



CONFERENCE PROGRAMS AND ABSTRACT

**The 3rd FIRST 2019 INTERNATIONAL CONFERENCE
FORUM IN RESEARCH, SCIENCE, AND TECHNOLOGY
OCTOBER 09-10, 2019
*Palembang, Province of South Sumatera
Indonesia***

Organized by :



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PREFACE

The 3rd FIRST 2019 (Forum in Research, Science, and Technology) International Conference was initiated and organized by State Polytechnic of Sriwijaya in collaboration with Management and Science, University (MSU), Malaysia and National Chin-Yi University of Technology, Taiwan. The theme of the conference was “Integration of Advanced Technology to Enhance Social Welfare”. The 3rd FIRST 2019 International Conference facilitated the participants from all over the world to meet face to face to open chances in establishing connection and collaboration among them. It was not only for the researchers in academics, but also in industries and governments. This conference became an effective media to link the researchers from many parts of the world conference, for exchanging, sharing, following up and discussing the results of the latest research, industry’s needs, and government regulatory policies. The 3rd FIRST 2019 International Conference became worthwhile platform for researchers to present their finding in the areas on multidisciplinary of Engineering and Science (Track 1), Computer Science and ICT (Track 2), and Social Science (Track 3). It has also provided an opportunity for the professionals and researchers to learn and share about the latest development and research in those 3 tracks.

The 3rd FIRST 2019 International Conference attracted so many authors not only from Indonesia but also from other countries, such as Japan, Taiwan, and Malaysia. There were 180 papers were accepted in the 3rd FIRST 2019 International Conference, including 89 papers for Track 1 (Engineering and Science), 46 papers for Track 2 (Computer Science and ICT), and 45 papers for Track 3 (Social Science). In The 3rd FIRST 2019 International Conference, there were 4 keynote speakers and 2 invited speakers. As the keynote speakers, there were Prof. Yasushi Kiyoki, Ph. D from KEIO University, Japan, Prof. Nurul Taufiqu Rochman, M. Eng, Ph. D, From LIPI, Indonesia, Prof. Tjiptohadi Sawarjuwono, M. Ec., Ph. D., Ak, from Universitas Airlangga, Indonesia, and Prof. Win-Jet Luo, from National Chin-Yi University of Technology, Taiwan. As the invited speakers, there were Dr. R. Wisnu Nurcahyo, DVM from Universitas Gadjah Mada, Indonesia, and Assoc. Prof. Dr. Intan Zaurah binti Mat Darus from Universiti Teknologi, Malaysia. The 3rd FIRST 2019 International Conference committee would like to say thank you very much for all the participants and their respected institutions that have supported for the success of the 3rd FIRST 2019 International Conference, and also for all of the guess and sponsors of the 3rd FIRST 2019 International Conference.

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The Analysis Of Biogas Fermentation Time From Cow Manure On Fixed Dome Biodigester Batch Systems

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Abstract. Biogas technology from cow manure in Indonesia has been developing for a long time, but the application of its use as an alternative energy source is not yet widely developed, due to various unknown operations and processes. This research aimed to analyzed of biogas fermentation time in batch system of cow manure. This research used a *Fixed Dome* type biodigester that had a total volume of 500 liters with its operating system in batches with 80% of the slurry containing cow manure and the rest for the gas chamber. The biogas fermentation time were 5, 10,15,20 25 and 30 days. The raw material from cow manure had an organic COD content of 10.240 mg / l with a pH of 6.7. The C/N feed ratio was set in the condition of 25: 1 and the ratio of slurry of cow manure with water was 1: 1. From the results of the study in batch process, it was found that the longer the fermentation time the higher the methane gas content but the methane gas content decreases on the 30 th day from 59,12% on the 25 th day to 50,04% on the 30 th day of fermentation.

Keyword: *Biodigester Fixed Dome*, Biogas, Methane Gas and Cow Manure

1. Introduction

The excessive use of fossil fuels has become a global problem discussed both academically and socially, so that various parties concerned trying to find solutions for solving this problem. Diversification of energy sources by using renewable resources, one of which is biomass energy sources. Renewable resources from biomass are becoming major raw material for the energy supply. There are a number of biomass that can be energy sources such as wood, wood residues, agricultural crops and waste by products such as municipal solid waste and animal waste [1].

