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Minyak Jarak Pagar dan Bungkil Jarak *Jatropha Oil and Cake*

Minyak jarak pagar dapat diolah menjadi biodiesel melalui proses transesterifikasi minyak dengan pereaksi methanol (nisbah molar MeOH-minyak 6:1) dan katalis basa KOH 1,5%. Reaksi dilakukan dalam ketel reaksi berpengaduk dan reluks pada suhu pemanasan 65°C. Dalam pengembangan teknologi prosesnya telah dirancang prototipe unit pengempa biji jarak kapasitas 5 kg biji (40 kg biji per hari setara 14 liter minyak/hari), Unit ketel reaksi berkapasitas 20 liter minyak (80 liter minyak per hari, setara 64 liter biodiesel kasar per hari).

Hasil ikutan berupa bungkil biji dicetak menjadi briket dengan unit pencetak briket. Setelah dikeringkan briket digunakan untuk bahan bakar tungku.

Keunggulan :

- Teknologi ekstraksi minyak dengan pengempa hidrolik relatif sederhana, rendemen minyak 35% dan sisa minyak dalam bungkil 1-1,5%.
- Teknologi transesterifikasi minyak jarak pagar menjadi biodiesel kasar menghasilkan rendemen biodiesel 78%, memenuhi syarat mutu standar.
- Biodiesel kasar dapat digunakan sebagai pengganti minyak tanah pada kompor tekan dengan nilai kalor setara.
- Teknologi briket bungkil biji jarak pagar menghasilkan briket kering yang kompak dan padat untuk tungku.

Jatropha oil can be processed into biodiesel through a transesterification process with methanol reagent (MeOH - oil molar ratio of 6:1) and 1.5 % KOH alkaline catalyst. Reactions are performed in a large kettle provided with a stirrer and with a stable heating temperature at 65 °C. In the process of technology development, a prototype of a press has been designed with a capacity of 5 kg of Jatropha seeds (40 kg seed per day of oil equivalent of 14 liters/day). The kettle unit has a capacity of 20 liters of oil (80 liters of oil per day, or a rough equivalent of 64 liters of biodiesel per day).

The residue produced is an oil cake which is pressed into a briquette. A dry oil cake is used as fuel for the furnace.

Advantages:

- *The oil extraction technology using hydraulic press is relatively simple that produces oil with a rendemen of 35% and oil cake of 1-1.5 %.*
- *The transesterification technology of Jatropha oil produces crude biodiesel with a rendemen of 78 % which does meet the standard of quality requirement.*
- *A rough biodiesel can be used as a substitute fuel for the kerosene stove with equal heating energy.*
- *The dry Jatropha oil cake is good as a source of energy.*