

# **KORESPONDENSI ARTIKEL**

**Judul Paper : Biogas Production from Coffee Pulp and Chicken Feathers  
Using Liquid- and Solid-State Anaerobic Digestions**

**Nama Jurnal : Energies**

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**SJR Index : 0.6 (2020)**

**Reputasi : Scopus Q2**

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**Judul Paper** : Effects of Pretreatment and Ratio of Solid Sago Waste to Rumen on Biogas  
Production through Solid-State Anaerobic Digestion

Item	Halaman
Submission Received (29 Juni 2021)	1-4
Assistant Editor Assigned (30 Juni 2021)	5-23
Major Revisions (12 Juli 2021)	24
Manuscript Resubmitted (19 Juli 2021)	25-31
Manuscript Resubmitted (24 Juli 2021)	32
Accepted for Publication (28 Juli 2021)	33
Final Proofreading Before Publication 30 Juli 2021)	34-35



Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Submission Received**

1 message

**Editorial Office** <energies@mdpi.com>

Tue, Jun 29, 2021 at 1:04 PM

Reply-To: energies@mdpi.com

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;

Dear Dr. Sumardiono,

Thank you very much for uploading the following manuscript to the MDPI submission system. One of our editors will be in touch with you soon.

Journal name: Energies

Manuscript ID: energies-1297785

Type of manuscript: Article

Title: Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions

Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

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Submitted to section: Bio-Energy,

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reserves the right to contact all authors to confirm this in case of doubt. I will provide email addresses for all authors and an institutional e-mail address for at least one of the co-authors, and specify the name, address and e-mail for invoicing purposes.

If you have any questions, please do not hesitate to contact the Energies editorial office at [energies@mdpi.com](mailto:energies@mdpi.com)

Kind regards,

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\*\*\* This is an automatically generated email \*\*\*

28<sup>th</sup> June 2021

Prof. Dr. Enrico Sciubba

Editor-in-Chief

*Energies*

Dear Editor:

Please find enclosed our manuscript entitled “Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions,” which we request you to consider for publication as an *Original Article* in *Energies*.

This study aims to examine the effect of total solid (TS) percentage, C/N ratio, and delignification pretreatment on the production of biogas from coffee pulp and chicken feathers and to compose kinetics using the Gompertz model. The lower the percentage of TS, the faster the organic matter degrades, the higher the COD reduction, and the faster the biogas production. Herein, COD reduction and biogas production increased optimally at 25 C/N ratios. Owing to the limited nutrient content, the microbial growth decelerated at a higher C/N ratio (nitrogen). The influence of pretreatment delignification is to facilitate micro-organisms on substrate decomposition to alter the material's structure and composition and increase the rate of hydrolysis enzymes, enabling faster COD reduction and substrate conversion into biogas. According to the Gompertz method, the 25% TS and 25 C/N ratios with the delignification process yield the best biogas production rate with 13,498.64-mL potential biogas that can be produced (A), a 419.38-mL/day biogas production rate (U), 23.09 days as the minimum time required to produce biogas ( $\lambda$ ), and a resulting  $R^2$  value of 0.9961.

This manuscript has not been published elsewhere and is not under consideration by another journal. This research was funded by the Faculty of Engineering, Universitas Diponegoro through the Strategic Research 2019 Scheme, grant number 167/UN7.5.3/HK/2019. We have approved the manuscript and agree with submission to *Energies*. There are no conflicts of interest to declare.

We believe that the findings of this study are relevant to the scope of your journal and will be of interest to its readership. The manuscript has been carefully reviewed by an experienced editor whose first language is English and who specializes in editing papers written by scientists whose native language is not English.

We look forward to hearing from you at your earliest convenience.

Sincerely,

Siswo Sumardiono

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**[Energies] Manuscript ID: energies-1297785 - Major Revisions**

1 message

**Energies Editorial Office** <energies@mdpi.com>

Mon, Jul 12, 2021 at 4:31 PM

Reply-To: stephanie.sang@mdpi.com

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

Dear Dr. Sumardiono,

Thank you again for your manuscript submission:

Manuscript ID: energies-1297785

Type of manuscript: Article

Title: Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions

Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

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Submitted to section: Bio-Energy,

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Your manuscript has now been reviewed by experts in the field. Please find your manuscript with the referee reports at this link:

<https://susy.mdpi.com/user/manuscripts/resubmit/9bc8a1360332cdf89863c6d7d20ba95a>**Please revise the manuscript according to the referees' comments and upload the revised file within 7 days.**

Please use the version of your manuscript found at the above link for your revisions.

(I) Any revisions to the manuscript should be marked up using the "Track Changes" function if you are using MS Word/LaTeX, such that any changes can be easily viewed by the editors and reviewers.

(II) Please provide a cover letter to explain, point by point, the details of the revisions to the manuscript and your responses to the referees' comments.

(III) If you found it impossible to address certain comments in the review reports, please include an explanation in your rebuttal.

(IV) The revised version will be sent to the editors and reviewers.

If one of the referees has suggested that your manuscript should undergo extensive English revisions, please address this issue during revision. We propose that you use one of the editing services listed at <https://www.mdpi.com/authors/english> or have your manuscript checked by a native English-speaking colleague.

Do not hesitate to contact us if you have any questions regarding the revision of your manuscript. We look forward to hearing from you soon.

Kind regards,

Ms. Stephanie Sang

Assistant Editor

/Energies/ (IF: 3.004; CiteScore: 4.7; <http://www.mdpi.com/journal/energies>)LinkedIn: <https://ch.linkedin.com/in/energies>

## REVIEWER 1

English language and style

- (x) Extensive editing of English language and style required
- ( ) Moderate English changes required
- ( ) English language and style are fine/minor spell check required
- ( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	( )	(x)	( )
Is the research design appropriate?	( )	( )	(x)	( )
Are the methods adequately described?	( )	( )	( )	(x)
Are the results clearly presented?	( )	( )	(x)	( )
Are the conclusions supported by the results?	( )	( )	(x)	( )
Comments and Suggestions for Authors				

