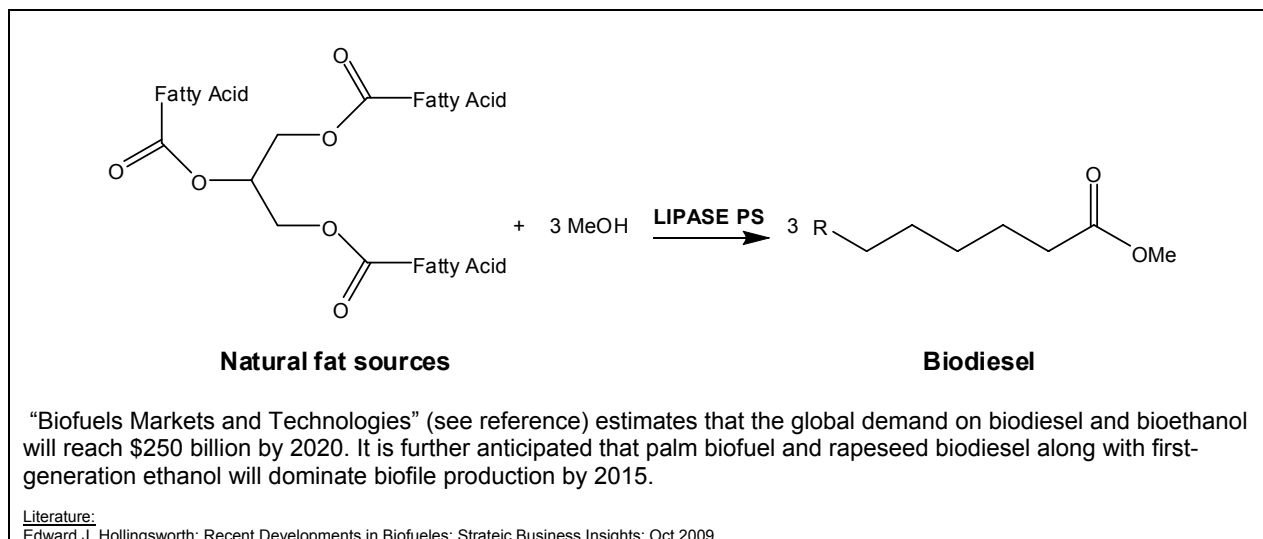




BioCatalysts for Biodiesel Production

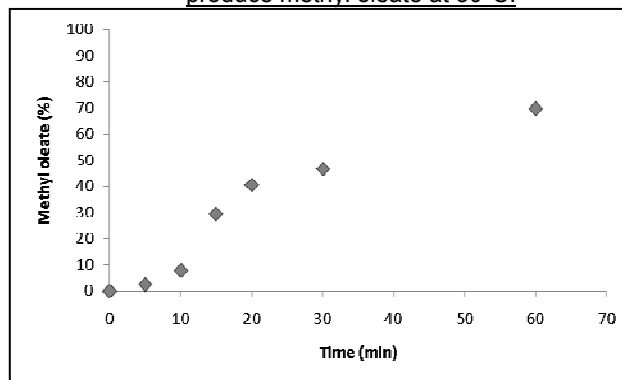
Biodiesel: Transesterification of triacylglycerols with short chain alcohols



Advantages of Enzymatic Biodiesel Production Process vs. conventional Process:

- ▶ high number of repeated use (process cycles)
- ▶ compatibility with variations in the quality of the raw material
- ▶ fewer process steps
- ▶ very high quality of glycerol
- ▶ improved phase separation (no emulsification from soaps)
- ▶ reduced energy consumption and wastewater volumes
- ▶ over all much lower costs

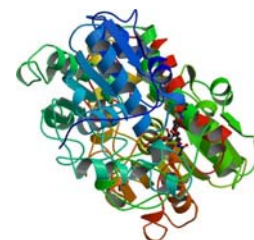
Catalyzing the reaction of triolein 65% and methanol (1:1) to produce methyl oleate at 30°C.



Reaction conditions: Triolein 65% 2 g (2.26 mmol), Methanol 0.095 ml (2.34 mmol), Biocatalyst dry (100 mg, 5% w/w of triolein 65%)

Biodiesel Production with Immobilised-Lipase PS

Immobilised Lipase from *Pseudomonas cepacia* or *Burkholderia cepacia* adsorbed on hydrophobic polymer Polystyrene (DVB cross linked, 300-800 µm)
Systematic name: Triacylglycerol acylhydrolase, Triacylglycerol lipase, E.C. 3.1.1.3.



Availability in Multi Ton Lots