**THESIS**

**THE EFFECT OF ADDITIONAL ON YEAST TAPE (*Saccaromyces cerevisiae*) AND VARIOUS LEAVES COVERING ON FERMENTATION OF COCOA FRUIT (*Theobroma cacao* L) TOWORD THE QUALITY OF DRY COOCO SEEDS**



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**ABSTRACT**

The Effect of Addition on Yeast Tape (*Saccaromyces cerevisiae*) and Various leaves Covering of Fermentation on Cocoa Fruit (*Theobroma cacao* L) toward Quality of Dried Cocoa Beans

The purpose of this study was to determine the response to the addition of tape yeast and various cover leaves in the fermentation process of quality cocoa beans (*Theobroma cacao* L) according to the Indonesian National Standard (SNI). This research was conducted at PTPN 12 Kediri and the Laboratory of Agrotechnology, University of Darussalam Gontor in April-August 2020. The research design used a factorial Completely Randomized Design (CRD). The first factor was the addition of tape yeast (R) which consisted of 5 levels, namely: no yeast (R0), the addition of tape yeast is 0.5% (R1), 1.0% (R2), 1.5% (R3) , and 2.0% (R4). The second factor was leaf cover (D) which consisted of 5 levels, namely: D1 (Banana Leaves), D2 (Teak Leaves), D3 (Taro Leaves), D4 (Papaya Leaves) and D5 (Bamboo Leaves). Observation parameters included fermentation temperature of cocoa beans, acidity (pH) outside of cocoa beans, number of beans per 100 grams, moisture content, sugar content, split test and, phytochemical qualitative test. Observation data were analyzed by using analysis of variance (ANOVA) and further tested with LSD 5%. The addition of yeast and various types of fermented cover leaves improved the quality of the cocoa beans. There was no interaction between the addition of tape yeast and various cover leaves in all observations of the quality of fermented cocoa beans. The addition of 2% yeast tape improved the quality of fermented cocoa beans on the parameters of fermentation temperature on day 1 (35.3 0C), pH (6.14), moisture content (8.5%), sugar content (1.8 brix) and brown seed color (97.2%). Cover leaf fermentation of cocoa beans on banana leaves increased the pH of cocoa beans (6.2)

Key words: Fermentation, cocoa beans, various leaves.

**References**

Atkinson, Catherine, Mary B., Christine F., McFadden C., (2010). The Chocolate and Coffee Bible. Hermes House. ISBN 978-1- 84477-385-5

 Alfred lodewyk patty.,2018. *analisis sifat fisik biji kakao pada berbagai metode fermentasi dan konsentrasi fermipan*

Agung, I.G.N., Sudjatha. Jamasuta dan Ganda-Putra. 1998*. Memperpendek masa fermentasi biji kakao dengan pemberian ragi tape*. Laporan Penelitian. Universitas Udayana, Denpasar.

Alamsyah, T.S. 1991. *Peranan fermentasi dalam pengolahan biji kakao kering*. Suatu Tinjauan. Berita Perkebunan, 1 (2) : 97-103.

Badan Standarisasi Nasional. 2008. Standar Nasional Indonesia Biji Kakao. SNI 01– 2323– 2008: Badan Standardisasi Nasional.

Baihaqi, Rita Hayati, Yusya’ Abubakar., *Pengaruh Fasilitator Fermentasi Dan Suhu Pengeringan Terhadap Kualitas Biji Kakao*, J. Floratek 11 (2): 134-142

Camu, N.; Gonzalez, A.; De Winter, T.; Van Schoor, A.; De Bruyne, K.; Vandamme, P.;Takrama, J.5.; Addo, S.K.; De Vuyst, L. 2008. Influence of Turning and Environmental Contamination on the Dynamics of Populations of Lactic Acid and Acetic Acid Bacteria Involved in Spontaneous Cocoa Bean Heap Fermentation in Ghana Applied and Environmental Microbiology, Vol. 74, No.1, pp.86-98.

Curiel, J.A., pinto., Marjani, B Filannino, P., Farris, Giovanni A., Gobbetti, M., and Rizzello,. C.G 2015. Lactic acid fermentation as a tool to enhance the antioxidant properties of Myertus communis berries. Jurnal Microbial cell wall 14: 45-59

Chair, W. 2014. *Riba dalam Perspektif Islam dan Sejarah*. Iqtishadia. Vol. 1 (1) :98-113.

