Abstract

This study investigated the efficiency of microfiltration with ceramic membranes in separating biodiesel and glycerin. Synthetic blends (feed solution) were prepared with mass composition of 80% biodiesel, 10% glycerin and 10% anhydrous ethanol. Runs were performed in the micro and ultrafiltration module, in batch mode, using tangential filtration. Experiments were carried out with Al2O3/TiO2 tubular ceramic membranes with average pore size of 0.2, 0.4 and 0.8 \( \mu \)m, filtration area of 0.005 \( m^2 \), at 60°C and transmembrane pressures of 1.0, 2.0 and 3.0 bar. Membrane performance was evaluated based on its capacity to retain glycerin and permeate flux values. The low content of glycerin in the permeate, 0.04-0.1 wt\%, demonstrates a high potential with respect to the use of ceramic membranes in the separation stage of biodiesel.

Keywords

Microfiltration, ceramic membranes, biodiesel, glycerin.