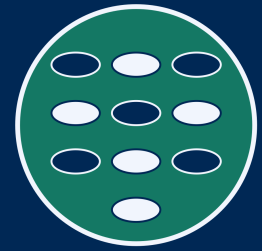


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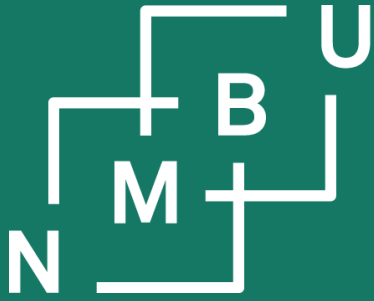
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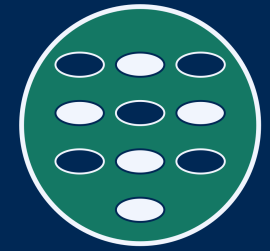
### 2 Reviewing the state of the art

#### 2.1 Literature research tools



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## 2 Literature review

### 2.1 Literature research tools



# Popular tools for researching literature

## Web of Science (Clarivate)

**Economics of biodiesel production: Review**  
Highly Cited Paper

By Gebremariam, SN (Gebremariam, S. N.)<sup>[1]</sup>; Marchetti, JM (Marchetti, J. M.)<sup>[1]</sup>

Author	Web of Science ResearcherID	ORCID Number
Gebremariam, Shemelis	AAZ-8920-2020	
Marchetti, Jorge Mario	A-5480-2015	https://orcid.org/0000-0002-9682-7568
Gebremariam, Shemelis Nigatu		https://orcid.org/0000-0003-4168-3445

Author Identifiers Table

**Citation Network**

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## Google Scholar

**Jorge Mario Marchetti**  
Professor, Norwegian University of Life Sciences  
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Reaction Engineering Catalysis Modeling DFT Biorefinery

Citations	h-index	i10-index
6489	28	56
3229	24	47

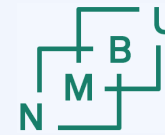
TITLE	CITED BY	YEAR
<b>Possible methods for biodiesel production</b> JM Marchetti, VU Miguel, AF Errazu Renewable and sustainable energy reviews 11 (6), 1300-1311	1985	2007
<b>Economics of biodiesel production</b> SN Gebremariam, JM Marchetti Energy Conversion and Management 168, 74-84	470	2018
<b>Esterification of free fatty acids using sulfuric acid as catalyst in the presence of triglycerides</b> JM Marchetti, AF Errazu Biomass and bioenergy 32 (9), 892-895	438	2008
<b>A review on recent advancement in catalytic materials for biodiesel production</b> MR Avhad, JM Marchetti Renewable and sustainable energy reviews 50, 696-718	403	2015
<b>Heterogeneous esterification of oil with high amount of free fatty acids</b> JM Marchetti, VU Miguel, AF Errazu Fuel 85 (5-6), 906-910	388	2007
<b>Techno-economic study of different alternatives for biodiesel production</b> JM Marchetti, VU Miguel, AF Errazu Fuel Processing Technology 89 (8), 740-748	387	2008
<b>Comparison of different heterogeneous catalysts and different alcohols for the esterification reaction of oleic acid</b> JM Marchetti, AF Errazu Fuel 87 (15-16), 3477-3480	234	2008
<b>Technoeconomic study of supercritical biodiesel production plant</b> JM Marchetti, AF Errazu Energy Conversion and Management 49 (8), 2160-2164	192	2008

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**Economics of biodiesel production: Review** Research Interest Score 223.8

July 2018 · *Energy Conversion and Management* 168:74-84 Citations 434

DOI: [10.1016/j.enconman.2018.05.002](https://doi.org/10.1016/j.enconman.2018.05.002) Recommendations 2

