Recent Advances in
Petrochemical Science
ISSN: 2575-8578

Juniper PUBLISHERS key to the Researchers

Opinion
Volume 6 Issue 3 - March 2019
DOI: 10.19080/RAPSCI.2019.06.555688

Recent Adv Petrochem Sci

Breakthrough on Preparation for Biodiesel via Liquid Lipase

Yunjun Yan*

Key Laboratory of Molecular Biophysics of the Ministry of Education, Huazhong University of Science and Technology, China

Submission: March 01, 2019; **Published:** March 06, 2019

***Corresponding author:** Yunjun Yan, Key Laboratory of Molecular Biophysics of the Ministry of Education, Huazhong University of Science and Technology, China

Opinion

Among the technologies for preparation of biodiesel, biological techniques are much better than chemical ones due to the reasons of energy saving, less pollution, easier downstream separation, and less methanol loading. So, in recent years, biological techniques become the studying focus. In consideration of production cost and easy manipulation, production of biodiesel via immobilization lipases is popular. The main merits are that immobilization can enhance tolerance of enzyme to harsh environment and can be easily recycled for usage of the next batch. So far, many perfect immobilization strategies have been established and ideal effects are being got. However, most immobilization strategies must use support materials or carriers, they usually increase mass transfer resistance of reactions and also may add pollution into the products, resulting in an uncontrollable quality of the obtained products.

In addition, when the immobilized enzymes run to their end, the carriers would be abandoned, they also provide the quantity of waste. On the contrary, with the rapid development of genetic engineering for bacteria and yeasts, the highly effective genetic engineered strains for lipases have come into being. They can produce lipase protein over 10g/L with an activity more than 100,000U/mL. The production cost is dramatically decreased to the extent that the liquid lipase can be directly used in biodiesel preparation with a comparative production cost to the immobilized one. Now, we have finished R&D of its preparation technique, the biodiesel conversion rate can reach over 98%, even in an middle-scale pilot. Liquid lipase technique can omit the complex process of immobilization of enzyme, and can be used as fermented supernatant, leading to a simple procedure of reaction. The next step, we will put this technique in a larger scale pilot for evaluations for commercial effect and environment impact.