Gmail

jurnal teknologi

Active

Compose

Inbox 2,722
Starred
Snoozed
Sent
Drafts 5
More

Labels

86 of many

[JT] Editor Decision (RR) #13534

Professor Dr. Rosli Md Illias <r-rosli@utm.my>
to me, Pasymi, Yogi, Yazid, journal_utm

Jun 25, 2020, 1:27 PM

Dear Pasymi - -:

We have reached a decision regarding your submission to Jurnal Teknologi,
"INTRINSIC PARAMETERS OF DRY CHOPPED MISCANTHUS FOR MODELING COLD PARTICLE DYNAMICS".

Our decision is: REVISION REQUIRED
----

2. Reviewers have now commented on your paper. You will see that they are advising you to revise your manuscript. If you are prepared to undertake the work required, I would be pleased to consider your article for publication.

3. For your guidance, reviewers' comments are attached.

4. Please be advised all articles that have been chosen to be published in Jurnal Teknologi will be charged MYR 530.00.
Should you agree to this term, please submit the following items within 3 weeks through the system and through email journal_utm@utm.my and qpenerbit@utm.my:

a) Revised Manuscript.
b) List of CORRECTIONS DONE.
and
c) Filled document "JT Invoice Request and Payment Instructions NORMAL ISSUE" to enable us prepare a formal invoice for payment purpose.

We look forward for your favourable reply. Thank you.

Yours sincerely,

Professor Dr. Rosli Md Illias
Universiti Teknologi Malaysia
r-rosli@utm.my

Jurnal Teknologi, Penerbit UTM Press
https://jurnalteknologi.utm.my/

5 Attachments • Scanned by Gmail

- Review A i 13534-...
- Review Form Res...
- Review B ii 13534...
- How to upload yo...
- JT Invoice Reque...

Chat
Meet

Inbox 2,722
Starred
Snoozed
Sent
Drafts 5
More

Labels

Gmail

Jurnal teknologi engineering and science

Compose

Inbox 2,454
Starred
Snoozed
Sent
Drafts 48
More

Labels

7 of 48

pasymi bin syofyan <pastmesyofyan@gmail.com>
to journal_utm, qpenerbit

Thu, Jul 16, 2020, 10:55 PM

I hereby send the revised paper and its supplement files. Thank you.

My Best Regard

Pasymi bin Syofyan
Author

4 Attachments • Scanned by Gmail

- Revised Manuscri...
- Response to Ai R...
- Response to Bii R...
- Filled JT Invoice....

Reply | Reply all | Forward

RESPONSE TO Ai REVIEWER'S COMMENTS

1. **The first comment:**

   Explain a little about the need to choose Miscanthus particles as a model

   Response

   In the abstract section in the revised article, it has been explained the reasons why the Miscanthus particles are used as a model. That's because Miscanthus is one of the potential biomass fuel in the future.

2. **The second comment:**

   Do only these intrinsic parameters affect the dynamics of the particle model?

   Response:

   For cold particle dynamic modeling, modeling is conducted in an isothermal condition, and an assumption no combustion occurred. From the isothermal momentum conservation equations, as given by Eq. (7) to (12), it is revealed that the intrinsic parameters needed for cold particle dynamic modeling are particle shape (f_s), particle density (ρ_p), and particle diameter (d_p). Particle diameters needed in cold particle modeling are minimum, maximum, and mean particle diameters. In this study, the mean particle diameter is determined through the Rosin Rammler approach, as given by Eq. (5), which introduces a new parameter namely the particle size distribution or the spread parameter (n). So overall, the parameters needed for modeling particle dynamics in cold conditions are particle shape (f_s), particle density (ρ_p), particle diameter (minimum, maximum, and mean), and spread parameter (n).

3. **The third comment:**

   Does the pathlines between cold and experimental models represent velocity, concentration and mass flow rate, and what similarity considerations to be used by both models?

   Response:

No, we cannot present yet a performance comparison of the two study methods, quantitatively. It is true that the velocity, concentration, and mass flow rate of particles can be generated from the simulations results, but we cannot obtain those data experimentally due to equipment limitations.

The similarity compared between the two study methods is the particle dynamic pattern, namely frequency, and intersection of the helical structure formed in the burner cylinder. Qualitatively, the frequency and intersection of the helical structure resulting from experiment and modeling have a good similarity. Sometimes for design purposed, qualitative data are very useful

4. **The 4th comment:**

The main results in the form of parameter parameters of intricacy need to be discussed the effect on the resulting pathlines and elaboration with the results of previous studies

Response:

A discussion of the effect of each intrinsic parameter on particle trajectory patterns has been added in the revised article.