1. Please write full words or phrases before shortened form when using them for the first time(C/N, BP)
2. Please write the units for the C/N ratios (mol/ mol, g/g, etc.)
3. Materials and Methods-Please write the Gompertz equation, explain the variables and explain the procedure for kinetic parameter determination and optimisation.
4. Line 70: Please give additional information on the pretreatment process (NaOH concentration, solid to liquid ratio, temperature, mixing, washing of the feather after pretreatment or neutralisation, etc.)
5. Line 16-17. „Based on Gompertz method....“ The best combination of cultivation conditions was chosen based on obtained data, not on the Gompertz equation. Please reconsider the sentence.
6. Line 18-19 „..., with potential biogas of 13,498.64 ml at per day production rate of 419.38 mL/day; the biogas is produced in23.09 days, with...“ This part of the sentence is unclear, and units are incorrect. Please check and correct.
7. Lines 20-21, Keywords solid, liquid and waste, are too general. Please reconsider and write more specific ones.
8. Lines 46-48 „The ratio of feedstock to inoculum determines the biogas production rate because microorganisms need nutrition to multiply and produce biogas carbon, protein, hydrogen, nitrogen, and minerals [10]. Microorganisms need nutrients for growth, but this is well-known, and there is no need to write that in a scientific paper. Please rewrite the sentence.
9. Line 51 „The optimum ratio of C/N in biogas is 25–30 [11]“ The authors already mentioned optimal pH at line 31 „...an optimal result owing to its high C/N ratio of 25–30 [5].“ Please rewrite or delete the sentence.
10. Line 54 „total solid (TS) percentage, carbon/nitrogen ratio, and“ Please use abbreviation C/N instead of „carbon/nitrogen“.
11. Line 56 „and to compose kinetics using the Gompertz model.“ Please rewrite this part of the sentence because it is unclear.
12. Lines 62- 63 Please write the names of chemical producers.
13. Line 67 Please rewrite the title of Fig 1, e.g. Scheme of the biogas production process



14. Lines 70-71 „Water and NaOH solution 3% g/g TS were added to chicken feathers, and coffee pulp depends on it.“ This sentence is unclear. Please rewrite the sentence.
15. Line 78 „Every two days for 90 days...“ The sentence is not clear; please rewrite it.
16. Lines 78-79 „biogas production and chemical oxygen demand (COD) were observed for every digester“ I assume that you determined COD analytically every two days. Therefore instead of „observed“ it should be written „determined“.
17. Lines 84-85: „...using Mn titration with KMnO<sub>4</sub> 0.01 N“ Please check the method and correct the sentence accordingly. Furthermore, explain how did you withdraw the liquid sample and how did you prepare it for COD determination.
18. Materials and Methods. Please describe the method for determination of initial nitrogen e.i. C/N.
19. Line 96 „Figures 2 and 3 show that the biogas COD decreased every two days for each run“ Please delete „biogas“. COD is determined in the liquid phase and not in the gas phase.
20. Line 97: COD decreased more rapidly during the first 6 days of cultivation. The decrease of COD declined in the following days. Please correct the text.
21. Section Results and Discussion has to be rewritten. Results have to be first explained, discuss and compare to literature data.
22. Lines 100-102 „The decrease in COD indicates acid consumption for methane production; therefore, the degradation of complex organic matter into methane and biogas was effective [14,16].“ The decrease of COD does not indicate acid consumption; this indicates the degradation of dissolved organic matter in a liquid phase. Please correct.
23. Lines 111-113 „The decrease in COD indicates acid consumption for methane production; therefore, the degradation of complex organic matter into methane and biogas was effective [14,16].“ COD consumption indicates degradation of organic matter but not necessarily the production of methane. Have you confirmed methane presence in gas using the analytical method?
24. Lines 113-114 „Reduced COD levels in anaerobic digestion indicate that materials other than acids can be degraded [18]“. This is partially correct. The presence of organic acid in the liquid phase also increases COD. Please correct the text.
25. Line 111 „The solubility decreased as the percentage of TS increase...“ The solubility of solids in water was not analytically determined. Please correct the text
26. Line 129-131 „The lag phase occurs when bacteria adjust to a new environment [23]. On the 20th day, the microorganism entered their stationary phase, with significant differences in each stage of the biogas production process. “ In Fig 4 and 5 are presented a typical curve for product concentration in the batch process. They are consistent with substrate consumption curves (COD curves presented in Fig. 2 and 3). Since the microorganism concentration was not determined in the process, authors should not assume the growth phase of the microorganism based on Fig. 2-5.
27. Lines 192-197 „Figures 11 and 12 depict the liquid- and solid-state variable research showing the same phenomenon. The intended phenomenon is that the non-delignification process performs slightly better than the delignification process on the C/N 25 variable, whereas, 195 on the C/N 30 variable, the delignification process performs significantly better than the non-delignification process in terms of biogas volume accumulation“ In this subsection, the authors studied the effect of delignification on biogas production. Therefore I suggest changing the title of the subsection, e.g. effect of pretreatment or delignification on biogas production.
28. Please check the results presented in Fig. 11.; biogas production (pretreated and raw substrate, 20 % TS and C/N=25) tends to follow a bell-shaped curve. This is

inconsistent with curves obtained under other conditions (S-shaped curve).

Furthermore, according to the presented results, biogas production at both C/N ratios is more efficient with the pretreated substrate. On the contrary, the authors claim that substrate without pretreatment at C/N= 25 is more suitable for biogas production.

Please revise the text (see Fig 11. and 12).

29. Lines 204-212 The author claims that delignification of lignocellulosic substrate improves digestibility and biogas production. However, the substrate also contains feathers which contained 80 % of protein. Please comment on the effect of pretreatment on the digestibility of this substrate.
30. Lines 214-221 Please write the kinetic parameters for Gompertz function and conduct a statistical evaluation of model acceptability.

## REVIEWER 2

English language and style

- ☐ Extensive editing of English language and style required
- ☐ Moderate English changes required
- ☒ English language and style are fine/minor spell check required
- ☐ I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is the research design appropriate?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are the methods adequately described?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are the results clearly presented?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are the conclusions supported by the results?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comments and Suggestions for Authors				

The search for new substrates for biogas production is very important from an ecological point of view. Here are some notes on the manuscript:

1. The curves in the drawings should not only differ in color.
2. Will the research results find practical application in a biogas plant?
3. The Conclusion section should be expanded.
4. The English language should be checked by a native English translator.
5. Please cite the latest biogas publications from the "energies" journal.

