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Catalytic oxidation of lignin and lignin model compounds

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Lignin represents the second most abundant component in lignocellulosic biomass, and it is well known that the emerging biomass refinery industry will inevitably generate an enormous amount of lignin. Development of selective bio refinery lignin conversion processes will play an important role increasing the economic feasibility and sustainability of biofuel production from renewable biomass. For this reason, research on upgrading lignin has become of recent interest, as many interesting products, mainly aromatics, can potentially be produced from lignin. [1-3]

In the present work we have prepared, characterized and examined the performance of heterogeneous catalysts with ruthenium and other transition metals supported on different supports like γ -alumina or silica for the conversion of β -O-4 lignin model compounds (veratryl alcohol, guaiacyl glycerol- β -guaiacyl ether) and lignin by aerobic oxidation. [4]

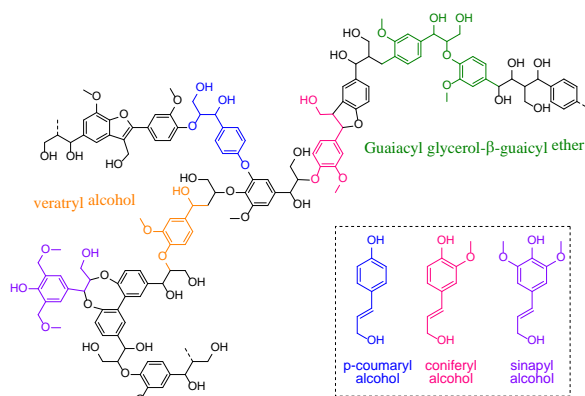


Fig. 1. Schematic representation of lignin structure and its three monolignol monomers.

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References

- [1] J. Zakzeski, PCA Bruijnincs, AL Jongerius, BM Weckhuysen, *Chem. Rev.* **110**, 3552 (2010)
- [2] PT Patil, U Armbruster, M Richter, A Martin, *Energy & Fuels* **311**, 4713 (2006)
- [3] C Zhao, JA Lercher, *ChemCatChem* **4**, 64 (2012)
- [4] M Melián-Rodríguez, S Saravanamurugan, S Kegnæs, A Riisager, *Top. Catal.* **58**, 1036 (2015)