



nursiah chairunnisa <nursiah.chairunnisa@ulm.ac.id>

Journal of Science and Technology - Decision on Manuscript ID JST-3286-2021 (AA)

1 message

Journal of Science and Technology <onbehalf@manuscriptcentral.com>

Tue, Dec 21, 2021 at 4:04 PM

Reply-To: executive_editor.pertanika@upm.edu.my

To: hheryani@ulm.ac.id

Cc: hheryani@ulm.ac.id, nursiah.chairunnisa@ulm.ac.id, ghofur70@ulm.ac.id

21-Dec-2021

Dear Prof. Heryani,

Manuscript ID JST-3286-2021 entitled "Esterification of Acetin Production with Reactant Formulas from By-products of Biodiesel Industry using New Materials Based on Wetland Commodities" which you submitted to the Journal of Science and Technology, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter. I invite you to respond to the reviewer(s)' comments and revise your manuscript.

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IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the Journal of Science and Technology, your revised manuscript should be submitted BEFORE 04 January 2022. If it is not possible for you to submit your revision by this date, we may have to consider your paper as REJECT.

Once again, thank you for submitting your manuscript to the Journal of Science and Technology and I look forward to receiving your revision.

Sincerely,
Chief Executive Editor, Journal of Science and Technology

Reviewer(s)' Comments to Author:

Reviewer: 1 (with attachment)

Comments to the Corresponding Author

ABSTRACT

Page 3 of 14

- Line number 11-12: The author should briefly mention the research gap that has not been answered
- Line number 16: Is there another suitable word representing "reactant formula"?
- Line number 17: Does the author mean selectivity?
- add space before the unit

- Line number 23: what does the standard refer to?
- Line number 24: Why are there two types of ratios that give the highest selectivity? Please elaborate.

INTRODUCTION

Page 4 of 14

- Line number 8: Is agriculture the only source of biomass? The author should add why agricultural biomass is potential.
- Line number 9: what kind of "industrial"?
- Line number 10-15: What does the author trying to convey in this paragraph? Only the classification or what? It should be more assertive
- Line number 16-17: Very interesting; however, do any other advantages exist, such as physicochemical properties, etc, of palm fruit peels, pineapple leaves, and orange peel as a raw material for catalyst according to the literature?
- Line number 23-29: t it seems that the author should describe the advantages of biomass in a broader and proper perspective (especially for the catalysis) as well as the development of this biomass according to other reports.
- Line number 30-31: This paragraph should be linked to the previous paragraph. The idea of the text should be connected from one paragraph to another.
- Line number 35-36: The use of homogeneous catalysts have been mentioned in paragraph one, does this sentence necessary? (line number: 5)
- Line number 55-56: The authors should state a literature review on the studies of acetin production using a relevant catalyst, or at least state a research gap according to previous reports.

Page 5 of 14

- Line number 9-10: What instrumentation does the author use for catalyst characterization?

MATERIALS AND METHODS

Page 5 of 14

- Line number 18: where does the biodiesel industry come from? Consider informing the place, etc.
- Line number 20-21: Specify the supplier as well the chemical grade.
- Line number 34: The author must include a reference regarding this method
- Line number 36: Why does the author use 3M NaOH solution in a ratio of 1:4 (w/t). Is there any argumentation that satisfies this thing?
- Line number 42-43: add the atmospheric condition, pressure, heating rate, etc
- Line number 53-54: In the results and discussion section, the author only explains the physical properties of density of glycerol. It seems that there are data that have not been explained.

Page 6 of 14

- Line number 4: The author must inform the instrumentation condition (brand, etc) for the reproducibility purpose
- Line number 23: Please describe the GCMS instrumentation condition as well as the method of the analysis of acetin composition.

RESULTS AND DISCUSSIONS

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- Line number 31-35: Why was the silica content in palm peel the largest, while the lowest aluminum content was in the orange peel? How does the author interpret this data in the form of catalyst property?