## REVIEWER 3

English language and style

- (x) Extensive editing of English language and style required
- ( ) Moderate English changes required
- ( ) English language and style are fine/minor spell check required
- ( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	( )	(x)	( )
Is the research design appropriate?	( )	( )	(x)	( )
Are the methods adequately described?	( )	( )	(x)	( )
Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	( )	(x)	( )	( )
Comments and Suggestions for Authors				

Dear Authors,

I have read Your manuscript and a substantial revision should be done, with a deeper analysis and a major data support. Furthermore, a general editing of English language is required, with a particular attention to grammar. Please also see some comments:

1. Please put keywords in alphabetical order.
2. Avoid reference lumping- more than 3.
3. The Intruduction section must be strengthened with references. Please describe area of research considering scope of the Journal, emphasise the novelty.
4. Please verify statement in lines 39-40: If water content will be 12%, the AD would be impossible to perform. Please verify the AD classification, concerning dry matter content and process temperature. Please verify Jornal and Publisher articles in this are, e.g. <https://doi.org/10.3390/molecules23123146>, <https://doi.org/10.3390/molecules26144175> , <https://doi.org/10.3390/en14123611>
5. Lines 49-53 - please verify, compare to other research results, regarding to optimal pH values, temperature range, etc.
6. Please verify the aim of the study- once again please emphasise the novelty and try to emphasise the pretreatment process and co-digestion.
7. The paper lacks data on the input characteristics (AD feedstocks). For discussion in this paper, it would be useful to have an overview table of the input data.
8. The Materials and methods section is very limited. It would be useful to describe the analytical procedures that were used. Now we do not know e.g. how many replicates per sample were used, how samples were collected, how delignification was performed, what were the AD process conditions, etc.
9. The figure 1 should support the process description, but it cannot replce it- please add research description.
10. Please add used equipment, reagents details, i.e. manufacturer, model, city, country, etc.

11. The statistical research should be described- please describe the applied Gompertz model, potential biogas and produced biogas rate calculations, i.e. please provide equations.
12. Lines 204-212- please verify if should not be removed to Introduction section.
13. Please consider connection of some figures for better comparison - it would be easier for readers, e.g. Fig 4 and Fig. 5
14. The results discussion must be strengthened.

## REVISION NOTE BASED ON REVIEWERS COMMENTS

Journal Name : Energies (ISSN 1996-1073)  
 Manuscript ID : Energies-1297785  
 Title : "Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions"  
 Author(s) : Siswo Sumardiono, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

### Reviewer 1

1	Comment 1	Please write full words or phrases before shortened form when using them for the first time(C/N, BP)
	Response	The revised text reads as follows on (line 23-24 in the revised manuscript)
2	Comment 2	Please write the units for the C/N ratios (mol/ mol, g/g, etc.)
	Response	The revised text reads as follows on (line 11 and 33 in the revised manuscript)
3	Comment 3	Materials and Methods-Please write the Gompertz equation, explain the variables and explain the procedure for kinetic parameter determination and optimisation.
	Response	The revised text reads as follows on (line 90-105 in the revised manuscript)
4	Comment 4	Line 70: Please give additional information on the pretreatment process (NaOH concentration, solid to liquid ratio, temperature, mixing, washing of the feather after pretreatment or neutralisation, etc.)
	Response	The revised text reads as follows on (line 82-98 in the revised manuscript)
5	Comment 5	Line 16-17. „Based on Gompertz method....“ The best combination of cultivation conditions was chosen based on obtained data, not on the Gompertz equation. Please reconsider the sentence.
	Response	The revised text reads as follows on (line 16-21 in the revised manuscript)
6	Comment 6	Line 18-19 „..., with potential biogas of 13,498.64 ml at per day production rate of 419.38 mL/day; the biogas is produced in23.09 days, with...“ This part of the sentence is unclear, and units are incorrect. Please check and correct.
	Response	The revised text reads as follows on (line 18 in the revised manuscript)
7	Comment 7	Lines 20-21, Keywords solid, liquid and waste, are too general. Please reconsider and write more specific ones.
	Response	The revised text reads as follows on (line 21-22 in the revised manuscript)
8	Comment 8	Lines 46-48 „The ratio of feedstock to inoculum determines the biogas production rate because microorganisms need nutrition to multiply and produce biogas carbon, protein, hydrogen, nitrogen, and minerals [10]. Microorganisms need nutrients for growth, but this is well-known, and there is no need to write that in a scientific paper. Please rewrite the sentence.

	Response	Thanks for the correction, the revised text reads as follows on (line 48-49 in the revised manuscript)
9	Comment 9	Line 51 „The optimum ratio of C/N in biogas is 25–30 [11]“ The authors already mentioned optimal pH at line 31 „...an optimal result owing to its high C/N ratio of 25–30 [5].“ Please rewrite or delete the sentence.
	Response	Thanks for the correction, the revised text reads as follows on (line 32-33 in the revised manuscript)
10	Comment 10	Line 54 „total solid (TS) percentage, carbon/nitrogen ratio, and“ Please use abbreviation C/N instead of „carbon/nitrogen“.
	Response	Thanks for the correction, the revised text reads as follows on (line 65 in the revised manuscript)
11	Comment 11	Line 56 „and to compose kinetics using the Gompertz model.“ Please rewrite this part of the sentence because it is unclear.
	Response	Thanks for the correction, the revised text reads as follows on (line 67 in the revised manuscript)
12	Comment 12	Lines 62- 63 Please write the names of chemical producers.
	Response	The revised text reads as follows on (line 74-75 in the revised manuscript)
13	Comment 13	Line 67 Please rewrite the title of Fig 1, e.g. Scheme of the biogas production process
	Response	The revised text reads as follows on (line 81 in the revised manuscript)
14	Comment 14	Lines 70-71 „Water and NaOH solution 3% g/g TS were added to chicken feathers, and coffee pulp depends on it.“ This sentence is unclear. Please rewrite the sentence.
	Response	The revised text reads as follows on (line 83-85 in the revised manuscript)
15	Comment 15	Line 78 „Every two days for 90 days...“ The sentence is not clear; please rewrite it.
	Response	“Biogas production and chemical oxygen demand (COD) of each digester are determined Every two days for 90 days”. The revised text reads as follows on (line 100-101 in the revised manuscript)
16	Comment 16	Lines 78-79 „biogas production and chemical oxygen demand (COD) were observed for every digester“ I assume that you determined COD analytically every two days. Therefore instead of „observed“it should be written „determined“.
	Response	Thanks for the correction, the revised text reads as follows on (line 101 in the revised manuscript)
17	Comment 17	Lines 84-85: „...using Mn titration with KMnO4 0.01 N“ Please check the method and correct the sentence accordingly. Furthermore, explain how did