Animal waste has potential to be a source of biogas energy through anaerobic digestion process. Anaerobic digestion is a complex bioprocess and involves several groups of microorganisms which degrade organic material into a mixture of methane and carbon dioxide gas and other gases in the absence of oxygen. In anaerobic digestion to produce methane gas the process takes place in a four phase process, namely hydrolysis, *acidogenesis*, *acetogenesis* and *methanogenesis*. In each phase, microorganisms have different roles. Biogas can be used for various applications such as vehicle fuel and to generate electricity [2], but in Indonesia its application is still not well developed, among others, because the constraints of operations and processes have not been fully controlled.



Composition of biogas depends mostly on the type of decomposed material but generally as follows: 50-85% CH₄ (Methane); 20-35% CO₂ (Carbon Dioxide); H₂, N₂, and H₂S form the rest [3].

In the process of anaerobic digestion, water content is an important element for producing biogas. From several studies it is found that the effective ratio of cow manure and water for producing biogas is 1: 1 [4]; [5]. However, there are some researchers mixing 1: 1.5 [6] depending on the initial humidity conditions of cow manure.

The pH element is a parameter affecting bacterial growth, the optimum pH for the growth of methane gas producing bacteria is at pH 6.4 to 7.4. Under pH 6.4 bacterial activities of methanogenesis will decrease [7] and according to [1] best pH for anaerobic digestion is neutral pH.

The temperature also has a significant effect on biochemical reactions. Microorganisms are generally grouped according to their growth temperature, namely optimum *thermophilic* microorganism above 50^oC, optimum *mesophilic* 30-40^oC and optimum *psychrophilic* below 20^oC [1]. For tropical conditions such as in Indonesia, generally the temperature for the anaerobic digestion process uses a temperature of 30-40^oC. Temperature affects the metabolic activity of microorganism and the efficiency of anaerobic fermentation where the optimum temperature is at 35^oC [8].

The main instrument for anaerobic digestion process is biodigester. Bio-digester is designed so that the anaerobic fermentation process running well. According to [9], there are several types of bio-digesters including the *Fixed Dome* Biodigester which has a fixed volume. In this digester along with the production of biogas, there will be an increase in pressure in the digester, so that the gas formed must be immediately flowed to the gas collection outside the reactor (biodigester). The other type is a floating drum bio-digester, in this digester there is a reactor section which moves with increasing pressure in the digester. The moving part functions as a gas collector. In Indonesia commonly use fixed dome type bio-digesters adapted from other countries such as Bangladesh, Cambodia, Laos, Pakistan, Nepal and Vietnam and are quite successful. In addition to the types of bio-digesters mentioned above, the other types of balloon / bag digester are widely used in Latin America. This type is usually made from a large, strong plastic bag connected to a piece of drainpipe at either end, these pipes being used to add feedstock and remove slurry, and gas is produced in the top of the bag. Gas pressure can be increased by placing weights on top of the bag [10].

The time influences the formation of biogas, the longer the fermentation process is carried out, the more biogas is produced. Biogas is formed within 10 to 30 days [11] and decreases after 30 days. According to [12] effective metabolic process of anaerobic digestion occurs within 20 to 30 days. Biomass materials containing a lot of lignocellulose and fat will have a longer fermentation time than those containing a large protein. Fermentation time is influenced by biomass, temperature, pH, and bio-digester models. Some researchers produced various optimum fermentation time, so this research aimed to analyze the fermentation time of cow manure into biogas in a *fixed dome* biodigester.

