JMSC-D-20-00728 - Acknowledgement of Receipt

From: Journal of Materials Science (JMSC) (em@editorialmanager.com)

To: shella_p5@yahoo.com

Date: Friday, January 24, 2020 at 04:23 PM GMT+7

Dear Dr. Santoso,

Your submission entitled "An iron-carboxylate based metal-organic framework for furosemide loading and release" has been received by Journal of Materials Science. Thank you for submitting your work to our journal.

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Your manuscript will be given a reference number once an Editor has been assigned.

Should you require any further assistance please feel free to contact the Editorial Office by clicking on the "contact us" in the menu bar to send an email to us.

Best regards,

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Although for now you don't have to do anything, we would like to let you know about your upcoming options.

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Decision on your submission to the Journal of Materials Science JMSC-D-20-00728

From: Journal of Materials Science (JMSC) (em@editorialmanager.com)

To: shella_p5@yahoo.com

Date: Thursday, April 30, 2020 at 09:26 PM GMT+7

CC: "Yanita Devi" yanita.liem@gmail.com, "Ignatius Ang" bluyoong97@gmail.com, "Felycia Edi Soetaredjo" felycae@yahoo.com, "Wenny Irawaty" wenny_i_s@ukwms.ac.id, "Maria Yuliana" mariayuliana@ukwms.ac.id, "Artik Elisa Angkawijaya" artic_elisa@yahoo.com, "Sandy Budi Hartono" sandy@ukwms.ac.id, "Phuong Lan Tran-Nguyen" tnplan@ctu.edu.vn, "Suryadi Ismadji" suryadiismadji@yahoo.com, "Yi-Hsu Ju" yhju@mail.ntust.edu.tw

Dear Dr. Santoso,

Thank you again for submitting your paper to the Journal of Materials Science. Your submission to the Journal of Materials Science with the title "An iron-carboxylate based metal-organic framework for furosemide loading and release" (JMSC-D-20-00728) has now been evaluated. I cannot accept your manuscript for publication in the present form. After careful consideration of the reviewers' comments, I am returning the manuscript to you for major revision. This paper could be reconsidered for publication based on your responses to the comments after my signature and the revisions you make to your manuscript.

When preparing your revised manuscript, please be sure to address in your response each point raised by the reviewers and editor, and indicate how the manuscript was revised in response to each point. Please include this document as a separate file. In your revised manuscript, you should highlight in color all significant changes. Please also see the Journal's Instructions for Authors for guidelines on preparing figures for publication.

To submit your revised manuscript electronically, please use the Author Login link on the Journal of Materials Science Editorial Manager website.

You are registered as Shella Santoso (Your username is: shella_p5@yahoo.com)

Your password is not sent via email for security. You can have it sent to you by going to the journal's site at https://www.editorialmanager.com/jmsc/ and clicking on the "Send Username/Password" link below the login box.

Please note that authors are requested to complete major modifications by 11 Jun 2020. After this period any submission will be treated as a new manuscript and will be processed accordingly.

I look forward to receiving your response and the revised version of your paper.

With kind regards,
Yaroslava Yingling
Editor
Journal of Materials Science
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Comments from the editor:

Comments from the referees:

Reviewer #1: This manuscript reported the synthesis of a Fe-MIL-100 MOF by adjusting the molar concentration of NaOH at room temperature. A series of physical characterizations were applied to study the structure of Fe-MIL-100 in detail. Fe-MIL-100 was used as a drug carrier device for furosemide loading and release. This work is meaningful and I recommend the acceptance of this manuscript after major revisions.

1. In the introduction part, the authors have discussed that MOFs with exciting features can be applied as drug carriers. In recent years, MOFs have been known as promising materials in many other fields, especially in energy and environment. Please conduct a comprehensive but concise literature survey to discuss applications of MOFs in these

fields (e.g., Advanced Materials 2018, 30, 1705512; ACS Nano 2020, 14, 1971-1981; ACS Applied Materials & Interfaces 2019, 11, 40564-40574).

2. The effect of NaOH was investigated for the preparation of Fe-MIL-100. For comparison, the concentrations of Fe ions and BTC ligands also need to be studied to prepare Fe-MIL-100 here.

3. In figure 2, the simulated PXRD pattern from Huang et al. shows two prominent peaks at about 6 and 9.5 degrees. However, the PXRD patterns of as-prepared Fe-MIL-100 MOFs in this work had no related peaks matched with them. Please explain this result. The Fe-MIL-100 MOFs may be activated using a methanol reflux method.