		you withdraw the liquid sample and how did you prepare it for COD determination.
	Response	The digester that we use is equipped with a liquid sampler at the bottom of the digester. So it is easier to take liquid samples for COD analysis. We have improved the method so that it is more clear. The improved text reads as follows on (line 107-115 in the revised manuscript)
18	Comment 18	Materials and Methods. Please describe the method for determination of initial nitrogen e.i. C/N.
	Response	<p>a. Nitrogen content</p> <p>Initial nitrogen content was tested by the Kjeldahl method (Bremmer and Mulvaney, 1982). Weigh 1 g of the sample that has been smooth and oven-dried, then put it in a Kjeldahl flask. Add 14 g of anhydride <math>\text{Na}_2\text{SO}_4</math>, 1.6 g of <math>\text{CuSO}_4 \cdot 5\text{H}_2\text{O}</math>, and 25 ml of concentrated <math>\text{H}_2\text{SO}_4</math>, digest until the solution becomes clear. Cool the pumpkin and add enough distilled water; put it in the distillation flask. Add 4 g of Zn powder and 100 ml of 5 N NaOH. Distillate for 30-45 minutes. The distillate formed was flowed into an Erlenmeyer containing 150 ml of saturated boric acid which has been dripped with MO 3 drops. Measure the volume of distillate and boric acid in Erlenmeyer (V solution). Take a certain volume of distillate (V2). Titration (V2) obtained with 0.02 N HCl titrant. The nitrogen content is determined by the following equation:</p> $\% \text{ nitrogen} = \frac{(v1.N)HCl \times AR \text{ nitrogen} \times V \text{ solution}}{V2 \times g \text{ dry sample} \times 1000} \times 100\%$ <p>b. Carbon content</p> <p>The initial carbon content was determined by the Walkley and Black method (1934), weighing 1 g in a 100 ml Erlenmeyer. Then add 10 ml of <math>\text{K}_2\text{Cr}_2\text{O}_7</math> 1 N into the sample. Then add 20 ml of concentrated <math>\text{H}_2\text{SO}_4</math>, let stand the sample for 30 minutes while occasionally shaken. It was added to the solution with 100 ml of distilled water, 5 ml of <math>\text{H}_3\text{PO}_4</math>, and 1 ml of diphenylamine indicator. Titrate the sample with 1 N <math>\text{FeSO}_4</math> solution until the color changes to green. Organic C content is calculated by the equation:</p> $C - \text{organic} = \frac{(N.V)K_2Cr_2O_7 \times (N.V)FeSO_4 \times 0.33}{g \text{ dry sample} \times 0.77} \times 100\%$
19	Comment 19	Line 96 „Figures 2 and 3 show that the biogas COD decreased every two days for each run“ Please delete „biogas“. COD is determined in the liquid phase and not in the gas phase.
	Response	Thanks for the correction, the revised text reads as follows on (line 143 in the revised manuscript)



20	Comment 20	Line 97: COD decreased more rapidly during the first 6 days of cultivation. The decrease of COD declined in the following days. Please correct the text.
	Response	the revised text reads as follows on (line 145 in the revised manuscript)
21	Comment 21	Section Results and Discussion has to be rewritten. Results have to be first explained, discuss and compare to literature data.
	Response	We have revised some sentences and set a pattern in constructing a good discussion, as you suggested. the revised text reads as follows (results and discussion section in the revised manuscript)
22	Comment 22	Lines 100-102 „The decrease in COD indicates acid consumption for methane production; therefore, the degradation of complex organic matter into methane and biogas was effective [14,16].“ The decrease of COD does not indicate acid consumption; this indicates the degradation of dissolved organic matter in a liquid phase. Please correct.
	Response	The revised text reads as follows on (line 147-148 in the revised manuscript)
23	Comment 23	Lines 111-113 „The decrease in COD indicates acid consumption for methane production; therefore, the degradation of complex organic matter into methane and biogas was effective [14,16].“ COD consumption indicates degradation of organic matter but not necessarily the production of methane. Have you confirmed methane presence in gas using the analytical method?
	Response	<p>The decrease in COD indicates the degradation of dissolved organic matter in the liquid phase. Degradation of organic matter indicates that there is a molecular change in the substrate [21,22]. Microorganisms break down long chains of complex carbohydrates, proteins, and lipids into shorter parts, monomers, oligomers into glucose, glycerol, purines, and pyrimidines [23]. These monomers will then become substrates for further biogas formation reactions, acidogenesis, acetogenesis, and methanogenesis [24].</p> <p>the revised text reads as follows on (line 147-153 in the revised manuscript)</p> <p>The data presented is the result of analytical analysis, where the methane content is analyzed by gas chromatography.</p>
24	Comment 24	Lines 113-114 „Reduced COD levels in anaerobic digestion indicate that materials other than acids can be degraded [18]“. This is partially correct. The presence of organic acid in the liquid phase also increases COD. Please correct the text.
	Response	the revised text reads as follows on (line 162-164 in the revised manuscript)
25	Comment 25	Line 111 „The solubility decreased as the percentage of TS increase...“ The solubility of solids in water was not analytically determined. Please correct the text

	Response	The revised text reads as follows on (line 160-162 in the revised manuscript)
26	Comment 26	Line 129-131 „The lag phase occurs when bacteria adjust to a new environment [23]. On the 20th day, the microorganism entered their stationary phase, with significant differences in each stage of the biogas production process. “ In Fig 4 and 5 are presented a typical curve for product concentration in the batch process. They are consistent with substrate consumption curves (COD curves presented in Fig. 2 and 3). Since the microorganism concentration was not determined in the process, authors should not assume the growth phase of the microorganism based on Fig. 2-5.
	Response	We did not determine the concentration of microorganisms during the biogas production process. so we agree to revise the discussion regarding the assumption of the growth phase of microorganisms The revised text reads as follows on (line 179-180 in the revised manuscript)
27	Comment 27	Lines 192-197 „Figures 11 and 12 depict the liquid- and solid-state variable research showing the same phenomenon. The intended phenomenon is that the non-delignification process performs slightly better than the delignification process on the C/N 25 variable, whereas, 195 on the C/N 30 variable, the delignification process performs significantly better than the non-delignification process in terms of biogas volume accumulation“ In this subsection, the authors studied the effect of delignification on biogas production. Therefore I suggest changing the title of the subsection, e.g. effect of pretreatment or delignification on biogas production.
	Response	The revised title of subsection 3.3 reads as you suggest (lines 224 in the revised text)
28	Comment 28	Please check the results presented in Fig. 11.; biogas production (pretreated and raw substrate, 20 % TS and C/N=25) tends to follow a bell-shaped curve. This is inconsistent with curves obtained under other conditions (S-shaped curve). Furthermore, according to the presented results, biogas production at both C/N ratios is more efficient with the pretreated substrate. On the contrary, the authors claim that substrate without pretreatment at C/N= 25 is more suitable for biogas production. Please revise the text (see Fig 11. and 12).
	Response	We apologize for our carelessness. There was an axis naming error, Figure 11 should be the rate of biogas production, not the volume of biogas accumulation, and there is a sentence in our article that confuses you, the actual fact that pretreatment (delignification) has an impact on increasing biogas production, compared to without delignification process The revised text reads as follows on (line 242-247 in the revised manuscript)
29	Comment 29	Lines 204-212 The author claims that delignification of lignocellulosic substrate improves digestibility and biogas production. However, the substrate also contains feathers which contained 80 % of protein. Please comment on the effect of pretreatment on the digestibility of this substrate.

