

Accepted Manuscript

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Authors: Andrew Ng Kay Lup, Faisal Abnisa, Wan Mohd Ashri Wan Daud, Mohamed Kheireddine Aroua



PII: S0926-860X(17)30192-8
DOI: <http://dx.doi.org/doi:10.1016/j.apcata.2017.05.002>
Reference: APCATA 16224

To appear in: *Applied Catalysis A: General*

Received date: 27-1-2017
Revised date: 2-5-2017
Accepted date: 5-5-2017

Please cite this article as: Andrew Ng Kay Lup, Faisal Abnisa, Wan Mohd Ashri Wan Daud, Mohamed Kheireddine Aroua, A Review on Reaction Mechanisms of Metal-Catalyzed Deoxygenation Process in Bio-Oil Model Compounds, Applied Catalysis A, General <http://dx.doi.org/10.1016/j.apcata.2017.05.002>

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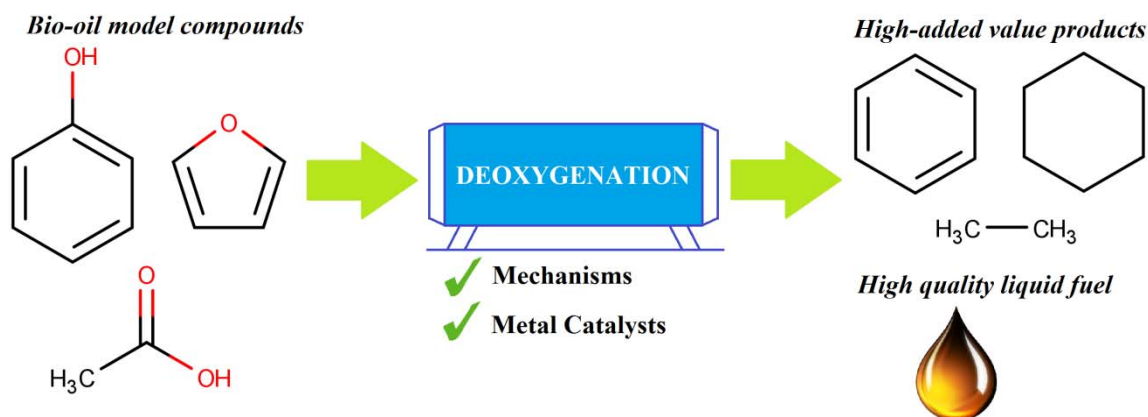
Department of Chemical Engineering, Faculty of Engineering, University of Malaya, 50603, Kuala Lumpur, Malaysia

*Corresponding author. Tel.: +60 162709281; Fax: +60 379675319

E-mail addresses: drewanyak@hotmail.com (A. N. Kay Lup); faisal.abnisa@gmail.com (F. Abnisa);

ashri@um.edu.my (W. M. A. W. Daud); mk_aroua@um.edu.my (M. K. Aroua)

Graphical Abstract



Highlights

- Metal-catalyzed deoxygenation mechanisms and kinetics of bio-oil model compounds were reviewed.
- Effects of functional groups and bonding configurations on mechanism were emphasized.
- Phenolics and furans are more difficult to be deoxygenated due to enhanced stability by aromatic rings.
- Deoxygenation reactivity order of model compounds based on functional groups was reviewed.

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