AP and *Lactobacillus plantarum* carried out by looking at patterns of bacterial growth at 0, 3, 5, 7, 9, and 12 hours and tested the cell viability by Total Plate Count (TPC). Glucose concentration and ability to produce SCFA were measured by High Performance Liquid Chromatography (HPLC), whereas CLA was measured by Gas Chromatography - Mass Spectrometry (GC-MS). *Lactobacillus casei* AP and *Lactobacillus plantarum* were able to grow in the coconut neera medium at 7.858 and 6.399 log CFU/mL from the inoculation process of about 6 log CFU/mL, and were able to maintain viability in storage for 14 days at 4 °C. *Lactobacillus casei* AP and *Lactobacillus plantarum* were able to produce SCFA in the form of butyrate, but cannot produce CLA compounds. From this study, it can be concluded that both *Lactobacillus casei* AP and *Lactobacillus plantarum* were able to grow and survived in coconut neera for 14 days of storage at 4 °C and were able to synthesize SCFA, so that fermented coconut neera has potential as a probiotic beverage.*

Keywords: *survival, SCFA, CLA, *Lactobacillus*, coconut neera.*