	Response		We use chicken feathers to increase the C/N ratio in the substrate for biogas production. When the coffee pulp is delignified and hydrolyzed, the feathers undergo hydrolysis to a simpler form. Coffee pulp and feather are processed together so that the recorded impact of decreasing COD value and increasing biogas volume is a form of synergistic collaboration between the two.
30	Comment 30		Lines 214-221 Please write the kinetic parameters for Gompertz function and conduct a statistical evaluation of model acceptability.
	Response		The text of the kinetic parameters for the Gompertz function reads as follows at (lines 121-136 in the revised manuscript) and the statistical evaluation of the acceptability of the model reads as follows at (lines 263-265 in the revised manuscript)

## REVISION NOTE BASED ON REVIEWERS COMMENTS

Journal Name : Energies (ISSN 1996-1073)  
Manuscript ID : Energies-1297785  
Title : "Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions"  
Author(s) : Siswo Sumardiono, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

### Reviewer

1	Comment 1	The curves in the drawings should not only differ in color.
	Response	The curves in all figures (figure 2 - figure 13) have been fixed, not only differ in color we also add different markers on each of the curves
2	Comment 2	Will the research results find practical application in a biogas plant?
	Response	With all the potential for abundant materials and biogas production that produces high yields, we firmly believe that the research is feasible and possible to apply at a factory scale. Of course, the effort is needed in detailing all technical designs so that the scale-up from laboratory scale to industrial scale goes well.
3	Comment 3	The Conclusion section should be expanded.
	Response	The improved text reads as follows on (line 262-263 in the revised manuscript)
4	Comment 4	The English language should be checked by a native English translator.
	Response	Honestly, we have gone through the proofreading process to improve the English Language in two ways, namely using the Grammarly Premium Application we did ourselves and English editing by Enago. The following is attached proof of improvement published by Enago

**Assignment number:** SISSAW-6\_EGP\_AE-1\_MI-1

**Filenames:** MI-1\_Enago\_SISSAW-6\_EGP\_AE-1\_MI-1.docx, MI-2\_Enago\_SISSAW-6\_EGP\_AE-1\_MI-1.docx



#### ACKNOWLEDGEMENT SECTION Important

The Committee on Publication Ethics (COPE) & ICMJE guidelines specify that the English language reviewers (non-authors) of your manuscript should be mentioned in the acknowledgment section. Simply include this sentence to comply:

**"The authors would like to thank Enago ([www.enago.com](http://www.enago.com)) for the English language review."**

Learn more:  
[enago.com/academy/how-to-draft-the-acknowledgment-section-of-a-manuscript/](http://enago.com/academy/how-to-draft-the-acknowledgment-section-of-a-manuscript/)

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Dear Author:

Thank you for availing of our Manuscript Insurance service and entrusting us with your manuscript. We are glad that you have utilized this opportunity for perfecting your manuscript. We have checked the revisions you have made to your assignment SISSAW-6\_EGP\_AE-1\_MI-1 for language and grammar. We have made minor editing changes to the revised text with regard to language and grammar to achieve publishable quality.

In addition, we would like to bring the following points to your notice:

- The text edited by us before has also been revised for further enhancement to maintain consistency based on the new text added.
- We have revised the new text/changes made as per the journal guidelines.


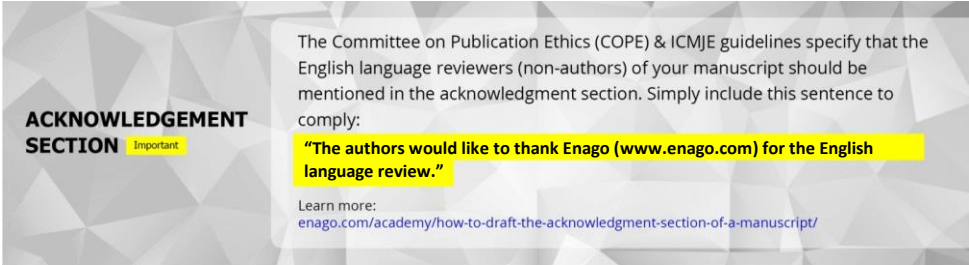


Please be assured that we have edited the revisions to the best of our ability and have clarified some of our changes through remarks. As a step toward finalization, we suggest that you resolve all remarks, as this is important for successful publication.

		<p>Please ensure that you submit a clean file after removing all the highlights/comments added in the manuscript. We wish you all the best for the successful publication of your manuscript and look forward to working with you again.</p> <p>Sincerely, Your Editor</p>
5	Comment 5	Please cite the latest biogas publications from the "energies" journal.
	Response	<p>Based on the need for citations to sharpen the discussion of our article, we have cite two biogas articles published in <i>Energies</i> :</p> <ol style="list-style-type: none"> <li>1. Vasmara, C.; Cianchetta, S.; Marchetti, R.; Ceotto, E.; &amp; Galletti, S. Potassium Hydroxyde Pre-Treatment Enhances Methane Yield from Giant Reed (<i>Arundo donax</i> L.). <i>Energies</i>. <b>2021</b>, 14(3), 630.</li> <li>2. Gao, X., Tang, X., Zhao, K., Balan, V., &amp; Zhu, Q. Biogas Production from Anaerobic Co-Digestion of Spent Mushroom Substrate with Different Livestock Manure. <i>Energies</i>. <b>2021</b>, 14(3), 570.</li> </ol>

## REVISION NOTE BASED ON REVIEWERS COMMENTS

Journal Name : Energies (ISSN 1996-1073)  
 Manuscript ID : Energies-1297785  
 Title : "Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions"  
 Author(s) : Siswo Sumardiono, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

