

INFLUENCE OF THE PROCESS PARAMETERS, ON THE SELECTED QUALITY PARAMETERS OF BIOCHAR MADE FROM THE FAST GROWING PLANTS BIOMASS

Marcin Jewiarz*¹, Marek Wróbel¹ Krzysztof Mudryk¹,

¹ Department of Mechanical Engineering and Agrophysics, Agricultural University in Krakow

Balicka 120, 30-149 Kraków

e-mail: marcin.jewiarz@urk.edu.pl

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ABSTRACT

Paper presents analysis of the torrefaction parameters (time and temperature) on the characteristics of formed biochar. The calorific value as well as ash content were determined for biochar obtained from three selected types of wood, Populus, Alder and Black Locust. Wood samples were felled on experimental backyard placed on Department of Production Engineering and Energetics. After harvesting, samples were left under rooftop for several weeks. After that, samples were dried to determine moisture content and prepare it for torrefaction. Pyrolysis was conducted with use of specially designed batch reactor, with several sets of process temperature and residence time. The mass difference of samples after and before pyrolysis were noticed. After the process the calorific value and ash content were determined to obtain basic information about the influence of the time and temperature on the quality of formed biochar.

Presented results shows that torrefaction has affected both calorific value and ash content. The highest differences in calorific values were obtained for Black Locust samples. Mass difference for all samples were similar for the same conditions.