

Features of Ordinary Reed Waste Pretreatment in Creation of Valuable Products

O. P. Mansurov, A. F. Kemalov, R. A. Kemalov

Kazan (Volga Region) Federal University, Kazan, Russia

Keywords: bioethanol; hydrolysis; sodium hydroxide; common reed; pretreatment; fermentation.

Abstract: Bioconversion of common cane waste at the stage of sugar fermentation in the production of bioethanol is a relevant and dynamically developing research topic. Two types of physicochemical pre-treatment of common reed waste – with alkali and acid – have been studied. Acid pretreatment was found to be superior to alkaline pretreatment, increasing the rate of enzymatic hydrolysis and resulting ethanol production. After pretreatment in an autoclave with 6 % acid, a high content of total reducing sugar was noted (25.4 g/L). Fermentation of hydrolysates of raw materials using the enzyme preparation CelloLux-F contributes to the yield of bioethanol in the amount of 16.5 g/L. It has been shown that the biomass used, in particular common reed waste, can be used for the production of bioethanol.