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- Line number 5: The author may be able to expand the discussion on the effect of biomass feedstock over Si/Al ratio if necessary
- Line number 17-21: If the structures were changed from amorphous to the crystal, what does the implication of this data over the catalyst property?
- Line number 44-45: please add a legend for each diffractograms catalyst

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- Line number 8-10: The author should relate these data to the results of the XRF analysis. Also, why does the difference biomass relatively give the same XRD result?
- Line number 43-44: We know that the calcination could open the pores of the catalyst. However, It can be seen that the SiO₂ of palm peel extract gives the largest pore size. Why would this happen?
- Line number 47-48: It is good if the author also does a control treatment to see the pore size without calcination.

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- Line number 22-28: It is good if the research results follow previous reports. However, Figure 4 shows that the surface area of SiO₂ of orange peel extract was much larger than that of SiO₂ of palm peel and pineapple leaf extract. The author should explain this phenomenon.
- Line number 50: The SEM morphology of orange peel and pineapple leaf looks relatively the same, but the morphology of palm peel gives a big difference. How does the author respond to this?

Page 10 of 14

- Line number 19-23: What does the meaning of this composition regarding the catalyst property? The author should elaborate on it.
- Line number 51-52: Why is there only 57.5% glycerol yield obtained? It looks like almost half the product as impurities

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- Line number 28: What underlies this variation?
- Line number 29: why does the author use this condition? i.e, reference?

Page 12 of 14

- Line number 39-42: Very interesting results. The author should explain how the mole ratio of glycerol to acetic acid affects the selectivity of the product.
- Line number 43-36: These catalysts produced all of the acetin, especially for SiO₂ pineapple leaves; this is very interesting. Why does this catalyst give such a good selectivity?
- Line number 47-49: The catalyst produces the highest monoacetin composition but does not produce diacetin and triacetin. Why does this happen? Also, several catalysts at different ratios produce only triacetin. The author should explain this phenomenon
- Line number 52-55: It can be seen that the catalyst gives the difference selectivity over the acetin. What possible reason could answer this phenomenon? Citing the other study might be necessary
- Overall, please recheck the grammatical errors

Reviewer: 2

Comments to the Corresponding Author

Table Of Comments

General

The present paper investigates the esterification of acetin production with reactant formulas from by-products of biodiesel industry using new materials based on wetland commodities.

-title is confusing...rewrite the title

-H₂SO₄, SiO₂, unit...use subscript.

-Grammatical error throughout the paper, proofread required.

Introduction

Line 7, page 5, Research Year 1 aimed? Rewrite..

Materials and methods

Line 17-21, page 5...chemical brand name?

Line 24-25, page 5...rewrite

Line 30, page 5...Furnace brand and made from?

Line 46-49 page 5...rewrite..

Methodology for characterization by XRF, XRD, BET and SEM EDX missing, mention also the brand and made from..

Discussion

Remove Figure 3, 4, 7 already included in the manuscript

Line 42-43..page 8... Figure 3 showed that the pore size of the catalyst from the synthesis of orange peel extract was 4,328 nm, that of pineapple leaf extract was 4,850 nm and that of palm peel extract was 5,658 nm.....4,328 4850 6658 or 4.328 4.850 6.6658?

-Include and discuss the reaction happened.

Conclusion

Summarize/Rewrite your conclusion...why From the results of the First Year Research?

 **JST-3286-2021-MS-Rev-Kit---Comments-on-MS--RW01-.pdf**

771K



Esterification of Acetin Production with Reactant Formulas from By-products of Biodiesel Industry using New Materials Based on Wetland Commodities

