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# LIGNIN VALORIZATION USING HETEROGENOUS CATALYTIC OXIDATION

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The research interests in biomass conversion to fuels and chemicals has increased significantly in the last decade in view of current problems such as global warming, high oil prices, food crisis and other geopolitical scenarios. Many different reactions and processes to convert biomass into high-value products and fuels have been proposed in the literature, giving special attention to the conversion of lignocellulosic biomass, which does not compete with food resources and is widely available as a low cost feedstock [1].

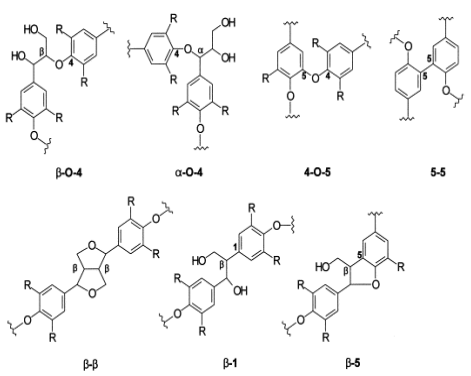


***Figure 1**. Linkages present in lignin*

Lignocellulose biomass is a complex material composed of three main fractions: cellulose (40-50%), hemicellulose (25-35%) and lignin (20-30%) [2].

Lignin is mainly composed of three different monolignol monomers: *p*-coumaryl, coniferyl and sinapyl alcohol [2]. These monomers are connected with various linkages with the most common one being the β-O-4 linkage [3].

The lignin structure is complex so different model compounds are often used to study lignin valorization. These model compounds contain the linkages present in lignin, simplifying catalytic analysis and present analytical challenges related to the study of the complicated lignin polymer and the plethora of products that could be obtained [2].

Heiko Lange et al., has reported that the catalytic oxidation products of lignin and lignin model compounds range from aromatic aldehyde and carboxylic acid and they must be originate form oxidation of side chain. The products we obtained in these reactions are based on the severity of the reaction conditions [4].

Here, we therefore present an overview of the recent research about conversion of some lignin model compounds using heterogeneous catalysis in oxidation reactions.

## References:

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