

BIO-FERTILIZER FROM PALM OIL BIOMASS AND POME SOLIDS BY MOBILE COMPOSTER

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Composting organic waste is a well-known practice for converting solid wastes into a useful fertilizer. Organic wastes represent a substantial amount of the community and agricultural wastes which include green waste, sewage sludge, food processing waste and palm oil milling wastes. In composting, there may be problems with stench, leachate, vermin and flies in particular sites, but the cost of transport would preclude moving the bulky low-value wastes to a 'better' place for composting. In addition, there may also be high losses of trace elements, minerals and other beneficial compounds by the inability to separate out and differently treat the components of the organic waste. The conventional composting technologies are only effective for the less lignified materials, e.g. leaves and stems, but are rather unsuitable for the more lignified stuff like oil palm empty fruit bunches (EFB). The constraint on moving the raw materials means that the composting should be done *in situ*, in the field where the wastes are generated, or where the compost is to be used so that only minimal transport is used.

There is therefore need for a mobile or moveable composting machine that can go anywhere to compost light agriculture wastes, even to remote areas.

MOBILE COMPOSTER

The mobile composter is a self-contained unit for composting *in situ* and on-demand. It is a mixer with a control unit for accelerated composting in an idealized 'designed environment' and is mounted on a 6 m (20 ft) trailer for mobility.

TECHNOLOGY FEATURES

- Uses thermophilic aerobic enzymes for rapid composting
- Able to process any type of organic waste
- No injected air
- The high temperature processing destroys pathogens
- Negligible stench
- Mounted on a two-axle trailer for high mobility
- Maximum capacity is 1000 kg per unit
- Production capacity of 1000 kg/24 hr

BENEFITS

- Rapid process, compost ready in 24 hr, allowing composting-on-demand concept
- Cost effective

SPECIFICATIONS

- Rapid composter dimensions: 4200 mm x 1460 mm x 3400 mm
- Capacity: 1000 kg
- Electricity: 30 kW, 415 VAC, 3-phase
- Trailer length: 6 m (20 ft)

ECONOMICS

- Equipment cost: RM 550 000, including trailer
- Operating cost: RM 100 per 1000 kg batch
- Expected payback period: RM 3.5 years

THE PROCESS

The process flow of bio-fertilizer production from palm oil mill effluent solid and EFB fibre using a mobile composter is shown in *Figure 1*.

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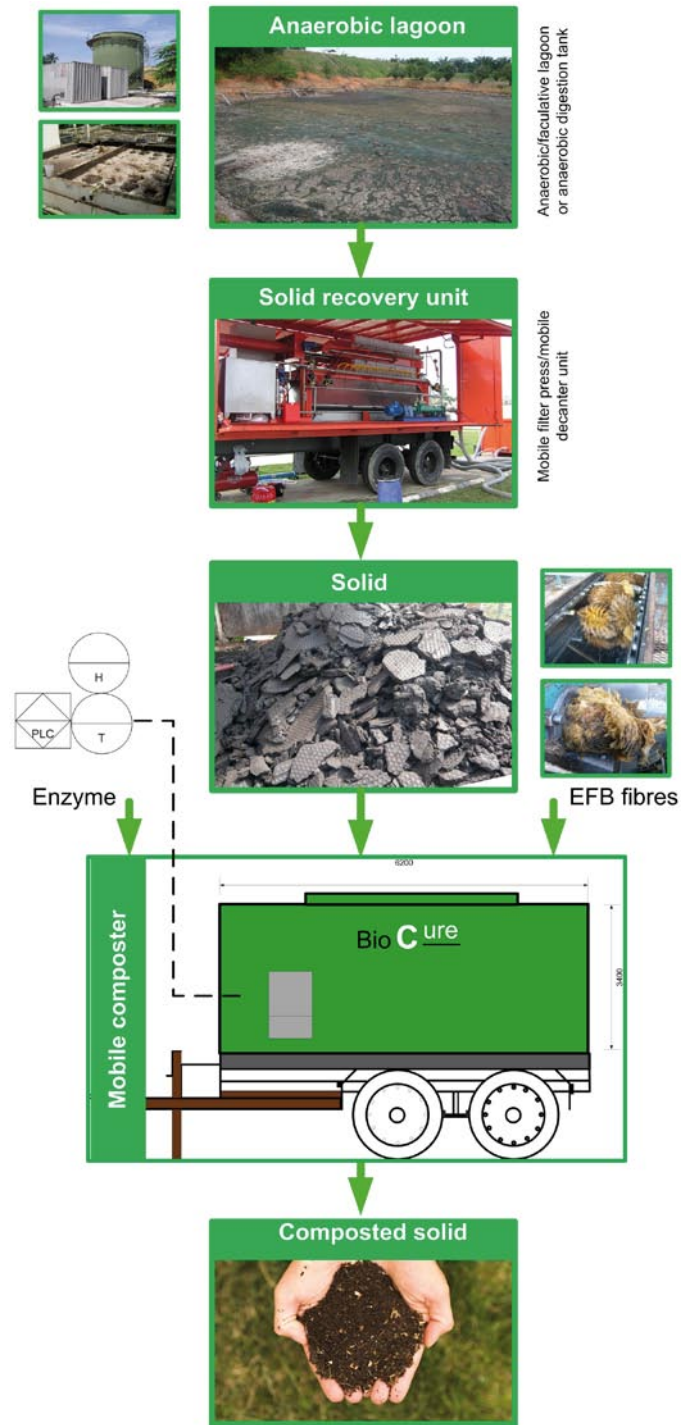


Figure 1. Process flow of bio-fertilizer production using a mobile composter.

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