5. **The 5th comment:**

Write down the unit of true particle density

Response:

The unit of true particle density has been added into the revised article.

6. **The 6th comment:**

What similarities are kept constant between the experiment and the model involving the obtained parameters of Miscanthus particles.

Response:

The sort explanation about the qualitative comparison between modeling and experimental results have been given in the revised article. The similarities kept constant between the simulation and experimental results are the particle dynamic pattern in the burner cylinder, in terms of frequency and intersection of the particle helical structure. Here, the similarities are compared qualitatively.

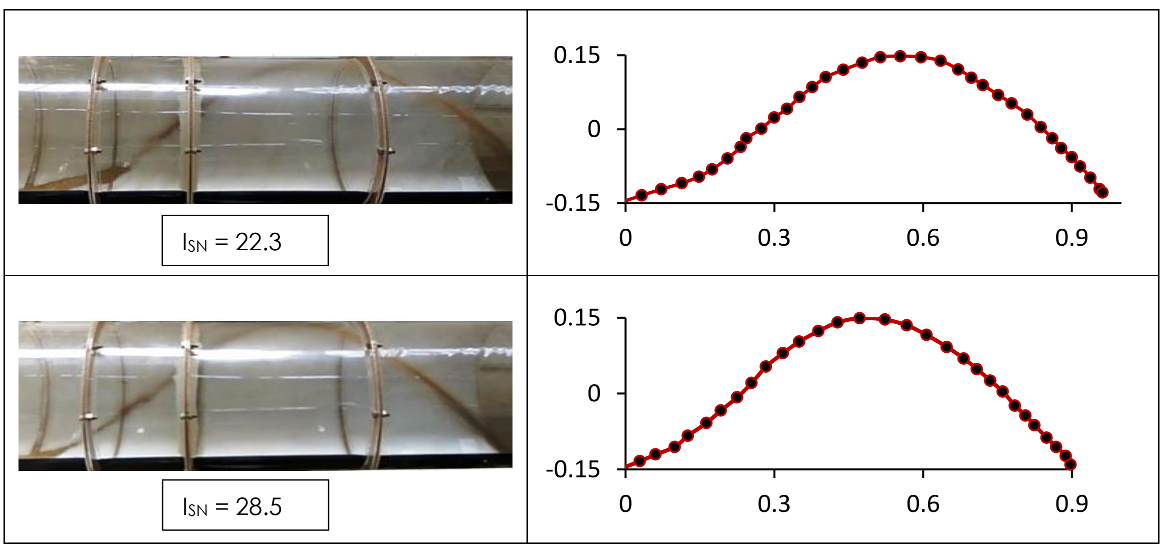
7. The 7th comment:

