

CO-FERMENTATION OF AGRICULTURAL ORGANIC WASTE, MAIN AND BY-PRODUCTS

LÁSZLÓ SALLAI

University of Szeged
Institute of Plant Science and Environmental Protection
Hódmezővásárhely 6800 Andrassy St. 15, Hungary
sallai@mgk.u-szeged.hu

My research work proposes the study of the impact of the biogas production by co-fermentation of agricultural products. The basic substance is the dangerous liquid pig manure of the concentrated stock of big pig farms. The utilization of these materials as an energy source means large income for the agricultural enterprises, saving the replacement of plant nutrition by utilization of bio-manure, increasing the performance of the plant production, making harmless the dung which means a big environmental load. Because of the profitability of bioenergy utilization depends on the local conditions it is necessary to do experiments to try the available composition of organic wastes in the ratio of the formation in advance. I measured the quantity and the methane and CO₂ content of the biogas released from the substrate. The experiment simulated real biogas plant conditions at mesophyll temperature through a continuous biodegradation process. It can be considered, as a semi industrial size. It can be provable based on my research and literature references, that the qualitative and the quantitative properties of the biogas releasing in the biogas plants largely depends on the portioned liquid dung, the additives, and the features of the applied technology. Our experiments justified the yield improving effect of the agricultural main and by-products and wastes because of the low organic matter content of the liquid pig manure. It may be hypothesized, that these additives and the technological parameters of the biogas production influence on a favourable direction the features of the fermented manure and through this for example the opportunities of the substrate recirculation with only additives. The results provide a comprehensive overview of the effect of the different additives in the energy production aimed biogas releasing.