

## 遗传改造微生物代谢途径生产新型柴油燃料的研究进展

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**摘要** 生物柴油是一种能替代柴油的可再生能源, 然而通过植物油料化学转酯化生产的第一代生物柴油在性能和生产工艺上有很多缺点。近年来随着合成生物学和代谢工程的迅速发展, 通过选择合适的微生物并利用各种生物技术改造其代谢合成途径, 如脂肪酸合成途径、异戊二烯合成途径, 研究人员能利用微生物直接生产性能更加优越、品质更高的新型第二代生物柴油——长链烷烃。文章总结了目前遗传改造微生物代谢途径生产新型柴油的研究进展, 并指出目前该领域存在的问题以及今后的发展方向。

**关键词:** [新型生物柴油](#) [脂肪酸途径](#) [异戊二烯途径](#) [代谢工程](#) [合成生物学](#)

**Abstract:** Biodiesel is a renewable biofuel and alternative diesel, but the first generation of biodiesel, which has many defects in properties and in production methods, mainly comes from the chemical transesterification of triglyceride from plant oil. With the fast development in the field of synthetic biology and metabolic engineering, the researchers can choose suitable microbes and engineer its metabolic pathways, such as fatty acid biosynthesis pathway and isoprenoid biosynthesis pathway, to directly produce the second generation of advanced biodiesel--long chain hydrocarbons, which have better properties and quality using the newest biotechnology techniques. In this review, we summarized the research progress about microbial production of advanced biodiesel and also pointed the deficiencies and future direction in this new field.

**Keywords:** [advanced biodiesel](#), [fatty acid pathway](#), [isoprenoid pathway](#), [metabolic engineering](#), [synthetic biology](#)

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