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COMMERCIAL DEMONSTRATION OF SOLID FUEL AND LIQUID FERTILIZER FROM EMPTY FRUIT BUNCH EMPLOYING THE HYDROTHERMAL TREATMENT TECHNOLOGY

Bayu Indrawan[1], Tri Sesilia[1,2] and Kunio Yoshikawa[2]

[1]Center of Waste Management Indonesia, KSO Pengolahan Biomassa, Indonesia
[2]Tokyo Institute of Technology, Japan

This work aims to report the investigation on solid fuel and liquid fertilizer production from Empty Fruit Bunch (EFB) of palm oil employing the hydrothermal treatment technology (HTT) in Indonesia with commercial scale plant. The effects of HTT were investigated at temperatures of 220°C, 2.5MPa, by saturated steam supplied into the reactor and within 30 minutes holding time. While solid and liquid products were analyzed by micro- and macronutrient analysis, and germination test. The results showed that the HTT treated EFB has increased carbon content, lowered ash content, and lowered deposition tendency compared to the raw EFB. Moreover, the maximum of 0.84% of nitrogen, 21514 ppm of potassium and 1098 ppm of phosphorus in EFB were solubilised into the liquid residue which positively correlated with the temperature. The produced solid was found suitable as biomass (solid fuel), whereas the liquid product need improvement when applied as fertilizer due to low pH value, low N content, and low germination index. These results demonstrated the possibility of employing the HTT for producing solid fuel and liquid fertilizer, as well as nutrient recovery from EFB.

me@bayu.in