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## Glycerol electro-oxidation over palladium based catalysts

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Biofuels, such as biodiesel, are renewable energy sources with several advantages, including biodegradability and low toxicity. However, their production generates significant amounts of glycerol as byproduct.[1] Electro-oxidation emerges as an alternative to add value to the excess glycerol, converting it into higher-value sustainable chemicals. The efficiency and selectivity of the glycerol electro-oxidation reaction depend on various factors, including the choice of catalyst, its crystalline structure, and composition.[2] Different catalysts have been extensively researched to enhance the electro-oxidation of glycerol and to aim for product selectivity. Among all the catalysts, noble metals such as platinum, gold, and palladium are the most researched due to its stability and activity.[3] In this work, different palladium-based catalysts are used to study glycerol electro-oxidation in alkaline media. They were analyzed by its stability and activity through cyclic voltammetry experiments and by Tafel plots analysis. Among the metallic catalysts tested, which include Palladium, Palladium-Iron, Palladium-Copper and Palladium-Iron-Copper, Palladium-Iron showed the best performance, with high current density of  $1.59 \text{ mAcm}^{-2}$ , one of the lowest onset potentials at 0.65 V, and lower Tafel Slope of 62 mV/dec.

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