### Reviewer 3

	Comment	I have read Your manuscript and a substantial revision should be done, with a deeper analysis and a major data support. Furthermore, a general editing of English language is required, with a particular attention to grammar.
	Response	<p>We have improved the English Language in two ways, namely using the Grammarly Premium Application we did ourselves and English editing by Enago. The following is attached proof of improvement published by Enago.</p> <p>Assignment number: SISSAW-6_EGP_AE-1_MI-1              Filenames: MI-1_Enago_SISSAW-6_EGP_AE-1_MI-1.docx, MI-2_Enago_SISSAW-6_EGP_AE-1_MI-1.docx</p>    

		<p>Dear Author:</p> <p>Thank you for availing of our Manuscript Insurance service and entrusting us with your manuscript. We are glad that you have utilized this opportunity for perfecting your manuscript. We have checked the revisions you have made to your assignment SISSAW-6_EGP_AE-1_MI-1 for language and grammar. We have made minor editing changes to the revised text with regard to language and grammar to achieve publishable quality.</p> <p>In addition, we would like to bring the following points to your notice:</p> <ul style="list-style-type: none"> <li>- The text edited by us before has also been revised for further enhancement to maintain consistency based on the new text added.</li> <li>- We have revised the new text/changes made as per the journal guidelines.</li> </ul> <p>Please be assured that we have edited the revisions to the best of our ability and have clarified some of our changes through remarks. As a step toward finalization, we suggest that you resolve all remarks, as this is important for successful publication.</p> <p>Please ensure that you submit a clean file after removing all the highlights/comments added in the manuscript. We wish you all the best for the successful publication of your manuscript and look forward to working with you again.</p> <p>Sincerely, Your Editor</p>
1	Comment 1	Please put keywords in alphabetical order.
	Response	The revised text reads as follows on (line 21-22 in the revised manuscript)
2	Comment 2	Avoid reference lumping- more than 3.
	Response	The revised reference lumping reads as follows on (line 118 and 171 in the revised manuscript)
3	Comment 3	The Introduction section must be strengthened with references. Please describe area of research considering scope of the Journal, emphasise the novelty.
	Response	The improved text reads as follows on (line 55-60 in the revised manuscript)
4	Comment 4	<p>Please verify statement in lines 39-40: If water content will be 12%, the AD would be impossible to perform. Please verify the AD classification, concerning dry matter content and process temperature. Please verify Journal and Publisher articles in this are, e.g.</p> <p><a href="https://doi.org/10.3390/molecules23123146">https://doi.org/10.3390/molecules23123146</a>,  <a href="https://doi.org/10.3390/molecules26144175">https://doi.org/10.3390/molecules26144175</a> ,  <a href="https://doi.org/10.3390/en14123611">https://doi.org/10.3390/en14123611</a></p>



	Response	We have cross-checked Manan and Webb's article, and it turns out that we have a little error in understanding the sentence in the article. The revised text reads as follows on (line 44 in the revised manuscript)
5	Comment 5	Lines 49-53 - please verify, compare to other research results, regarding to optimal pH values, temperature range, etc.
	Response	The improved text reads as follows on (line 47-55 in the revised manuscript)
6	Comment 6	Please verify the aim of the study- once again please emphasise the novelty and try to emphasise the pretreatment process and co-digestion.
	Response	The improved text reads as follows on (line 55-60 in the revised manuscript)
7	Comment 7	The paper lacks data on the input characteristics (AD feedstocks). For discussion in this paper, it would be useful to have an overview table of the input data.
	Response	The improved text reads as follows on (line 78 in the revised manuscript)
8	Comment 8	The Materials and methods section is very limited. It would be useful to describe the analytical procedures that were used. Now we do not know e.g. how many replicates per sample were used, how samples were collected, how delignification was performed, what were the AD process conditions, etc.
	Response	The improved text reads as follows on (line 77-126 in the revised manuscript)
9	Comment 9	The figure 1 should support the process description, but it cannot replace it- please add research description.
	Response	The improved text reads as follows on (line 77-100 in the revised manuscript)
10	Comment 10	Please add used equipment, reagents details, i.e. manufacturer, model, city, country, etc.
	Response	The improved text reads as follows on (line 69-71 in the revised manuscript)
11	Comment 11	The statistical research should be described- please describe the applied Gompertz model, potential biogas and produced biogas rate calculations, i.e. please provide equations.
	Response	The improved text reads as follows on (line 112-127 in the revised manuscript)
12	Comment 12	Lines 204-212- please verify if should not be removed to Introduction section.
	Response	We agree with your suggestion. The revised text reads as follows on (line 55-63 (introduction section) in the revised manuscript)
13	Comment 13	Please consider connection of some figures for better comparison - it would be easier for readers, e.g. Fig 4 and Fig. 5
	Response	The revised figures (Figure 4 and Figure 5) can be seen as follows (lines 179 and 189 in the revised manuscript)
14	Comment 14	The results discussion must be strengthened.
	Response	The improved text reads as follows on (line 245-248 in the revised manuscript)



Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Revised Version Received**

1 message

**Energies Editorial Office** <energies@mdpi.com>

Tue, Jul 20, 2021 at 8:31 AM

Reply-To: stephanie.sang@mdpi.com

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

Dear Dr. Sumardiono,

**Thank you very much for providing the revised version of your paper:**

Manuscript ID: energies-1297785

Type of manuscript: Article

Title: Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions

Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

E-mails: [siswo.sumardiono@che.undip.ac.id](mailto:siswo.sumardiono@che.undip.ac.id), [baktijos10@gmail.com](mailto:baktijos10@gmail.com), [agataadven@gmail.com](mailto:agataadven@gmail.com), [isamahendra6996@gmail.com](mailto:isamahendra6996@gmail.com), [hericahyono@che.undip.ac.id](mailto:hericahyono@che.undip.ac.id)

Submitted to section: Bio-Energy,

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We will continue processing your paper and will keep you informed about the status of your submission.

Kind regards,

Ms. Stephanie Sang

Assistant Editor

/Energies/ (IF: 3.004; CiteScore: 4.7; <http://www.mdpi.com/journal/energies>)LinkedIn: <https://ch.linkedin.com/in/energies>

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Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Major Revisions**

1 message

**Energies Editorial Office** <energies@mdpi.com>

Thu, Jul 22, 2021 at 8:28 AM

Reply-To: stephanie.sang@mdpi.com

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

Dear Dr. Sumardiono,

**Thank you again for your manuscript submission:**

Manuscript ID: energies-1297785

Type of manuscript: Article

Title: Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions

Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

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Submitted to section: Bio-Energy,

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Please revise the manuscript according to the referees' comments and upload the revised file within 3 days.

