FINAL REPORT
INTERNATIONAL
RESEARCH COLLABORATION

Yeast Isolated from Tuak, A North Sumatera-Indonesia raditional Beverage, for Efficient Bioethanol Fermentation from Lignocellulosic Biomass

Principal Investigator
Hermansyah, PhD. (NIDN : 1911711001)
Prof. Dr. Satoshi Harashima

Dibiayai dari Daftar Isian Pelaksanaan Anggaran (DIPA)
omor 023-04.2.415112/2014 tanggal 5 Desember 2013 Sesuai dengan Surat rjanjian Pelaksanaan Pekerjaan Penelitian Kolaborasi Internasional UNSRI
Nomor 198/UN9.3.1/LT/2014 tanggal 28 April 2014

University of Sriwijaya
Osaka University
November, 2014

Research Title	Yeast Isolated from Tuak, North Sumatera Indonesia Traditional Beverage, for efficient bioethanol fermentation from Ligno-cellulosic Biomass
Principal Investigator	
a. Full Name	Hermansyah
b. NIP/NIDN	197111191997021001/ 1911711001
c. Sex	Male
d. Position	Lektor Kepala/ IIId/ Penata Tingkat I
e. Faculty/Department	Mathematics and Natural Sciences/ Chemistry
f. Research Center	-
g. Office Address	Jurusan Kimia, FMIPA, Universitas Sriwijaya Jl. Raya Prabumulih KM 32, Inderalaya, Ogan Ilir Sumatera Selatan -30662
h. Phone/ Facs/ E-mail	(711)-580269/ (711)-580056/ kimiamipaunsri@gmail.com
i. Home Address	Jalan Sukarela Lorong H.Cek Mid No.1326B Rt.21 Rw 7 KM7 Palembang 30153
j. Phone/ Facs/ E-mail	0821-82532570/ hermansyah@unsri.ac.id
International Collaboration	
a. Full name	Prof. Dr. Satoshi Harashima
b. Institution	Lab Molecular Genetics, Department of Biotechnology, Graduate School of Engineering, Osaka University
c. Research Duration	3 years

Research Budget :

Years	Proposed to UNSRI	Counter Budget from Collaborator
Year 1	IDR 150.000.000	JPY 3.000.000 (in kind)
Year 2	IDR 200.000.000	JPY 2.000.000 (in kind)
Year 3	IDR 200.000.000	JPY 2.000.000 (in kind)

International Collaborator

Satoshi Harashima

Prof.Dr. Satoshi Harashima

Indralaya-Indonesia, 21 - 11 - 2014
Principal Investigator,

Hermansyah, PhD.

Approved by
Head of Research Institute

Prof. Dr. H. M. Said, M.Sc.
NIP 19610812 198703 1 003

ABSTRACT

Some interested yeast strains were isolated from *Tuak*, traditional alcoholic beverage. These strains, HT4, HT5, and HT10 were capable to assimilate xylose as a carbon source. In the future, we try to apply these strains to ferment lignocellulosic biomass. Lignocellulosic biomass has been attracted and promised to be applied as raw material in producing chemicals, fuels, food ingredient since this biomass is abundance, renewable, and eco-friendly. Hemicellulose, an important polysaccharide in lignocelluloses comprises high content of xylose polymer (xylan), a short-branched heteropolysaccharides chain of mixed hexosans and pentosans which is glucose, D-xylose, L-arabinose, and other minor sugars. In this research, Isolated strains from tuak were *Candida tropicalis*, Isolated strains showed tolerance to xylose, arabinose, as well as high temperature (41 °C and 42°C). Isolated strains HT4, HT5, and HT10 were capable to produce ethanol using glucose as carbon source. Ethanol yields in high temperature (41 and 42 degrees) were less than 30 degree. Higher temperature produced lower ethanol concentration. Although isolated strains can grow on xylose carbon source medium, however they did not produce ethanol.

Keywords : *Candida tropicalis*, bioethanol, xylose, yeast, *tuak*