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*Special Issue: New Horizons in Biotechnology from Innovative Technologies to Policymaking: Environmental Clean-up and Waste Biorefinery*

ENERGY & ENVIRONMENT

# The potency of oleaginous yeast *Lipomyces starkeyi* in organic waste valorization to biodiesel

*Energy & Environment*
2025, Vol. 36(5) 2131–2151
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DOI: 10.1177/0958305X241292285
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## Abstract

Oleaginous yeast-derived biodiesel production utilizing zero-value organic waste biomasses has been prioritized to curb environmental pollution, global warming, and rising bioenergy demands. *Lipomyces starkeyi* is a promising lipid accumulator among various oleaginous yeasts due to its potency for lipogenesis utilizing a diverse variety of substrates and tolerating various fermentation inhibitors produced during biomass pretreatment. The prevalence of saturated and monounsaturated longer-chain fatty acids (C16–C18) in triglyceride of *L. starkeyi* improves the quality of the produced biodiesel. Nevertheless, variations in substrate types, fermentation conditions, and modes of fermentation influence the growth of *L. starkeyi* and its lipid productivity and profile. This review will comprehensively discuss the lipid production potency of oleaginous *L. starkeyi* during variations in substrate composition and fermentation conditions and their impact on lipid production and its quality to facilitate industrial production of *L. starkeyi*-derived biodiesel utilizing zero-value organic waste.

## Keywords

Oleaginous yeast, organic waste, *Lipomyces starkeyi*, biodiesel, valorization, waste-to-biofuel

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