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Eletro-oxidação de moléculas modelo de ligninas sobre eletrodos de Ni

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In a context of climate crisis, sustainable development and the environment have been frequently discussed nowadays, especially regarding fossil fuels applications. In this sense, biofuels are a promising alternative, however, the application of biomass residues from that fuels' generation has still room for improvement since their main use is still the burning for thermoeletricity. Lignin is the main source of aromatic carbons in biomass, following cellulose and hemicellulose. This macromolecule has, as monomers, phenolic structures and is an interesting renewable aromatic chemicals source. However, due to the complexity of the monomer connections, the depolymerization of lignins is still not optimized and this reaction mechanism is still under debate. Electrocatalysis was selected as the main tool for this work because it is an easy to control approach that can be applied for the lignin depolymerization by oxidation under ambient conditions, or close to them, and can easily provide kinetic and mechanistic information. For substrate simplification, in this work we proposed to use of model molecules based on the phenolic monomers structure containing a carbonic chain in the *para* position with sizes between one and three carbons, and equivalents containing a metoxyl group in *meta* position were selected as model molecules to comprehend the electrochemical behavior of lignins during oxidation processes. As electrocatalyst, Ni plate electrodes were selected due to the low cost and stability in alkaline conditions.

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