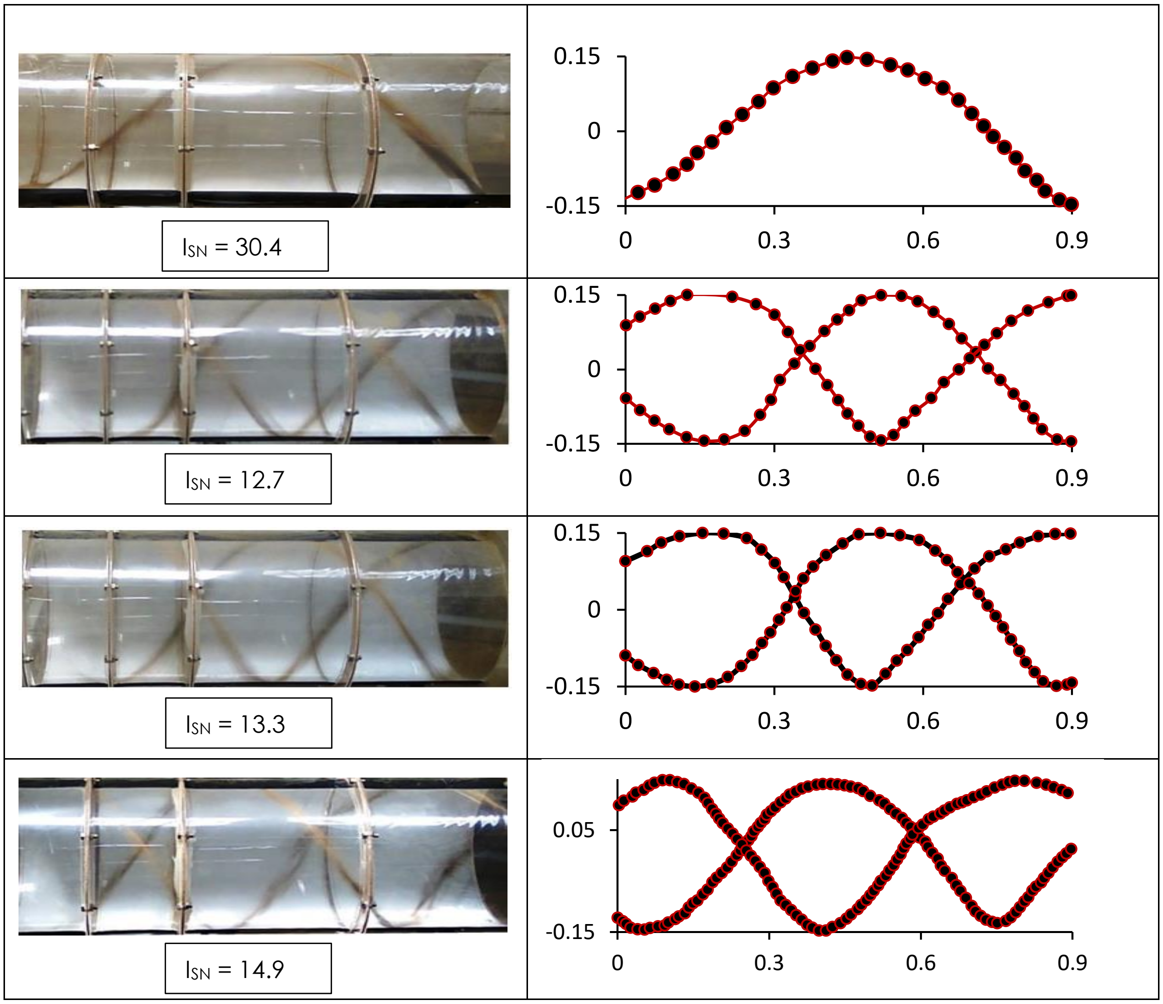
Flow patterns are not clearly visible

Response:

We tried to make clear the flow pattern of particles, especially the result of the experiment but due to camera limitation is not much change can be done. The original color of dried Miscanthus particles is very soft and difficult to read by the camera. If additional colors are given to the particles, it is feared that the density of the particles will change so that they can interfere with the results of the experiment. So to make clear the particle pattern of the experiment result in the burner cylinder, we tried to extract some of the particle pathline curve data using RockWare DigiData software and plot them in a 2 dimensions curve.

The plotting results of the particle pathline curve for several experiments are given in the following figure.





8. The 8th comment:

How can the consideration of evaporation, decomposition, and combustion events be ignored?

Response:

In this study, simulation and experiment of particle dynamics have been conducted in cold and isothermal conditions, so the evaporation, decomposition, and combustion processes can be ignored. Additional explanations regarding this matter have been included in the revised article.

9. The 9th comment:

Flow patterns are not clearly visible

Response:

We tried to make clear the flow pattern of particles, especially the result of the experiment but due to camera limitation is not much change can be done.

10. The 10th comment:

Flow patterns are not clearly visible

Response:

We tried to make clear the flow pattern of particles, especially the result of the experiment but due to camera limitation is not much change can be done.

11. The 11th comment:

This is the main outcome of the goal, but the discussion is less explained in depth its influence on the flow patterns that will be generated

Response:

The influence of the intrinsic parameter on the flow pattern has been discussed in section 2.2.1. According to Eq. (9), the dynamic (drag time) of a particle is directly proportional to the density and size of the particles and inversely proportional to the particle drag coefficient. The drag coefficient of a particle is a function of particle shape, where the smaller the shape factor value, the greater the drag coefficient value will be and vice versa. A new paragraph was added in a revised article to discuss this point, i.e at the end of section 2.2.1.

12. The 12th comment:

How to measure the level of similarity?

Response:

The indicator used to confirm the intrinsic parameter value of Miscanthus particles is the particle trajectory in a burner cylinder. The similarity level of particle trajectory from both study methods was measured through the helical pattern frequency, intersection, and length of track, in 2 dimensions perception.

13. The 13th comment:

It is important to explain the importance of this important pathlines as a basis for consideration in designing burners in the theory section.

