BIOETHANOL PRODUCTION FROM SUGAR MOLASSES USING COMMERCIAL SACCHAROMYCES CEREVISIAE

R. Espinal and J. Pathiyamattom.

Renewable Energies Institute Autonomous National University of Mexico (IER-UNAM), 62588. Corresponding autor: respinal@ier.unam.mx.

Sugar molasses from Zacatepec sugarmill in Morelos were used for a fermentation process in order to get bioethanol. 20 experiments were performance with different water-molasses ratio, from 1-1 to 9-1 respectively and pH were changed from 3.5 to 4.5 (in 0.3 range switching). Fermentation time was also measured in hours from 24 h to 48 h and temperature changed from 28 to 33 C. Commercial yeast was used as catalyst for the reaction. After the fermentation phase, resultant mix liquid was distilled at 75 C in order to obtain pure bioethanol, the resultant product were bubbled with noble gas and analyzed by gas chromatography (Agilent 3000) stabilizex columns.

Bioethanol production were increased as the pH were raised, same conduct were found were the temperature. Best performance was showed with 9-1 water- molasses ratio, pH 4.5, 24 h fermentation time and 35 C temperatures. Aldehyde, ethylene and water were also found by gas chromatography, as the ethanol was increased, water was increasing.