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Abstract

Biodiesel is an alternative fuel similar to conventional diesel. It is usually produced from straight vegetable oil, animal fat, tallow, non-edible plant oil and waste cooking oil. Its biodegradability, non-toxicity and being free of sulfur and aromatics makes it advantageous over the conventional petrol diesel. It emits less air pollutants and greenhouse gases other than nitrogen oxides. In addition, it is safer to handle and has lubricity benefits than fossil diesel. However, with all these environmental benefits, biodiesel could not be extensively applied as a complete substitute fuel for conventional diesel. The main reason, repeatedly mentioned by many researchers, is its higher cost of production. Reduction of the cost of biodiesel production (unit cost of production) can be attained through improving productivity of the technologies to increase yield, reducing capital investment cost and reducing the cost of raw materials. These demand a thorough execution of economic analysis among the available possible technology alternatives, catalyst alternatives, as well as feedstock alternatives so that the best option, in economic terms, can be selected. With this respect, there are a number of researches done to investigate economically better way of producing biodiesel as a substitute fuel. Accordingly, this paper is meant to review the researches done on economics of biodiesel production, emphasizing on the methods of assessment and determination of total investment cost and operation cost, as well as on assessment of economically better technology, catalyst and feedstock alternatives. It also gives emphasis on profitability of biodiesel production and the major system variables affecting economic viability of biodiesel production.

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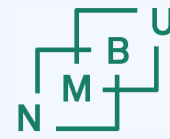
A review of production, properties and advantages of biodiesel V. Mishra +1 2018 · 218 citations DOI	This paper reviews the production, properties, and advantages of biodiesel as a renewable carbon neutral transport fuel.	<ul style="list-style-type: none"> <li>Intervention</li> <li>Outcome measured</li> <li>Limitations</li> </ul> <a href="#">Show more</a>
Biodiesel production technologies: review S. N. Gebremariam +1 2017 · 114 citations DOI	This paper reviews the main transesterification techniques for biodiesel production, including their advantages, disadvantages, and required reaction conditions.	
A Review on Biodiesel Production Kavinprabhu +1 Petroleum and Chemical Industry International	This review discusses the economics and viability of biodiesel production from various feedstocks.	

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Biodiesel, a renewable alternative to conventional diesel, offers environmental and economic benefits (Mizik & Gyarmati, 2021). It can be produced through various methods, with transesterification being the most preferred due to fuel quality (Gebremariam & Marchetti, 2017). Non-edible sources like waste cooking oil, algal oil, and animal fats are commonly used to reduce costs (Rezania et al., 2019). The production process is influenced by factors such as reaction temperature, time, alcohol to oil ratio, and catalyst type (Rezania et al., 2019). Economic aspects, including raw material type, by-product selling price, and operation costs, significantly impact biodiesel production (Rezania et al., 2019). Crude glycerol, a major by-product, can be utilized in various applications (Rezania et al., 2019). Despite its advantages, biodiesel production faces challenges related to feedstock costs and technology selection (Gebremariam & Marchetti, 2017). Ongoing research focuses on improving production efficiency and sustainability to enhance biodiesel's economic viability (Mizik & Gyarmati, 2021; Mishra & Goswami, 2018).

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Al Machot, Fadi

Horsch, Martin Thomas

Kusch, Jonas

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Stasik, Alexander

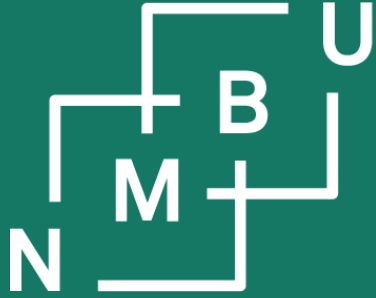
Tomic, Oliver

Tøndel, Kristin

Ullah, Habib

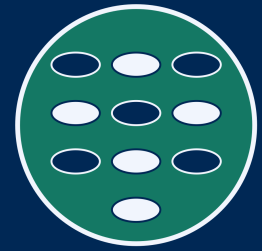
Valseth, Eirik

Yang, Guang



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### 2 Reviewing the state of the art

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