Response:

Explanation about the effect of particle pathlines on the burner design was included in the theory section of the revised article. The main problem in designing suspended furnaces is how the particles can be burned completely in a stable suspended condition. This usually happens when the drag time is long or the size of the furnace is large. On the other hand, the furnace design must be kept as small as possible to save investment. So the challenge of designing a suspended furnace is how to condition the particle drag time to be larger but in a small furnace volume. One of the strategy is to involve the swirl flow. For the same furnace volume, swirl flow will tend to produce a longer drag time in the furnace than straight flow.

Note

All comments have been responded and some revisions to the original article have been done. The response to the reviewer comments has been poured in the revised article and marked as the red texts.

RESPONSE TO THE Bii REVIEWER'S COMMENTS

1. **The first comment:**

   I suggest you to change this phrase to … "for cold particle dynamic modeling"

   Response:

   The phrase in the revised article title has been changed to... "FOR COLD PARTICLE DYNAMIC MODELING"

2. **The second comment:**

   How do you conclude that both results are similar? It seems that this conclusion is only based on the visual. Do you have a quantitative measure to show the similarity?

   Response:

   The confirmation of the Miscanthus' intrinsic parameter value should be done quantitatively by comparing the measurement results with similar data in the literature. However, due to difficulties in getting relevant data in the literature, the confirmation was done qualitatively through modeling. The similarity compared between the two study methods is the particle dynamic pattern, namely the frequency and the intersection of the helical structure formed in the burner cylinder. Qualitatively, the frequency and the intersection of the helical structure resulting from the experiment and modeling have a good similarity.

   No, we cannot present yet a comparison of the performance of the two study methods, quantitatively. It is true that the velocity, concentration, and mass flow rate of particles can be generated from the simulations results, but we cannot obtain those data experimentally due to equipment limitations.

3. **The third comment:**

   It makes me confused as the simulation should be conformed with the experiments. A simulation model should be developed first, then an experiment should be conducted for validating the constructed model. A criterion should be determined to confirm the model with experiment.

   Response:

   Here, we do an unusual thing, where the model is used to verify the results of Miscanthus' intrinsic parameter experiments. This must be done because it is very difficult to get comparative data in the literature because the intrinsic parameter values of particles are very unique; different cutting machines, particle size, and shape then the intrinsic parameter values are also different. Therefore, we use modeling to justify the value of the Miscanthus intrinsic parameter. The model used as a qualifier is the RANS-based turbulent model namely RSM and k-ε under the Ansys-Fluent software. The model and the software have been recognized by many researchers to be able to predict particle dynamics well, especially in cold and isothermal conditions [16, 17, 25, 26]. With the assumption above, the experiment and modeling of particle dynamics should give the similar results. If there are deviations from the modeling results from the experimental results, the intrinsic parameter values of the particles are suspected not reliable and vice versa. Because of equipment limitation, the results of modeling and experiment can only be compared qualitatively, that is from the pattern of particle trajectories formed in the burner cylinder.

4. **The 4th comment:**

   Please, specify the references to affirm the novelty of this research!

   Response:

   The intrinsic parameters such as density, shape factor, and diameter of particles have very specific values. The different anatomy, shape, and size of the particle, as well as cutting machines, the different values of these parameters will be ([3, 11, 20]. The Miscanthus plants used in this study came from the Cibeunying Kidul Region, Bandung, and were chopped with a self-designed cutting machine, so they would have specific characteristics which are not yet available in the literature. This is the main novelty of this research.

5. **The 5th comment:**

   It should be Equation (9).

   Response:

   Yes, It should be Equation (9). The equation number is out of the paper margins. We corrected it.

6. **The 6th comment:**

   What do you mean with "test section"?

   Response:

   What is meant by the test section, in the context of this sentence, is the burner cylinder. So $\dot{m}_T$ is the mass flow rate on the burner cylinder and A_T is the surface area of the burner cylinder.

7. **The 7th comment:**

   These paragraphs should be in the Method Section.

   Response:

   Two first paragraphs in the Result and Discussion Section, including Figure 3, was moved to the Methodology Section, namely to the subsection 2.1. In the revised article Figure 3 to be Figure 1.

8. **The 8th comment:**

This table is mentioned first, thus it should be in Sect. 3.1 as Table 1 rather than Table 2. Alternatively, this paragraph is under the section of "Sieve Analysis" which covers average particle size, particle size distribution and shape. Bulk density and true density could be under the section of "Particle Density".

Response:

Some revisions have been made in accordance with reviewer suggestions. The mention of Table 1 in section 3.1 was omitted.

9. The 9th comment:

Instead of the same value in a column of a table (column-2), it would be better to include the value in a text. This creates a more efficient table.