Please use the version of your manuscript found at the above link for your revisions.

(I) Any revisions to the manuscript should be marked up using the "Track Changes" function if you are using MS Word/LaTeX, such that any changes can be easily viewed by the editors and reviewers.

(II) Please provide a cover letter to explain, point by point, the details of the revisions to the manuscript and your responses to the referees' comments.

(III) If you found it impossible to address certain comments in the review reports, please include an explanation in your rebuttal.

(IV) The revised version will be sent to the editors and reviewers.

If one of the referees has suggested that your manuscript should undergo extensive English revisions, please address this issue during revision. We propose that you use one of the editing services listed at <https://www.mdpi.com/authors/english> or have your manuscript checked by a native English-speaking colleague.

Do not hesitate to contact us if you have any questions regarding the revision of your manuscript. We look forward to hearing from you soon.

Kind regards,

Ms. Stephanie Sang

Assistant Editor

/Energies/ (IF: 3.004; CiteScore: 4.7; <http://www.mdpi.com/journal/energies>)Linkedin: <https://ch.linkedin.com/in/energies>

## REVIEWER 1

English language and style

- ☐ Extensive editing of English language and style required
- ☐ Moderate English changes required
- ☐ English language and style are fine/minor spell check required
- ☒ I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	(x)	( )	( )	( )
Is the research design appropriate?	(x)	( )	( )	( )
Are the methods adequately described?	(x)	( )	( )	( )
Are the results clearly presented?	(x)	( )	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )
Comments and Suggestions for Authors				

The revised manuscript is improved. However, some revisions are needed before it is considered for publication.

1. Please write full words or phrases before shortened form when using them for the first time(C/N)

Line 11

Instead of „C/N ratios(g/g)“ should be „, carbon to nitrogen ratio (C/N, g/g)“

2. Please write the units for the C/N ratios (mol/ mol, g/g, etc.) in the text and Tables g. 25 mol/mol (line 17)
3. Lines 83-84: „and divided by 16 variables replicated three times“ The text is hard to understand. Please rewrite it.

## REVIEWER 3

English language and style

- ( ) Extensive editing of English language and style required  
 (x) Moderate English changes required  
 ( ) English language and style are fine/minor spell check required  
 ( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	( )	(x)	( )
Is the research design appropriate?	( )	( )	(x)	( )
Are the methods adequately described?	( )	( )	(x)	( )
Are the results clearly presented?	( )	( )	(x)	( )
Are the conclusions supported by the results?	( )	(x)	( )	( )
Comments and Suggestions for Authors				

Dear Authors,

I have once again read Your article and still some improvements have to be done. Please once again verify previous comments and Yours answers, e.g.

Comment 7- The Authors answer that the improved text reads as follows on (line 78 in the revised manuscript), while line 78 reads: „burette, and stative. The scheme is shown in the last section of this paper in Figure 1” In my opinion, the raw materials used in codigestion should be characterized, e.g. pH, water content, COD, C/N, etc.

Furthermore, please verify comments:

1. The Introduction section must be strengthened. Please explain the co-digestion, which was applied in this study with its advantages and disadvantages; please mention that except of water content also process temperature is used to divide AD into types. Please once again, verify the AD classifications, concerning dry matter content and process temperature.
2. Please verify lines 60-63 and compare with e.g. Table 1- how many raw materials were used in the study?
3. Line 44- You defined AD as SS, with water content at the max level of 70%, while Fig. 1 defined SS-AD with water content max 80%- please verify.
4. What was the AD process temperature?
5. Please write the names of chemical and equipment producers
6. Please verify the punctuation.
7. The Figure 1 should support the process description, but it cannot replace it- please briefly describe the research.
8. Please verify if all abbreviation were explained before using first time, e.g. C/N and verify units.
9. The Materials and Methods section is still limited. Please give additional information on the pretreatment process, method for determination of nitrogen, carbon, etc.

10. Please once again review the Results and Discussion section. Results should be explained, discussed and compared to literature data. Please verify Yours statements, e.g. regarding to COD changes and reasons for that; have You verified fatty acids contents?, have You verified methane content in biogas?

## REVISION NOTE BASED ON REVIEWERS COMMENTS

Journal Name : Energies (ISSN 1996-1073)  
Manuscript ID : energies-1297785  
Title : "Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions"  
Author(s) : Siswo Sumardiono, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

### Reviewer 1 (Round 2)

1	Comment 1	The revised manuscript is improved. However, some revisions are needed before it is considered for publication.
	Response	Thank you for your corrections and suggestions for this manuscript
2	Comment 2	Please write full words or phrases before shortened form when using them for the first time(C/N) line 11 Instead of „C/N ratios(g/g)“ should be „ carbon to nitrogen ratio (C/N, g/g)“
	Response	The revised text reads as follows on “carbon to nitrogen ratio (C/N, g/g)” (line 11 in the revised manuscript)
3	Comment 3	Please write the units for the C/N ratios (mol/ mol, g/g, etc.) in the text and Tables g. 25 mol/mol (line 17)
	Response	C/N units have been added to the revised text
4	Comment 4	Lines 83-84: „and divided by 16 variables replicated three times“ The text is hard to understand. Please rewrite it.
	Response	We've moved the text to section 2.5. Statistical analysis so that this text is not difficult to understand. The revised text reads as follows: "All data in this study were performed in triplicate for each condition" (line 137 in the revised manuscript)

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 Author(s) : Siswo Sumardiono, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

