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 Saudi Journal of Biological Sciences
 Volume 22, Issue 3, July 02, 2014, Pages 332-339
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Synthesis, spectroscopic and chromatographic studies of sunflower oil biodiesel using optimized base catalyzed methanolysis (Article)

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Abstract

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Methyl esters from vegetable oils have attracted a great deal of interest as substitute for petrodiesel to reduce dependence on imported petroleum and provide an alternate and sustainable source for fuel with more benign environmental properties. In the present study biodiesel was prepared from sunflower seed oil by transesterification by alkali-catalyzed methanolysis. The fuel properties of sunflower oil biodiesel were determined and discussed in the light of ASTM D6751 standards for biodiesel. The sunflower oil biodiesel was chemically characterized with analytical techniques like FT-IR, and NMR (¹H and ¹³C). The chemical composition of sunflower oil biodiesel was determined by GC-MS. Various fatty acid methyl esters (FAMES) were identified by retention time data and verified by mass fragmentation patterns. The percentage conversion of triglycerides to the corresponding methyl esters determined by ¹H NMR was 87.33% which was quite in good agreement with the practically observed yield of 85.1%. © 2014 The Authors. Production and hosting by Elsevier B.V. All rights reserved.

Author keywords

[Mass fragmentation](#)
[Methanolysis](#)
[Retention time](#)
[Sunflower](#)
[Transesterification](#)

ISSN: 1319562X

Source Type: Journal

Original language: English

DOI: 10.1016/j.sjbs.2014.11.017

Document Type: Article

Publisher: Elsevier

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- 1 Ahmad, M., Ahmed, S., Fayyaz-Ul-Hassan, Arshad, M., Khan, M.A., Zafar, M., Sultana, S.

[Base catalyzed transesterification of sunflower oil biodiesel](#)

 (2010) *African Journal of Biotechnology*, 9 (50), pp. 8630-8635. Cited 20 times.

<http://www.academiquournals.org/AJB/PDF/pdf2010/13Dec/Huang%20et%20al.pdf>
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- 2 Ahmad, M., Ullah, K., Khan, M.A., Zafar, M., Tariq, M., Ali, S., Sultana, S.

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 (2017) *Saudi Journal of Biological Sciences*
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 (2012) *Fuel Processing Technology*
[Characterization and identification of fime's in canola biodiesel using spectroscopic studies](#)

 Haniram, V., Vasanthaseelan, S.
 (2016) *International Journal of Chemical Sciences*