David, J., R.P. Yusuf, dan D.A.S. Yudari. 2013. *Pengaruh Cara Pengolahan Kakao Fermentasi dan Non Fermentasi Terhadap Kualitas, Harga Jual Produk pada Unit Usaha Produktif (UUP) Tanjung Sari, Kabupaten Tabanan*. E-Jurnal Agribisnis dan Agrowisata. Vol. 2 (4): 191-203

Ditjenbun. 2012. *Pedoman Umum Gerakan Nasional Peningkatan Produksi dan Mutu Kakao Tahun 2013*. Ditjenbun Kementerian Pertanian.

Ganda-Putra, Harijono. Kumalaningsih dan Aulani’am. 2008. *Optimasi kondisi depolimerisasi pulp biji kakao oleh enzim poligalakturonase endojinus*. Jurnal Teknik Industri 9 (1): 24-34.

Gede Agus Ariefta, G.P. Ganda Putra, A.A. Dewi Anggren*, pengaruh penambahan ragi tape dan waktu fermentasi terhadap karakteristik pulpa biji kakao*,. Vol. 4.No. 2. Juni2016 (42-52)

Gerrard JA. Brown , Fayle. 2002. Maillard crosslinking of food proteins I: The reaction of glutaraldehyde, formaldehyde and glyceraldehyde with ribonuclease. Food Chemistry, 79: pp. 343–349

G Muthmainah,Ir. R Handry, MSi ,Ir. Maya M. Ludong, Ms*,. Kajian Fermentasi Biji Kakao (Theobroma Cacao L.) Menggunakan Fermentor Tipe Kotak Dindingganda Dengan Aerasi.* 2018

Hariyadi,B.W., M. Ali. dan N. Nurlina,. 2017. Damage Status Assessment Of Agricultural Land As A Result Of Biomass Production In Probolinggo Regency East Java. ADRI International Journal Of Agriculture, 1(1).

Hatmi, R. U, Rustijarno. (2012). *Teknologi Pengolahan Biji Kakao Menuju SNI Biji Kakao* 01-2323-2008. BPTP Yogyakarta.

Harborne, J.B, 1996, Metode Fitokimia, Cetakan II, diterjemahkan oleh Kosasih Patma Winata dan Iwang Soediro, ITB Press, Bandung, 70-72.

Kayaputri, I.L., D.M. Sumanti, M. Djali, R Indiarto dan D.L. Dewi. 2014. *Kajian Fitokimia Ekstrak Kulit Biji Kakao (Theobroma cocoa L.)*. Chimica et Natura Acta Vol. 2 (1) : 83-90.

Kristanto W H, Tamrin, Maria Erna,. 13 Maret 2017, *Pengaruh Penambahan Ragi (Saccaromyces Cerevesiae) Dan Jumlah Lubang Kotak Pada Fermentasi Buah Kakao (Theobroma Cacao L) Terhadap Mutu Biji Kakao Kering*

L.S Alfrida,. *Karakteristik Zat Warna Antosianin Dari Biji Kakao Non Fermentasi Sebagai Sumber Zat Warna Alam.,* Jurnal Industri Hasil Perkebunan Vol. 13 No. 1 Juni 2018: 63-70

Misnawi, 2006, *Pengaruh Konsentrasi Alkali dan Suhu Koncing terhadap Cita rasa, Kekerasan, dan Warna Permen Coklat, Jurnal Penelitian Kopi dan Kakao Indonesia,* Vol. 22 No 2, 119 – 135.

Melia Ariyanti,. 2008. *Karakteristik Mutu Biji Kakao (Theobroma Cacao L) Dengan Perlakuan Waktu Fermentasi Berdasar Sni 2323-2008*

Melia Ariyanti,. *Karakteristik Mutu Biji Kakao (Theobroma Cacao L) Dengan Perlakuan Waktu Fermentasi Berdasar* Sni 2323-2008

Nasution, Z., W. Ciptadi dan Laksmi. 1980. Pengolahan Coklat. Jurusan Teknologi Industri, Fateta – IPB, Bogor.