Response:

Column-2 of Table 2 was removed and the sample volume is stated in the article text.

10. The 10th comment:

You should also include accumulation on table 2. I suggest you construct a new table which covers all the experiments data of this table and Table 3.

Response:

The data in Table 3 has been compiled into Table 2 and Table 3 has been eliminated

11. The 11th comment:

This should be a distribution curve rather than an accumulation. Please, confirm!

Response:

The curve in Figure 5 is the relationship between the sieve or particle diameter (dp) to the mass fraction of particles held at a certain sieve diameter (Yd). The average diameter is obtained when the value of Yd = e^{-1} = 0.36788.

12. The 12th comment:

What is represented with each curve on each picture of Figure 6? Please, specify each curve! Also in Figure 7.

Response:

There are 3 objectives to be conveyed through curves in Figures 6 and 7, namely: (1) evaluating the similarity of particle flow patterns in the burner cylinder between modeling results and experimental results, to verify the intrinsic parameter values of the Miscanthus particles obtained, (2) studying at the geometry effect (number of tangential inlets) and operating conditions (initial swirl intensity of flow) to the particle flow pattern and (3) testing the ability of the standard k-ε turbulent model in predicting the particle dynamics in a cyclone burner. Qualitatively, the particle flow pattern from the simulations results has similarities to the results of the experiments for all variations of the experiments conducted. The helical pattern in the burner cylinder resulting from the experiment was able to be followed by simulation results. It indicates that the intrinsic parameter values used in modeling are close to the truth and can be used for the further simulation works. The number, frequency, and intersections of the helical structure formed are influenced by the number of burner tangential inlets and the initial intensity of the swirl flow. Burners with a single tangential inlet produce a single helical structure and burners with a double tangential inlet produce a double-helical structure. While the initial intensity of the swirl flow affects the frequency and position of the helical intersection. The higher the initial swirl intensity of the flow, the greater the helical frequency and vice versa. The curves in Figures 6 and 7 also show that the k-ε turbulent model gives a prediction result that is almost similar to the RSM model. This opens up opportunities for using the k-ε turbulent model for further simulations, given that the model has a lower computational effort than RSM.

13. The 13th comment:

The results may also be listed in a table thus the reader could easily understand the findings.

Response:

A summary table of the effect of tangential inlet number and initial swirl intensity to the flow pattern has been included in the revised article.

14. The 14th comment:

Is there any quantitative expression to conform between experiments and model results? Thus, you are sure to conclude that your fluid dynamic model is suitable for further application.

Response:

we cannot present yet a comparison of the performance of the two study methods, quantitatively. It is true that the velocity, concentration, and mass flow rate of particles can be generated from the simulations results, but we cannot obtain those data experimentally due to equipment limitations.

Note

All comments have been responded and some revisions have been done in the revised article, marked by the blue text.

Gmail

jurnal teknologi

Active

Mail
Chat
Meet

Compose

Inbox 2,722
Starred
Snoozed
Sent
Drafts 5
More

Labels

79 of many

Professor Dr. Rosli Md Illias <r-rosli@utm.my>
to me, yazid, yazid, Pasymi, Yogi, Yazid, piza, journal_utm

Tue, Jul 21, 2020, 8:18 AM

Pasymi - -:

We have reached a decision regarding your submission to
Jurnal Teknologi, "INTRINSIC PARAMETERS OF DRY CHOPPED MISCANTHUS FOR
MODELING COLD PARTICLE DYNAMICS".

CONGRATULATIONS!!

Your article has been queued for future publication of Jurnal Teknologi
(Sciences and Engineering):

Vol. 82:5 September 2020

Attached herewith the invoice for your further action.
Kindly email the proof of payment (Notes: For international author, please
make sure the proof of payment consists of computer generated slip with a
reference number of transaction) to: journal_utm@utm.my or gpenerbit@utm.my
before or by 4 August 2020.

Thank you.

Best regards;

Meet

Drafts 5
More

Labels

Jurnal Teknologi Editorial Team
Penerbit UTM Press
Universiti Teknologi Malaysia
https://jurnalteknologi.utm.my | https://penerbit.utm.my

Jurnal Teknologi, Penerbit UTM Press
https://jurnalteknologi.utm.my/

2 Attachments • Scanned by Gmail

BILJ2002460_YA...

LAMPIRAN INVOI...

pasymi ubh <pasymi@bunghatta.ac.id>
to Professor, yazid, yazid, Pasymi, Yogi, Yazid, piza, Journal

Jul 24, 2020, 8:16 PM

Noted with thanks.