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Studies of the catalytic properties of oxides doped with tungsten for the production of biodiesel ethyl

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In an attempt to optimize the production of biodiesel by basic heterogenic catalysts, anionic clays of hydrotalcite type have been prepared by co-precipitation method, with fixed molar ratio M^{+2} / M^{+3} (3: 1) doped with tungsten in two different oxidation states W (IV) and W (VI), with the percentage of 1 to 5% to improve its catalytic effect in the transesterification reaction of ethyl biodiesel. The reaction was maintained for 12 hours / 120°C in a molar ratio of oil / ethane 1:20 to 20% (w / w) of catalyst in relation to the oil. The characterization of oxides and hydrotalcites occurred by thermogravimetric analysis (TG - isotherm for 90°C, heating ramp from 100 to 450 °C and 15°C/min, N₂ flow 20 ml/min) and analysis of specific surface area by the BET method, diffraction X-rays (DRX - CuK radiation ($\lambda=1.54 \text{ \AA}$) in an angular range of 3 to 70, 2 θ per minute) and infrared spectroscopy (FTIR-ATR - the region of 400 to 4000 cm⁻¹) and its activity catalytic was quantified by gas chromatography with flame ionization detector (GC-FID). The maximum conversion achieved was 84.23%. Analyzing the FTIR spectra, the diffraction patterns of Xray and thermal analysis were obtained characteristic properties of pure hydrotalcite, featuring absence of secondary phase in hydroxides.

Biography

Passerine B F G is a graduate student of Environmental Chemistry at the State University of São Paulo "Júlio de Mesquita Filho", where she works at the Suchochemistry and Analytical Chemistry Laboratory in the bioenergy field.

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