Production of green diesel via cleaner catalytic deoxygenation of Jatropha curcas oil

By: Asikin-Mijan, N (Asikin-Mijan, N.)[1,2]; Lee, HV (Lee, H. V.)[1]; Abdulkareem-Alsultan, G (Abdulkareem-Alsultan, G.)[2]; Afandi, A (Afandi, A.)[2,3]; Taufiq-Yap, YH (Taufiq-Yap, Y. H.)[2]

View ResearcherID and ORCID

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Abstract

Utilization of green diesel derived from biomass in industries and transportation has significantly increased energy security by reducing the dependency on the petroleum and balancing the overall greenhouse gas emission. In the present study, jatropha oil-derived green diesel was produced via catalytic deoxygenation process by using multi-walled carbon nanotube (MWCNTs)-supported catalysts (Co/MWCNT, Ni/MWCNT and Ni-Co/MWCNT). The use of active bimetallic promoter (Ni-Co) showed high catalytic activity in decarboxylation/decarbonylation routes with a total of 80% of saturated and unsaturated hydrocarbon in range of C-8-C-17. Furthermore, Ni-Co/MWCNT showed high selectivity towards C-15- and C-17-hydrocarbon, which suggested that the presence of acidity work selectively in mild cracking of triglyceride structure and performed actively in deoxygenation. (C) 2016 Elsevier Ltd. All rights reserved.

Keywords

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Author Information

Reprint Address: Lee, HV (reprint author)

+ Univ Malaya, Nanotechnol & Catalysis Res Ctr NanoCat, Inst Postgrad Studies, Kuala Lumpur 50603, Malaysia.

Reprint Address: Taufiq-Yap, YH (reprint author)

+ Univ Putra Malaysia, Catalysis Sci & Technol Res Ctr PutraCat, Fac Sci, Upm Serdang 43400, Selangor, Malaysia.

Addresses:

+ [1] Univ Malaya, Nanotechnol & Catalysis Res Ctr NanoCat, Inst Postgrad Studies, Kuala Lumpur 50603, Malaysia

+ [2] Univ Putra Malaysia, Catalysis Sci & Technol Res Ctr PutraCat, Fac Sci, Upm Serdang 43400, Selangor, Malaysia

+ [3] Int Islamic Univ Malaysia, Dept Chem, Ctr Fdn Studies, Jalan Univ, Petaling Jaya 46350, Selangor, Malaysia

E-mail Addresses: leehweivoon@um.edu.my; taufiq@upm.edu.my

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