

# Cofermentation of potato pulp with poultry manure

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## 1. Introduction

The objective of the study is to assess the co-fermentation of potato waste after potato chips production with poultry manure. The characteristics of this substrates (including potato skin and waste pulp) and perspectives for the potato pulp pre-treatment method for biogas production are presented. Fermentation of poultry manure is often inhibited due to high content of nitrogen [1, 2], so cofermentation with substrates with high carbon content is a good option [3-6]. The results of the co-fermentation with the biogas-production kinetics of the cofermented substrates are presented.

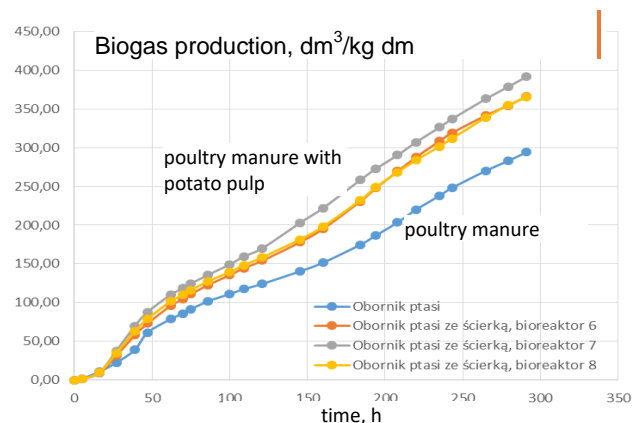
## 2. Methods

Potato pulp with various content of dry mass and organic dry mass (8,404% and 29,576% dm and 98,423% odm) was used for mesophilic fermentation in 1,5 dm<sup>3</sup> glass reactors at 37°C. Inoculum from standard biogas installation was applied. The 100 g of poultry manure (with or without potato pulp) was used in each experiment and the reactor was filled up to 1 dm<sup>3</sup>.

The biogas was collected in chambers of 600 cm<sup>3</sup> in volume and measured 2 times a day – see chosen results in Figure included. Biogas content was determined using Sewerin gas-detector.

## 3. Results

Figure presents temporal evolution of biogas production from poultry manure (lower curve) in dm<sup>3</sup> per kg dm. The rapid stage of fermentation ends after 50 hours. Later slower phase of biogas production is continued with slight decrease in period around 100 – 180 h. It was found that cofermentation of poultry manure with waste potato-pulp results in significant increase of biogas production (25 -34%).



## 3. Conclusions

Cofermentation of poultry (broiler) manure with waste potato-pulp results in 25 – 34% increase of biogas production.

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