2. Methods and Experimentl set-up

This research took place in several stages, starting by preparing a fixed dome type biodigester equipped with pH and temperature control devices and biogas container in the form of plastic bag. Before being used for this research, a leak test was carried out. In preparing the raw material for biogas by mixing cow dung and water with a ratio of 1: 1. After cow dung and water are mixed completely, methane bacteria are added and then this mixture is put into biodigester. The fermentation time is carried out for 30 days. The parameters analyzed are COD (chemical oxygen demand), TSS (total suspended solid), VSS (volatile suspended solid), pH and total Nitrogen. In this fermentation

process, the formed biogas was observed at intervals of 5 days for 30 days. During the research, the pH and temperature of the process were observed periodically. The biogas yield was analyzed for its composition. The detail research stages can be seen in Figure 1. below;

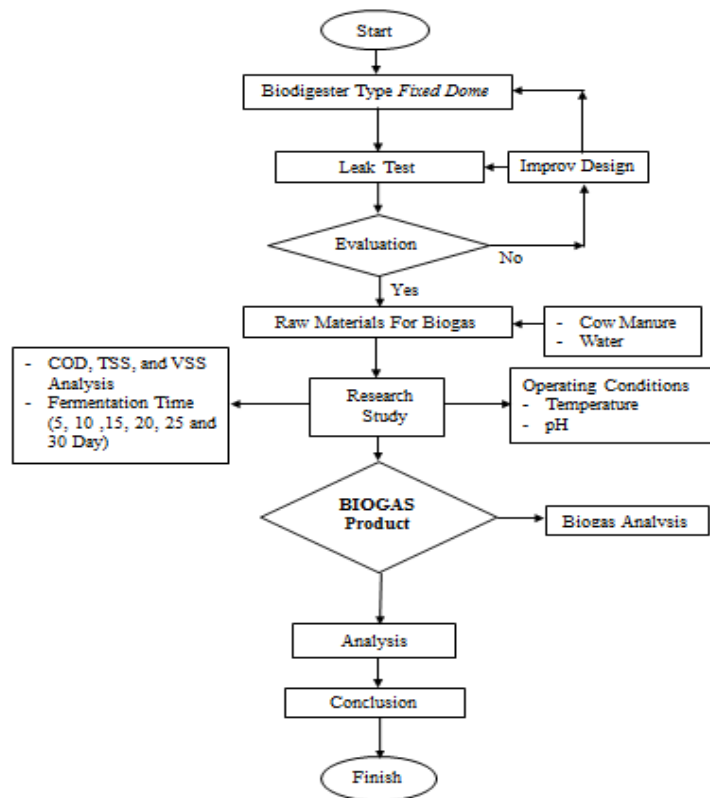


Figure 1. Research Stages

The following Figure 2. is a fixed dome type biodigester used in this research. Biodigester has a total volume of 500 liters with 80% filled with cow manure slurry. This tools equipped with control panel.



Figure 2. Fixed Dome Biodigester

3. Results and Discussions

The following in Table 1 shows the results of the analysis of the biogas raw materials derived from cow dung.

Table 1. Raw Material Analysis

No.	Parameters	Content
1.	COD	10.240 mg/l
2.	TSS	11.675 mg/l
3.	VSS	9.930 mg/l
4.	pH	6,7

The cow manure had high organic content of 10.240 mg/l. The total suspended solid content of 11.675 mg/, and volatile solid of 9.930 mg/l. The substrates then were regulated with C/N ratio of 25:1, where ini anaerobic digestion of cow manure C/N ratio usually around 20-30:1. For its pH the value was 6,7, it was close to neutral pH so it did not need initial treatment to increase the pH of cow manure.

Observation of pH during the fermentation process in fixed dome biodigester as shown in following Figure 3. Observation were carried out every 5 days for 30 days.

