

## **Experimental Research of Biogas Production by Using Sewage Sludge and Chicken Manure Bioloadings with Wood Biochar Additive**

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**Abstract :** Bioreactor; special device, which is used for biogas production from various organic material under anaerobic conditions. In this research, a batch bioreactor with a mechanical mixer was used for biogas production from sewage sludge and chicken manure bioloadings. The process of anaerobic digestion was mesophilic (35 °C). Produced biogas was stored in a gasholder and the concentration of its components was measured with INCA 4000 biogas analyser. Also, a specific additive (pine wood biochar) was applied to prepare bioloadings. The application of wood biochar in bioloading increases the CH<sub>4</sub> concentration in the produced gas by 6-7%. The highest concentrations of CH<sub>4</sub> were found in biogas produced during the decomposition of sewage sludge bioloadings. The maximum CH<sub>4</sub> reached 77.4%. Studies have shown that the application of biochar in bioloadings also reduces average CO<sub>2</sub> and H<sub>2</sub>S concentrations in biogas.

**Keywords :** biochar, biogas, bioreactor, sewage sludge

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