

A Green Method for Extracting More Crude Oil from Palm Oil Empty Fruits Bunches

TECHNOLOGY DESCRIPTION

This technology is a process to remove residual crude palm oil on the fiber surface of empty fruit bunch (EFB).

TECHNOLOGY FEATURES

The process is done by reducing viscosity of EFB and minimizing its diffusivity to the inner part of the fiber through a novel process named Hydro Solvent Assisted Extraction (HYSASE). The process produces more than 85% oil recovery. It uses steam and water which are available sources in the palm oil mill. The process avoids the use of any harmful and flammable chemical. The oil removal can be done within short time in which applicable for large amount of biomass.

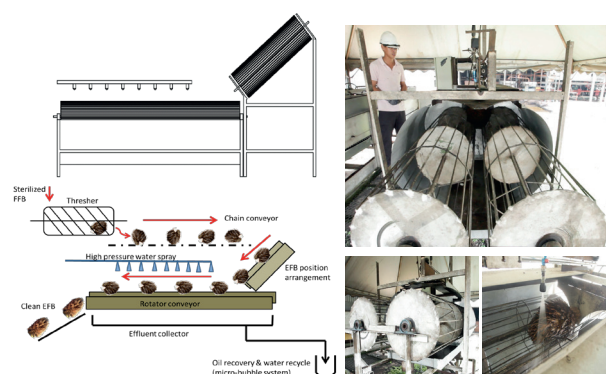
ADVANTAGES

- Using simple raw material
- Environmental friendly
- The residual oil can be utilized for other applications
- Economical viable

INDUSTRY OVERVIEW

Prospect: Palm Oil Industry

In the process of crude palm oil, a certain amount of oil can be lost in forms including biomass such as empty fruit bunches (EFB), mesocarp fiber, palm oil mill effluents (POME), and decanter cakes. Various methods have been tried to minimize oil loss such as mulching and composting, EFB pelletizing, and extraction of short and long fibers, but those methods prove not viable or environmentally safe. This invention relates to the application of thermodynamic processes in order to remove residual crude palm oil that are attached on the fiber surface of EFB by reducing its viscosity (oil can be easily released from the surface) and minimizing its diffusivity to the inner part of the fiber through a novel process named HYSASE (Hydro solvent assisted extraction). The new method is novel to recover the residual oil, using water and steam that are easily to be accessed in the mill and they are environmental friendly sources. The residual oil can be utilized for other applications (e.g. biodiesel, oleo chemical and etc.). Thus, this method can be economical viable to the oil palm milling industry to increase the revenue of the palm oil mill. The product is seen to be feasible for two main owners of palm oil plantations in Malaysia which are Sime Darby, and Felda Global Ventures Holdings (FGV). It is also possible to be relevant to the 149 palm oil-based SMEs in Malaysia.



Assoc. Prof. Dr.-Ing Mohd Noriznan Mokhtar
Faculty of Engineering