



YOURS 2020

ABSTRACT PROCEEDINGS

YOUng ResearcherS Conference 2020

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Ministry of Education, Science and Technological Development

Editorial Board of Journal of Applied Engineering Science

UKAS - Association for Quality, Accreditation and Standardization

Faculty of Mechanical Engineering, University of Belgrade

YOURS 2020

YOUnG ResearcherS Conference 2020

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EFFECT OF CORN STRAW PRETREATMENT ON EFFICIENCY OF BIOGAS PRODUCTION PROCESS - COMPUTER SIMULATION

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Summary: Anaerobic digestion is a natural process of organic material degradation by different kinds of microorganisms in the absence of oxygen. This process is used for industrial purpose to manage waste streams or to produce biogas. It gives a major contribution in reduction of harmful effects of organic waste disposal to the environment. The aim of agricultural waste pretreatment in biogas production is to decrease the retention time, improve utilization of raw material and improve the overall productivity and energy efficiency of the production process. In this paper the effects of combined chemical and mechanical pretreatment of corn straw biomass on biogas yield during anaerobic digestion of the feedstock were analyzed. The impact of pretreatment and process parameters in biogas production was analyzed by process simulation using the software SuperPro Designer. Using this tool a decrease of degradation time with an increase in biogas yield was shown.

Keywords: biogas, anaerobic digestion, pretreatment, energy efficiency, SuperPro Designer



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The background features a vibrant, abstract composition. At the top, there are several overlapping circles in shades of green, yellow, and orange. These circles contain various icons: a dollar sign, a brain, a microscope, a gear, and an upward-pointing arrow. A large, dark blue circle with a white arrow pointing up and to the right is also present. Below these elements, there are stylized human silhouettes in shades of grey and teal, facing each other as if in conversation. The overall aesthetic is modern and professional, suggesting themes of technology, industry, and collaboration.

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