



Green Chemistry and Catalysis Seminar: Christophe Len - Recent continuous catalytic production of biosourced chemicals

christophe.len@chimieparistech.psl.eu

Friday, May 06, 2022 09:30 am to 11: 00 am – Université de Montréal, MIL campus,
Pavilion A, **room: A.2521.1**

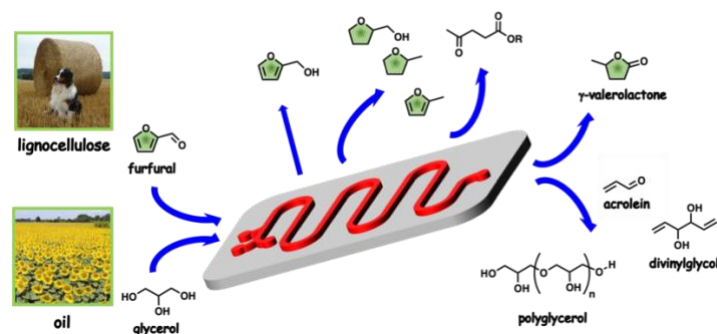
Seminar will be in person, but can be accessed

virtually: <https://umontreal.zoom.us/j/85222659942?pwd=dGdXaTVBL2UrbDI0MnljcHIYd3Z1dz09>



Abstract:

The concepts of sustainable development, bio-economy and circular economy are increasingly being applied to the synthesis of molecules of industrial interest. Among these molecules, furfural and glycerol as platform molecules are the subject of various research approaches to improve their transformation for the production of molecules of interest. Due to the current momentum in promoting green chemistry for sustainable development, chemists have recently established catalytic reactions based on alternative technologies such as continuous flow. The present study showed recent breakthroughs obtained in the continuous production of furfural and glycerol derivatives starting from either biomass or carbohydrate in the presence of homogeneous catalysts and heterogeneous catalysts. Various reaction parameters in dependence of time such as temperature, catalyst and feedstock loadings as well as solvent types have been optimized. Conception, synthesis and physico-chemical properties will be detailed.



Scheme 1. Continuous catalytic production of biosourced chemicals from furfural, glycerol and analogues via different intermediates.

References

1. M. Audemar, Y. Wang, D. Zhao, S. Royer, F. Jerome, C. Len, K. De Oliveira Vigier, *Energies*, 13 1002 (2020).
2. A.J. Garcia-Olmo, A. Yopez, A.M. Balu, P. Prinsen, A. Garcia, A. Mazière, C. Len, R. Luque, *Tetrahedron*, 73 5599 (2017).



Centre en chimie verte et catalyse

Center in Green Chemistry and Catalysis

3. Y. Wang, P. Prinsen, K.S. Triantafyllidis, S.A. Karakoulia, A. Yepez, C. Len, R. Luque, *ChemCatChem*, 10 3459 (2018).
4. Y. Wang, P. Prinsen, K.S. Triantafyllidis, S.A. Karakoulia, P.N. Trikalitis, A. Yepez, C. Len, R. Luque, *ACS Sustainable Chem. Eng.*, 6 9831 (2018).
5. D. Zhao, P. Prinsen, Y. Wang, W. Ouyang, F. Delbecq, C. Len, R. Luque, *ACS Sustainable Chem. Eng.*, 6 6901 (2018).
6. W. Ouyang, D. Zhao, Y. Wang, A. Balu, C. Len, R. Luque, *ACS Sustainable Chem. Eng.*, 6 6746 (2018).
7. D. Zhao, Y. Wang, F. Delbecq, C. Len, *Mol. Catal.* 475 110456 (2019).
8. D. Zhao, D. Rodriguez-Padron, K.S. Triantafyllidis, Y. Wang, R. Luque, C. Len, *ACS Sustainable Chem. Eng.*, 8 3091 (2020).
9. N. Galy, R. Nguyen, P. Blach, S. Sambou, D. Luart, C. Len. Glycerol oligomerization in continuous flow reactor. *J. Ind. Eng. Chem.* 2017, 51, 312-318.
10. R. Nguyen, N. Galy, F.A. Alasmery, C. Len. Microwave-assisted continuous flow for the selective oligomerization of glycerol. *Catalysts* 2021, 11, 166.

Center funded by

