

**FINAL REPORT
INTERNATIONAL
RESEARCH COLLABORATION**



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

Principal Investigator

Hermansyah, PhD. (NIDN : 1911711001)

Prof. Dr. Satoshi Harashima

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Principal Investigator

a. Full Name Hermansyah
b. NIP/NIDN 197111191997021001/ 1911711001
c. Sex Male
d. Position Lektor Kepala/ IIIId/ 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, Indralaya, Ogan Ilir
Sumatera Selatan -30662
h. Phone/ Facs/ E-mail (711)-580269/ (711)-580056/ kimiampainsri@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

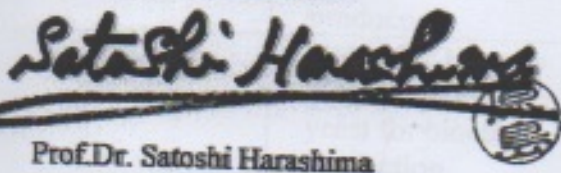
International Collaboration

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

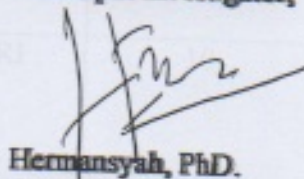
Research Budget :

| Years | Proposed to IINSRI | Counter Budget from Collaborator |
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| Year 1 | IDR 150.000.000 | JPY 3.000.000 (in kind) |
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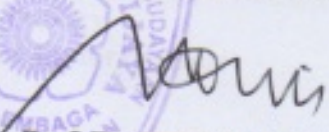
International Collaborator


Prof.Dr. Satoshi Harashima

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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*