Oktarianti, D. dan M, Rohmah. 2017. *Pengaruh wadah dan lama fermentasi biji kakao ( Theobroma cocoa L.) terhadap sifat kimia dan sensoris bubuk kakao*. Jurnal Teknologi Pertanian Universitas Mulawarman. 12 (2) : 53-57.

Putra, G.P.G, Wartini. 2016. *Pengaruh Penambahan Ragi Tape Selama Fermentasi Terhadap Karakteristik Cairan Pulpa Hasil Sampingan Fermentasi Kakao untuk Produksi Cuka Makan*. Jurnal Ilmiah Teknologi Pertanian AGROTECHNO. 1 (1) : 46-50.

Ramlah, S.2014.*Pengaruh Suhu Penyangraian Terhadap Mutu Cokelat Sebagai Makanan Kesehatan Penurun Kadar Kolesterol Darah*. Jurnal Industri Hasil Perkebunan. Volume 9 No. 2. Desember 2014

Siti, N W., N. M. S. Sukmawati, I N. Ardika, I N. Sumerta, N. M. Witariadi, N. N. Candraasih Kusumawati, Dan N. G.K Roni,. Volume 19 Nomor 2 Juni 2016. *Pemanfaatan Ekstrak Daun Pepaya Terfermentasi Untuk Meningkatkan Kualitas Daging Ayam Kampung*.

Satryo, B.D, G.P.G. Putra dan I.W. Arnat, 2015, *Pengaruh Penambahan Ragi Tape Dan Waktu Fermentasi Terhadap Karakteristik Cairan Pulpa Hasil Samping Fermentasi Biji Kakao*. Jrnal Rekayasa dan manajemen Agroindustri, vol. 3 : 11-18.

Sudjartha, W. dan Wisaniyasa. 2002. *Pengaruh Lama peragian Tape Ketan terhadap konsentrasi Logam dalam Brem Muda*. Laporan Penelitian. Universitas Udayana, Bukit Jimbaran.

Sulistyowati dan Soenaryo. 1989. *Optimasi lama fermentasi dan perendaman biji kakao mulia. Pelita Perkebunan*, 5 (1) : 37-45.

Suprihatin. 2010. Teknologi Fermentasi. Jakarta:Unesa Press.

Thomas,Berberan, FA., Elena Cienfuegos J, Alicia Marin, Begona, 2007.

Tjitrosoepomo (1988) Bajeng, 2012. Klasifikasitanaman kakao.

Utami R.R, *Antioksidan Biji Kakao (Theobroma cacao) Pengariuh Fermentasi dan Penyangaraian terhadap perubahannya (Ulasan)*, Jurnal Industri hasil Perkebunan, Vol.13, No.2, desmber 2018, Hal. 75- 85.

Van, T.T.H., J. Zhao and G. Fleet. 2013. Yeasts Are Essential for Cocoa Bean Fermentation. International Journal of Food microbiology. 174 : 72-87. Jurnal Teknik Pertanian Lampung– Vol. 6, No. 1: 1-10

Wahyudi, T. Panggabean . Pujiyanto. 2008. *Panduan Lengkap Kakao*. Penebar Swadaya. Jakarta. 1-360.

Wenceslaus,H.K, Tamrin, Maria Erna, *Pengaruh Penambahan Ragi Dan Jumlah Lubang Kotak Pada Fermentasi Buah Kakao Terhadap Mutu Biji Kakao Kering.* Jurusan Teknik Pertanian,Fakultas Pertanian, Universitas Lampung. (13 Maret 2017).

Widayat, H.P. 2015. *Karakteristik Mutu Biji Kakao Aceh Hasil Fermentasi Dengan Berbagai Interval Waktu Pengadukan. Jurnal Teknologi dan Industri Pertanian Indonesia.* 7 (1) : 7-11.

Wink, M. 2011. Occurrence And Function Of Natural Products in Plants. www.eolss.net/sample-chapters/c06/e6-151-03-00.pdf.

Widyotomo S, 2001, *Karakteristik Biji Kakao Kering Hasil Pengolahan dengan Metode Fermentasi dalam Karung Plastik, Pelita Perkebunan*, 2001, 17 (2), 72 – 84.

Winarno, F.G. 1993. *Pangan, Gizi, Teknologi dan Konsumsi*. PT. Gramedia Pustaka Utama, Jakarta.