### Reviewer 3 (Round 2)

	Comment	<p>I have once again read Your article and still some improvements have to be done. Please once again verify previous comments and Yours answers, e.g.</p> <p>Comment 7- The Authors answer that the improved text reads as follows on (line 78 in the revised manuscript), while line 78 reads: „burette, and stative. The scheme is shown in the last section of this paper in Figure 1” In my opinion, the raw materials used in codigestion should be characterized, e.g. pH, water content, COD, C/N, etc.</p>
	Response	<p>We did not test C/N, COD, and pH for each raw material. Only water content that we tested, where chicken feathers have a moisture content of 11% and coffee pulp water content of 9%.</p> <p>we analyzed COD, pH, and C/N when the raw materials are mixed and ready for fermentation</p>
1	Comment 1	<p>The Introduction section must be strengthened. Please explain the co-digestion, which was applied in this study with its advantages and disadvantages; please mention that except of water content also process temperature is used to divide AD into types. Please once again, verify the AD classifications, concerning dry matter content and process temperature.</p>
	Response	<p>The high nitrogen content of chicken feathers helps the substrate to achieve the required C/N ratio. so that the two raw materials (coffee pulp and chicken feather) are synergistic. (line 64-66 in the revised manuscript)</p> <p>Biogas production takes place at room temperature (<math>\pm 30^{\circ}\text{C}</math>) as one of the novelties of this research.</p>
2	Comment 2	<p>Please verify lines 60-63 and compare with e.g. Table 1- how many raw materials were used in the study?</p>
	Response	<p>There are 2 main raw materials in this study, consisting of coffee grounds and chicken feathers. Cow dung in this study is a starter/biogas inoculum. Urea has a function to set the desired C/N ratio.</p> <p>we corrected the text (line 60-63) so that it is easy to understand</p>
3	Comment 3	<p>Line 44- You defined AD as SS, with water content at the max level of 70%, while Fig. 1 defined SS-AD with water content max 80%- please verify.</p>
	Response	<p>We assume that with the water content of the raw material around 10% (chicken feathers have a moisture content of 11% and coffee pulp water</p>



		content of 9%), we mean 20% TS, which is in the form of dry solids without water. so the actual water content is lower.
4	Comment 4	What was the AD process temperature?
	Response	AD process temperature is $\pm 30^{\circ}\text{C}$
5	Comment 5	Please write the names of chemical and equipment producers
	Response	<p>The revised text reads as follows on “Other chemicals used for the analysis were <math>\text{KMnO}_4</math>, <math>\text{H}_2\text{SO}_4</math>, urea, <math>\text{NaOH}</math>, aquadest, and oxalic acid (pre-analysis grade) provided by Merck KGaA, Darmstadt, Germany”. (line 73-75 in the revised manuscript)</p> <p>The revised text reads as follows on “digester (digester fabricated in the internal workshop of the chemical engineering department of Universitas Diponegoro)”. (line 76-77 in the revised manuscript)</p>
6	Comment 6	Please verify the punctuation.
	Response	We have read and corrected the use of punctuation throughout the article
7	Comment 7	The Figure 1 should support the process description, but it cannot replace it-please briefly describe the research.
	Response	We have improved the method section by adding an explanatory sentence according to your suggestions
8	Comment 8	Please verify if all abbreviation were explained before using first time, e.g. C/N and verify units.
	Response	<p>The revised text reads as follows on “carbon to nitrogen ratio (C/N, g/g)” (line 11 in the revised manuscript)</p> <p>C/N units have been added to the revised text</p>
9	Comment 9	The Materials and Methods section is still limited. Please give additional information on the pretreatment process, the method for determination of nitrogen, carbon, etc.
	Response	We have improved the method section by adding carbon and nitrogen determinations (line 101-122 in the revised manuscript). and analytical determination of methane gas in biogas (line 130 in the revised manuscript)
10	Comment 10	Please once again review the Results and Discussion section. Results should be explained, discussed and compared to literature data. Please verify Yours statements, e.g. regarding to COD changes and reasons for that; have You verified fatty acids contents?, have You verified methane content in biogas?
	Response	In this research we only determine the methane formed and not specifically to determine the fatty acids in biogas production. The data presented is the result of analytical analysis where the methane content is analyzed by gas chromatography.



Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Manuscript Resubmitted**

1 message

**Submission System** <submission@mdpi.com>

Sat, Jul 24, 2021 at 10:27 PM

Reply-To: Stephanie Sang &lt;stephanie.sang@mdpi.com&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;

Dear Dr. Sumardiono,

**Thank you very much for resubmitting the modified version of the following manuscript:**

Manuscript ID: energies-1297785

Type of manuscript: Article

Title: Biogas Production from Coffee Pulp and Chicken Feathers Using Liquid- and Solid-State Anaerobic Digestions

Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

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Submitted to section: Bio-Energy,

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A member of the editorial office will be in touch with you soon regarding progress of the manuscript.

Kind regards,

MDPI

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Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Accepted for Publication**

3 messages

**Energies Editorial Office** <energies@mdpi.com>

Wed, Jul 28, 2021 at 12:33 PM

Reply-To: Energies Editorial Office &lt;energies@mdpi.com&gt;

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

Dear Dr. Sumardiono,

Congratulations on the acceptance of your manuscript, and thank you for your interest in submitting your work to Energies:

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Received: 29 June 2021

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Submitted to section: Bio-Energy,

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Kind regards,  
Enrico Sciubba  
Editor-in-Chief

**Siswo Sumardiono** <siswo.sumardiono@che.undip.ac.id>

Wed, Jul 28, 2021 at 2:11 PM

To: Publication Support-ENAGO &lt;publish@enago.com&gt;

Dear Ben,

I would like to inform you that Manuscript SISSAW-6 which was submitted to Energies, has been accepted for publication after 2 round revision. Thank you very much for your always helping and patient assistance.



Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

**[Energies] Manuscript ID: energies-1297785 - Final Proofreading Before Publication-within 24 hours (1 working days)**

1 message

**Energies Editorial Office** <energies@mdpi.com>

Fri, Jul 30, 2021 at 9:28 AM

Reply-To: stephanie.sang@mdpi.com

To: Siswo Sumardiono &lt;siswo.sumardiono@che.undip.ac.id&gt;

Cc: Bakti Jos &lt;baktijos10@gmail.com&gt;, Agata Advensia Eksa Dewanti &lt;agataadven@gmail.com&gt;, Isa Mahendra &lt;isamahendra6996@gmail.com&gt;, Heri Cahyono &lt;hericahyono@che.undip.ac.id&gt;, Energies Editorial Office &lt;energies@mdpi.com&gt;

Dear Dr. Sumardiono,

We invite you to proofread your manuscript to ensure that this is the final version that can be published and confirm that you will require no further changes from hereon:

Manuscript ID: energies-1297785

Type of manuscript: Article

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Authors: Siswo Sumardiono \*, Bakti Jos, Agata Advensia Eksa Dewanti, Isa Mahendra, Heri Cahyono

Received: 29 June 2021

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Supplementary and other additional files can be found at the second link. We look forward to hearing from you soon.

Kind regards,

Ms. Stephanie Sang

Assistant Editor

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