High sugar production from hydrolysate of pineapple residues via integrated enzyme-membrane system

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ABSTRACT

The enzyme-membrane integrated system has become an attractive method for the depolymerization of lignocellulosic biomass. The effects of pH, temperature, enzyme loading, and reaction time were evaluated in order to maximize the sugar production. Hydrolysate extracted from pineapple leaves was used as a substrate. The feed substrate was hydrolyzed by *β*-xylosidase under different working conditions using the one-factor-at-a-time (OFAT) method. The best working conditions obtained via enzymatic hydrolysis were applied in the enzyme-membrane integrated system. The sugar yield obtained by simultaneous reaction and filtration was much higher (293.94 %) than by the reaction alone (32.23 %).

KEYWORDS

Enzymatic hydrolysis; Enzyme-membrane system; Lignocellulosic biomass; Reducing sugar; β-Xylosidase

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