



PRODUKSI INOKULUM KERING *Lactobacillus plantarum* HL-15 UNTUK FERMENTASI BIJI KAKAO

INTISARI

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Indonesia adalah salah satu Negara pembudidaya tanaman kakao paling luas di dunia, namun kualitas biji kakao yang dihasilkan masih rendah. Salah satu penyebabnya adalah adanya kontaminasi mikrobiologi berupa jamur yang berpotensi menghasilkan mikotoksin berupa okratoksin A yang bersifat karsinogenik. *Lactobacillus plantarum* HL-15 mempunyai kemampuan menghambat pertumbuhan jamur sehingga dapat ditambahkan sebagai starter dalam proses fermentasi biji kakao. Penelitian ini dilakukan untuk memproduksi inokulum kering *Lactobacillus plantarum* HL-15 dan menguji stabilitasnya selama proses penyimpanan.

Produksi inokulum kering diawali dengan proses produksi biomassa, dilanjutkan dengan sentrifugasi untuk mendapatkan pelet lalu dilakukan pencampuran dengan bahan pengisi yaitu tepung beras dan tapioka dengan rasio biomassa: bahan pengisi = 1: 2 (v/b) kemudian dikeringkan menggunakan pengering kabinet pada suhu 38°C selama 24 jam. Inokulum kering dikemas secara kedap udara dalam kemasan *aluminium foil* dan disimpan pada suhu 4°C. Kemudian dilakukan uji viabilitas, uji kadar air, dan uji antijamur setiap 2 minggu selama 10 minggu.

Viabilitas inokulum kering dengan bahan pengisi tepung beras adalah 8,94 log CFU/g dengan kadar air 11,12% dan inokulum kering dengan bahan pengisi tapioka adalah 8,26 log CFU/g dengan kadar air 12,85%. Inokulum kering dengan bahan pengisi tepung beras dapat disimpan 10 minggu sedangkan inokulum kering dengan bahan pengisi tapioka dapat disimpan 8 minggu. Inokulum kering *Lactobacillus plantarum* HL-15 terbukti dapat menghambat pertumbuhan jamur *Aspergillus niger* YAC-9.

Kata kunci: Inokulum kering, *Lactobacillus plantarum* HL-15, antijamur, pengering kabinet, penyimpanan

PRODUCTION OF *Lactobacillus plantarum* HL-15 DRIED STARTER CULTURE FOR COCOA BEANS FERMENTATION

ABSTRACT

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Indonesia is one of the biggest producer of cocoa beans but the quality of the beans are low. A possible factor is that there is still a lot of microbiological contamination from fungi that can produce mycotoxins that are carcinogenic, one of them is ochratoxin A. *Lactobacillus plantarum* HL-15 is known to be able to inhibit the fungal growth so it can be added to cocoa beans fermentation as a starter. The objective of this research is to produce *Lactobacillus plantarum* HL-15 dried inoculum and observe its stability during storage.

Production of dried inoculum was started with fermentation process to produce cell biomass, then centrifuged to get the pellet. The pellet was mixed with filler (rice flour and tapioca) with a ratio pellet: filler = 1:2 (v/b) and then dried with cabinet dryer at temperature 38°C for 24 hours. The inoculum was vacuum packed in aluminium foil packaging and stored at 4°C. The cell viability, moisture content, and antifungal activity was measured every 2 weeks for 10 weeks.

Viable cells of dried inoculum with rice flour filler was log 8,94 CFU/g and its water content was 11,12% and dried inoculum with tapioca filler was 8,26 log CFU/g and its water content was 12,85%. Dried inoculum using rice flour as filler could be stored for 10 weeks and tapioca as a filler could be stored for 8 weeks. Dried *Lactobacillus plantarum* HL-15 was proved being able to inhibit the growth of *Aspergillus niger* YAC-9.

Keywords: Dried inoculum, *Lactobacillus plantarum* HL-15, antifungal, cabinet dryer, storage