

**PENGARUH PENAMBAHAN INOKULUM *Lactobacillus plantarum* HL-15
PADA FERMENTASI BIJI KAKAO TERHADAP PERTUMBUHAN
JAMUR SELAMA FERMENTASI**

INTISARI

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Di perdagangan internasional, harga biji kakao Indonesia rendah karena mutunya yang buruk. Salah satu penyebabnya yaitu kontaminan jamur pada produk biji kakao. Keberadaan jamur pada fermentasi biji kakao tidak diinginkan karena dapat menyebabkan kerusakan dan berpotensi menghasilkan mikotoksin. Bakteri *L.plantarum* HL-15 diketahui memiliki kemampuan menghambat pertumbuhan jamur. Beragamnya varietas kakao di Indonesia memungkinkan adanya perbedaan efek penghambatan pertumbuhan jamur. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penambahan inokulum *L.plantarum* HL-15 dalam menghambat pertumbuhan jamur pada fermentasi biji kakao varietas Criollo, Sulawesi, dan Lonsum serta kualitas biji kakao kering terutama total populasi jamurnya. Bahan yang digunakan dalam penelitian ini adalah: buah kakao varietas Criollo, Sulawesi, dan Lonsum dari kebun petani Gunungkidul Yogyakarta serta inokulum *L.plantarum* HL-15. Penelitian dilakukan dengan cara fermentasi dalam keranjang bambu berkapasitas 2 kg pada suhu ruang selama 5 hari dengan 6 variasi perlakuan yaitu: varietas Criollo tanpa penambahan inokulum; varietas Criollo dengan penambahan inokulum; varietas Sulawesi tanpa penambahan inokulum; varietas Sulawesi dengan penambahan inokulum; varietas Lonsum tanpa penambahan inokulum; dan varietas Lonsum dengan penambahan inokulum. Selama fermentasi, dilakukan analisa total populasi yeast, BAL, BAA, TPC dan jamur. Pada biji kakao kering dianalisa total populasi BAL, TPC, jamur, dan uji mutu biji kakao kering sesuai SNI 2323:2008. Penambahan inokulum *L.plantarum* HL-15 dapat menghambat pertumbuhan jamur pada fermentasi biji kakao varietas Criollo, Sulawesi, dan Lonsum dengan penurunan jamur pada varietas Lonsum lebih besar dibandingkan Sulawesi dan varietas Sulawesi lebih besar dibandingkan Criollo. Penambahan inokulum *L.plantarum* HL-15 selama fermentasi juga dapat mengurangi total populasi jamur pada biji kakao kering.

Kata kunci: fermentasi biji kakao, varietas Criollo, varietas Sulawesi, varietas Lonsum, *Lactobacillus plantarum* HL-15

THE EFFECTS OF *Lactobacillus plantarum* HL-15 INOCULUM ADDITION IN THE COCOA BEANS FERMENTATION TO MOLD GROWTH DURING FERMENTATION

ABSTRACT

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In international trade, Indonesian cocoa beans price are considered low due to their poor quality. One of the causes is mold contamination in cocoa bean products. The existence of mold in cocoa beans fermentation is undesired because it potentially produces mycotoxin. *Lactobacillus plantarum* HL-15 is known to have the ability to inhibit mold growth. Many kind of cocoa beans variety in Indonesia possibly can effect the ability to inhibit mold growth. The objective of this study are to know the effect of *L. plantarum* HL-15 inoculum additional to inhibit mold growth in the fermentation of Criollo, Sulawesi, and Lonsum varieties cocoa beans and the quality, especially on the total population of mold, of dried cocoa beans. The material used in this research are Criollo, Sulawesi, and Lonsum varieties cocoa fruits which harvested from Gunungkidul Yogyakarta; and *L. plantarum* HL-15 inoculum. The fermentation was conducted in a bamboo basket with a capacity of 2 kg of fresh cocoa beans, for 5 days at room temperature, designed in 6 treatments: (1) Criollo variety without inoculum additional; (2) Criollo variety with inoculum additional; (3) Sulawesi variety without inoculum additional; (4) Sulawesi variety with inoculum additional; (5) Lonsum variety without inoculum additional; dan (6) Lonsum variety with inoculum additional. During fermentation, the total population of yeast, LAB, AAB, TPC, and mold were analyzed. Dried cocoa beans is analyzed the total population of LAB, TPC, and mold; and it was analyzed in accordance with Indonesian National Standard for cocoa beans. The addition of *L. plantarum* HL-15 inoculum in the fermentation process can inhibit mold growth during fermentation of Criollo, Sulawesi and Lonsum cocoa beans with the decrease of total population of the mold in Lonsum variety is greater than Sulawesi and Sulawesi variety is greater than Criollo. The addition of *L. plantarum* HL-15 inoculum during fermentation can also reduce the total population of the mold on the dried cocoa beans.

Keywords: Cocoa beans fermentation, *Lactobacillus plantarum* HL-15, Criollo var., Sulawesi var., Lonsum var.,