Journal:	<i>Journal of Science and Technology</i>
Manuscript ID	JST-3286-2021
Manuscript Type:	Regular Article
Scope of the Journal:	Manufacturing and process technologies and engineering < APPLIED SCIENCES AND TECHNOLOGIES, Environment technology/ industry < ENVIRONMENTAL SCIENCES, New materials and technologies < MATERIAL SCIENCES, Mechanical and industrial engineering < ENGINEERING SCIENCES
Keywords:	esterification, acetin, biodiesel, reactants, catalyst
Abstract:	<p>All components of wetland biomass are useful and can produce new materials that function as heterogeneous catalysts. Heterogeneous catalysts have advantages in esterification of glycerol from biodiesel by product industry. The research aimed to produce new materials with specific components, crystalline properties, pore sizes and catalyst morphology. Furthermore, testing the performance of the resulting catalyst in converting glycerol from biodiesel industry products into acetin products. The methods included preparation of raw materials, sorting and purification, extraction and synthesis of catalysts, characterization of catalysts from various biomass sources, and the developing reactant formulas from biodiesel by-products with the esterification process. Product identification using Gas Chromatography-Mass Spectrometry. Yield silica(SiO₂) obtained from the synthesis of pineapple leaves, sugar palm peel and orange peel catalysts, obtained Si of 40.017% and Al of 4.115%. The results of the diffractogram showed all catalyst synthesis had crystalline form with typical-silicon-oxide peaks. The pore size of the SiO₂ catalyst extract based on wetland commodities ranged 4.328 to 5.658nm and the surface area ranged 10.884 to 263.475m²g⁻¹. Morphological results showed that the extracts of SiO₂ catalyst of palm fruit peel, pineapple leaves, and orange peel were composed of a round-shaped densely porous structure. These results met standard characteristics of silica catalysts. In the developed reactant formula, a ratio of 1:7 and 1:9 gives the highest yield of the best acetin product selectivity. The results obtained could be recommended for the development of acetin for non-food industries, such as for perfume solvents and plasticizer products. In the energy sector, triacetin is used as a biodiesel additive and can increase the octane number</p> <p>Abstract Up.docx</p>



nursiah chairunnisa <nursiah.chairunnisa@ulm.ac.id>

URGENT (expiry 48 hours) PROOF-READING: Publication in Pertanika JST [JST-3286-2021]

1 message

Pre Press Farrah <upmjournals.prepress@upm.edu.my>

Tue, Apr 12, 2022 at 10:11 AM

To: hheryani@ulm.ac.id, ghofur70@ulm.ac.id, nursiah.chairunnisa@ulm.ac.id

Cc: PERTANIKA EXECUTIVE EDITOR / UPM <executive_editor.pertanika@upm.edu.my>

URGENT: Due to time constraints, your response is compulsory within 48 hours of working days.**PUBLICATION IN PERTANIKA JOURNAL OF SCIENCE & TECHNOLOGY (PJST)****Esterification of Acetin Production from By-Products of Biodiesel Industry Using Heterogeneous Catalysts Based on Wetland Commodities**

Manuscript ID. JST-3286-2021

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Best regards,


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Publication Officer (Pre-press)*(Nur Farrah Dila Ismail on behalf of Chief Executive Editor)*Please cc your email to executive_editor.pertanika@upm.edu.my

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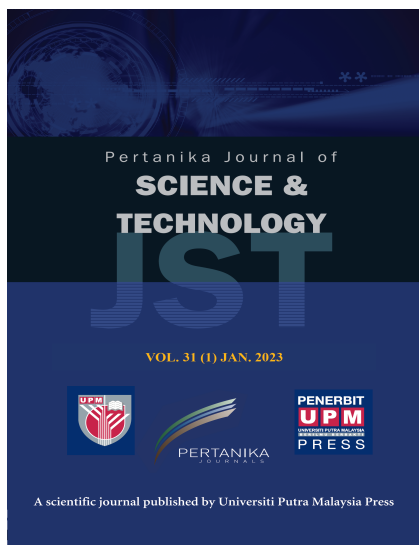
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PERTANIKA JOURNAL OF SCIENCE & TECHNOLOGY

1 message

info_pertanika <info_pertanika@upm.edu.my>
To: nursiah.chairunnisa@ulm.ac.id

Wed, Jun 1, 2022 at 10:27 AM

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e-ISSN 2231-8526
ISSN 0128-7680[VIEW JOURNAL](#)**WE'VE PUBLISHED THE LATEST ISSUE OF THE JOURNAL IN
OUR WEBSITE**

Dear Dr.Nursiah Chairunnisa,

Greetings from Pertanika Journals.

We are pleased to announce that your paper titled **Esterification of Acetin Production from By-Products of Biodiesel Industry Using Heterogeneous Catalysts Based on Wetland Commodities** has been published on 25 May 2022 in the Journal Of Science & Technology (JST), **Volume 30 (3) Jul. 2022** and is now live on the Pertanika Journal's website.

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