

Bioconversion of Oil Palm Trunks Sap to Bioethanol by Different Strains and Co-Cultures at Different Temperatures

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ABSTRACT

Oil palm plantation (OPT) generates a large amount of agricultural waste in a form of oil palm trunk sap. The content of sap (juice) from OPT can be used to produce 'higher value things' including bioethanol. In this research, sap was utilised as the raw material for producing bioethanol using different strains. The relationship between temperature and shaking to the fermentation of OPT sap for bioethanol production was investigated. The experimental results showed that 30 °C was the best temperature for most strains except for *Pichia stipitis*. This study indicated that *Saccharomyces cerevisiae* is the most suitable strains to produce bioethanol from oil palm trunk sap, and thus demonstrated that OPT sap is a promising renewable energy crop.

KEYWORDS: bioethanol, fermentation, oil palm trunk, sap, *saccharomyces cerevisiae*