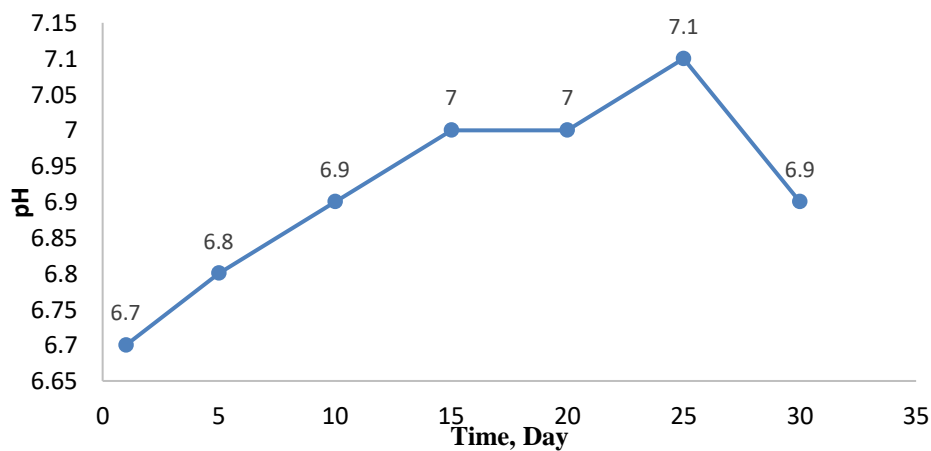


Figure 3. Observation of pH in Biodigester

From the figure above, at the beginning of the fermentation process until the 10th day, the pH was still relatively low it was between 6,7 to 6,9, but continued to increase to the value of 7 on day 15th in reaches 7,1 on the 25th day. However on the 30th day, the pH dropped again. These results were in accordance with the research conducted by [13], where the optimum pH in the formation of methane gas was between 7 – 7,2.

For the observation of temperature, it was shown in Figure 4, the observations were made for 30 days of fermentation. The following is an overview of the temperature profile in the biodigester.

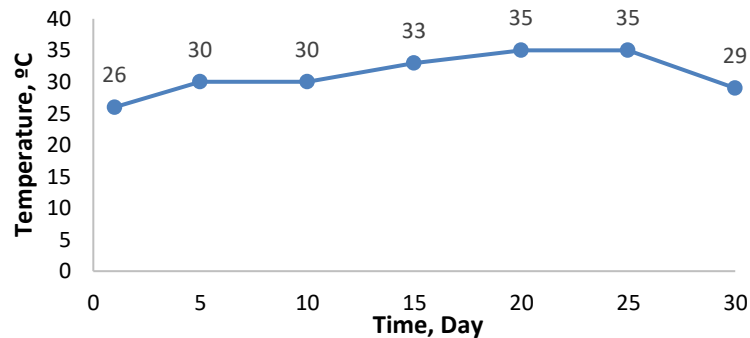


Figure 4. The Observation of Temperature in Biodigester

From Figure 4 above, the temperature in the biodigester from the first day to the 25th day tent to increase indicating the activity of microorganisms continued to grow. On the first day, it was recorded that the temperature in the biodigester was 26°C, then it continued to increase to 35°C on the 20th day and the 25th day, but on the 30th day the temperature declined to 29°C. As stated by [14] that the time of the fermentation process by *mesophilic* in producing methane gas was between 20 to 30 days with temperatures between 30-40°C.

From the results of biogas fermentation with cow manure slurry, which was carried out for 30 days of fermentation in *fixed dome* type biodigesters with a range of 5, 10, 15, 20, 25 and 30 days after analysis to determine the gas composition or gas content produced from the biodigester using *Gas Chromatography* (GC) analysis, the data were obtained as shown in Table 2. This analysis was carried out at PT. Pupuk Sriwidjaja Palembang.

Table 2. Biogas Composition

Day	Biogas Composition	(%)
5	Oxygen (O ₂)	0
	Nitrogen (N ₂)	0
	Methane (CH ₄)	0
	Carbon Dioxide(CO ₂)	0
10	Oxygen (O ₂)	21,01%
	Nitrogen (N ₂)	70,20%
	Methane (CH ₄)	8,41%
	Carbon Dioxide (CO ₂)	0,38%
15	Oxygen (O ₂)	16,96%
	Nitrogen (N ₂)	43,78%
	Methane (CH ₄)	37,42%
	Carbon Dioxide (CO ₂)	1,84%
20	Oxygen (O ₂)	14,27%
	Nitrogen (N ₂)	33,41%
	Methane (CH ₄)	48,27%
	Carbon Dioxide(CO ₂)	4,05%
25	Oxygen (O ₂)	4,75%
	Nitrogen (N ₂)	10,97%
	Methane (CH ₄)	59,12%
	Carbon Dioxide (CO ₂)	25,16%
30	Oxygen (O ₂)	3,27%
	Nitrogen (N ₂)	14,98%
	Methane (CH ₄)	50,04%
	Carbon Dioxide (CO ₂)	31,64%

Based on data from Table. 2 on day 5th from the fermentation of methane gas had not been formed. After 10 days, the results were 8.41%. On day 15th, it was 37.24%, day 20th was 48.27%, on day 25th was 59.16% and day 30th was 50.04%. Thus the longer the time, the larger the methane gas formed. However, the optimum condition in the formation of methane gas (CH₄) occurred on day 25th with concentration of 59.16%. After 25 days the fermentation of the methane gas produced began to decrease. The reduction of methane gas was due to the carbon substrate was converted into biogas decreased, as stated by [14] that the time for fermentation process by mesophilic microorganisms was between 20-30 days with a temperature of 30-40°C. This biogas after the flame test produced adequately large flame.

