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## Oxides derived from hydrotalcites containing $\text{Cu}^{+2}$ e $\text{Fe}^{+3}$ in the production of ethyl biodiesel

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The environmental concern due to climate change brings the need for the development and study of less polluting fuels. Biodiesel is an alternative to diesel, coming from renewable resources and having low environmental impact. Unlike homogeneous catalysts, heterogeneous catalysts provide lower production costs and is easily separated from the final product can be reused, generating higher quality products not react with the reaction of interveners, enabling retrieve large quantities of products without resorting to very expensive refining processes. The catalysts used in this work are a derived type of hydrotalcites oxide co-precipitated with 10% and 20%  $\text{Cu}^{+2}$  and  $\text{Fe}^{+3}$  calcined at 723 K. One of the features of hydrotalcites is to gather elements of acid and basic Lewis characteristics on its surface, that operate in a combined form both activating the carbonyl and alcohol groups simultaneously with an interesting catalytic system. The catalysts were characterized by X-ray diffraction and specific surface area by the BET method. Transesterification of soybean oil was performed in closed systems with a volume of 15 mL and self-generated pressure, temperature 393 K under constant agitation for 12 hours. A molar ratio ethanol/oil of 20:1 to 20% (w/w) of catalyst in relation to the oil was used in the reaction. The biodiesel produced was quantified by gas chromatography with flame ionization detector (GC-FID). The hydroxides showed high crystallinity and high surface area and their oxides generated significant catalytic activity, obtaining up to 72% yield.

### Biography

Adonis Coelho is a Master's degree student in Chemistry at São Paulo State University, campus of São José do Rio Preto. His research is focused on developing heterogeneous catalysts for production of ethyl biodiesel by transesterification.

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