

## **Oil palm empty fruit bunch as alternative substrate for acetone–butanol–ethanol production by *Clostridium butyricum* EB6**

### **ABSTRACT**

Acetone–butanol–ethanol (ABE) production from renewable resources has been widely reported. In this study, *Clostridium butyricum* EB6 was employed for ABE fermentation using fermentable sugar derived from treated oil palm empty fruit bunch (OPEFB). A higher amount of ABE (2.61 g/l) was produced in a fermentation using treated OPEFB as the substrate when compared to a glucose based medium that produced 0.24 g/l at pH 5.5. ABE production was increased to 3.47 g/l with a yield of 0.24 g/g at pH 6.0. The fermentation using limited nitrogen concentration of 3 g/l improved the ABE yield by 64%. The study showed that OPEFB has the potential to be applied for renewable ABE production by *C. butyricum* EB6.

**Keyword:** *Clostridium butyricum*; Acetone butanol ethanol (ABE); Oil palm empty fruit bunch (OPEFB); Anaerobic fermentation; Biomass