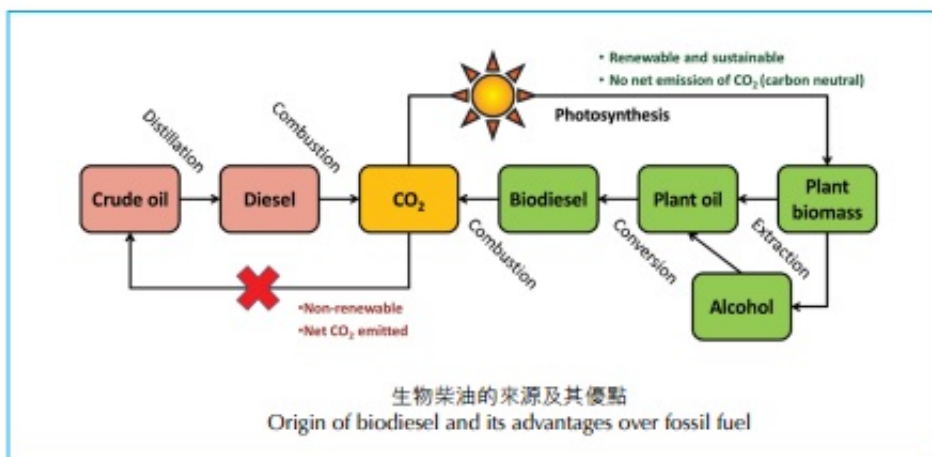


Catalyst for green biodiesel production from unrefined feedstock

May 13 2015



Origin of biodiesel and its advantages over fossil fuel. Credit: Hong Kong PolyU

Biodiesel is a sustainable liquid fuel originated from biomass. However, traditional liquid biodiesel catalyst generates a huge amount of waste water in the final purification procedure.

A new class of [solid catalyst](#) is developed by precise surface chemistry engineering to catalyze the biodiesel production. With excellent adaptability to low grade unrefined feedstock like waste cooking oil, the [catalyst](#) can provide complete solution to the [waste water](#) problem.

In addition, it operates at a significant lower temperature and pressure as

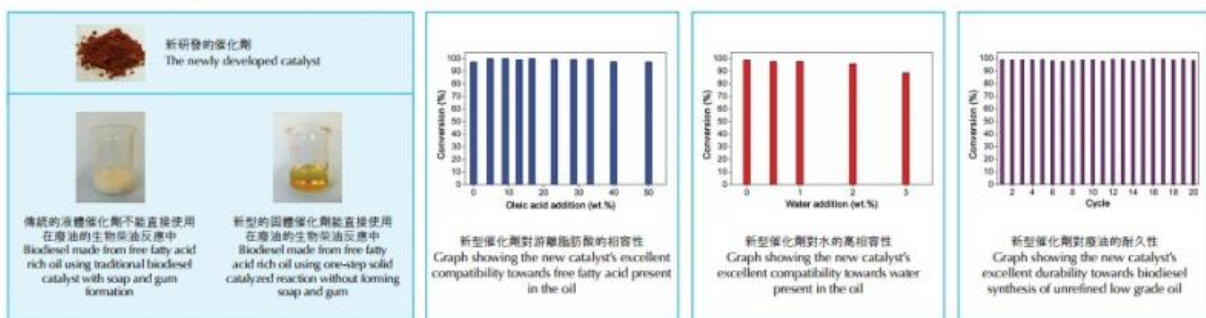
compared with the existing solid biodiesel catalyst due to its high catalytic activity, which can reduce the energy and cost required for biodiesel production.

Special Features and Advantages:

- One-step [biodiesel production](#) from low grade unrefined feedstock
- No washing with fresh water required for biodiesel produced
- Operates at low temperature and pressure which can reduce the cost
- The catalyst demonstrates excellent reusability and robustness

Applications:

This new catalyst is designed for one-step energy saving biodiesel synthesis from low grade unrefined feedstock containing high free fatty acid and water content with no post-production washing required. Toxic methanol used can also be replaced by ethanol or propanol which makes the process more sustainable.



Origin of biodiesel and its advantages over fossil fuel. Credit: Hong Kong PolyU

Alcohol	Conversion (%)	
	Without FFA addition	With FFA addition
Methanol	97.3	98.6
Ethanol	84.1	90.1
1-Propanol	70.5	82.0
1-Butanol	65.5	76.5

催化劑對各種醇類化合物的催化性能
 The catalytic performance of the one-step simultaneous biodiesel synthesis of the catalyst towards various alcohols

The catalytic performance of the one-step simultaneous biodiesel synthesis of the catalyst towards various alcohols. Credit: Hong Kong PolyU

Provided by Hong Kong Polytechnic University

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