4. Conclusion

The research on the production of biogas from cow manure using a fixed dome biodigester with batch process showed that time greatly influences the process of making biogas, the longer the fermentation process, the more methane gas produced increases. However, the optimum condition for fermentation time was 25 days with methane gas produced at 59.12% .

References

- [1] Luque Rafael, Juan Campelo and James Clark. 2011. Handbook of Biofuels Production Process and Technologies. Woodhead Publishing.
- [2] Suminto, Danar A.S , And Reza L, 2013. "Standard Need In Supporting Development Of New Energy" , *Standarization Research And Development Center*. (Badan Standarisasi Nasional),
- [3] M. Herout, J. Malatak, L. Kucera, And T. Dlabaja, 2011. *Biogas Composition Depending On The Type Of Plant Biomass Used*," Res. Agr. Eng., 57 : 137 - 143.
- [4] Sonong, Muh. Yusuf Y, Marhatang, Remignius T, And Herman N, 2014. "Portable Model Biogas Generating System" , *Sinergi* No 2 Vol. 12.
- [5] Teguh.W.W, Ahmad A, Ana N, And Elita R, 2016. *Desaign And Development Of Biogas Reactor For Farmer Group Scale*, Balai Besar Pengembangan Mekanisasi Pertanian, No 1 Vol. 11.
- [6] Sholeh Ahmad,Sunyoto, Dony Hidayat Al Janan. 2012. "Analysis of The Composition of Water Mixtures With Cow Manure and Laying The Position of The Digester Against The Preasure of The Gas Produced" , *Journal of Mechanical Engineering Learning*. Universitas Negeri Semarang.
- [7] Elida N, Bambang M, Dan Mohamad Wawan S, 2016. *Sistem Kontrol Suhu Proses Anaerobik Pada Penanganan Limbah Cair Pengolahan Kopi*, " *Prosiding Seminar Nasional*, APTA..
- [8] Shiwei Wang , Fang Ma , Weiwei Ma, Ping Wang, Guang Zhao and Xiaofei Lu. 2019. *Influence of Temperature on Biogas Production Efficiency and Microbial Community in a Two-Phase Anaerobic digestion sistem*
- [9] Suyitno, Agus. S, Dharmanto, 2010. "Bioga Technology (Manufacture, Operational And Utilization)", *Graha Ilmu Yogyakarta Edisi I*.
- [10] P. Merlin Christy, L.R. Gopinath And D. Divya, 2014. *Microbial Dynamics During Anaerobic Digestion Of Cow Dung*, " *IJPAES*, Vol-4.
- [11] Liu, Tong. 2019. *Production from Lignoceluloses Residu*. Doctoral Tesis. Swedish University of Agricultural Science
- [12] Rabii Anahita , Saad Aldin, Yaser Dahman and Elsayed. 2019. *Energies*. A Review on Anaerobic Co-Digestion with a Focus on the Microbial Populations and the Effect of Multi-Stage Digester Configuration

- [13] Dioha, I.J , M.B.S. C.H. Ikeme, T. Nafi'U, N.I. Soba and Yusuf M.B.S 2013. Effect of Carbon to Nitrogen Rasio on Biogas Production. International Research Journal of Natural Science, Vol 1 No. 3.
- [14] Yohannes, Meaza Tadesse. 2010. Biogas Potential from Cow Manure. Master Thesis. Swedish University of Agricultural Science.



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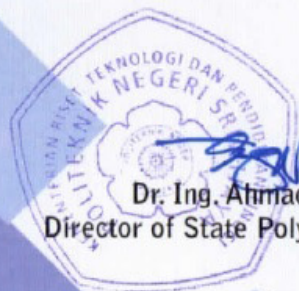
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