4. SEM image of Fe-MIL-100 synthesized at x=5.0 should be provided and discussed.

5. The pore size distribution of Fe-MIL-100 should be given in figure 4.

6. What are the residues after TGA analysis of Fe-MIL-100?

7. The regeneration and reusability of the furosemide loading and release in Fe-MIL-100 should be investigated.

Reviewer #2: The paper highlights a novel application of NaOH based Fe-MIL for Furosemide delivery. In general the paper is presented in a concise and comprehensible manner. If the issues addressed below are justified, the paper can be accepted.
Introduction:
Contemporary research which uses Fe-MIL for drug delivery can be discussed further.
Results and discussion
1. In the methodology section, 3 concentrations of NaOH were mentioned, but in Fig. 1(B) additional points are found at x= 2.5 and 4. Please clarify on this.
2. SEM and BET results for Fe-MIL100, x =1.5 and 5 can also be included for comparison.
3. It will be beneficial to know the biocompatibility of the MOF as safe drug delivery materials must have little or no toxic effect on normal cells. Perhaps an MTT assay can be included to understand the biocompatibility of NaOH based Fe-MIL compared to conventional acid based Fe-MIL

Also in future, please label the line number accordingly for each line so that it's easy to refer to during the review process. There are grammatical mistakes throughout the manuscript which need to be rectified.

As a result of the significant disruption that is being caused by the COVID-19 pandemic we are very aware that many researchers will have difficulty in meeting the timelines associated with our peer review process during normal times. Please do let us know if you need additional time. Our systems will continue to remind you of the original timelines but we intend to be highly flexible at this time.

Date:	21 Jun 2020
To:	"Shella Permatasari Santoso" shella_p5@yahoo.com
cc:	"Yanita Devi" yanita.liem@gmail.com, "Ignatius Ang" bluyoong97@gmail.com, "Felycia Edi Soetaredjo" felycae@yahoo.com, "Wenny Irawaty" wenny_i_s@ukwms.ac.id, "Maria Yuliana" mariayuliana@ukwms.ac.id, "Artik Elisa Angkawijaya" artic_elisa@yahoo.com, "Sandy Budi Hartono" sandy@ukwms.ac.id, "Phuong Lan Tran-Nguyen" tnplan@ctu.edu.vn, "Suryadi Ismadji" suryadiismadji@yahoo.com, "Yi-Hsu Ju" yhju@mail.ntust.edu.tw
From:	"Journal of Materials Science (JMSC)" Saraswathi.Sabapathy@springer.com
Subject:	Decision on your submission to the Journal of Materials Science JMSC-D-20-00728R1

Dear Dr. Santoso,

Thank you again for your submission to the Journal of Materials Science. Your manuscript "An iron-carboxylate based metal-organic framework for furosemide loading and release" (JMSC-D-20-00728R1) has been accepted for publication. The manuscript has now been passed to our production team. If you have any enquiries about your accepted manuscript, please could you reply to this address, quoting your manuscript reference number?

Shortly after you have received and returned the article proofs, your article will appear in the Journal's Online First section: https://link.springer.com/journal/10853/onlineFirst

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I look forward to seeing your work appear online in the near future and wish you continued success in your research.

With kind regards,

Yaroslava Yingling
Editor
Journal of Materials Science
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COMMENTS FOR THE AUTHORS:

Reviewer #1: The revisions are satisfactory and I would like to recommend acceptance.

Reviewer #2: The authors have carefully revised the manuscript, thus i recommend it to be published in this journal.

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Journal of Materials Science

An iron-carboxylate based metal-organic framework for furosemide loading and release

--Manuscript Draft--

Manuscript Number:	JMSC-D-20-00728R1
Full Title:	An iron-carboxylate based metal-organic framework for furosemide loading and release
Article Type:	Manuscript (Regular Article)
Keywords:	Metal-organic framework; MOF; MIL100; Furosemide; drug delivery
Corresponding Author:	Shella Permatasari Santoso Universitas Katolik Widya Mandala Surabaya Surabaya, INDONESIA
Corresponding Author Secondary Information:	
Corresponding Author's Institution:	Universitas Katolik Widya Mandala Surabaya
Corresponding Author's Secondary Institution:	
First Author:	Yanita Devi
First Author Secondary Information:	
Order of Authors:	Yanita Devi
	Ignatius Ang
	Felycia Edi Soetaredjo
	Shella Permatasari Santoso
	Wenny Irawaty
	Maria Yuliana
	Artik Elisa Angkawijaya
	Sandy Budi Hartono
	Phuong Lan Tran-Nguyen
	Suryadi Ismadji
	Yi-Hsu Ju
Order of Authors Secondary Information:	
Abstract:	An iron-carboxylate based metal-organic framework, Fe-MIL100, have been synthesized using acid-free solvent at room temperature. Fe-MIL100 was prepared by combining Fe: H 3 BTC: NaOH: H 2 O (H 3 BTC=trimesic acid) at a molar ratio of 1.5: 1.0: x : 880; where x is the varied NaOH concentration at 1.5, 3.0, and 5.0 M. The effect of NaOH molar concentration on the formation of Fe-MIL100 was studied. Characterizations of the Fe-MIL100 were carried out using powder X-ray diffraction (XRD), scanning electron microscopy (SEM), nitrogen (N 2) adsorption-desorption, and thermogravimetry analysis (TGA). The obtained Fe-MIL100, with x NaOH of 3.0 M, has an octahedral crystal shape (a = 73.41 Å), crystal size ranging from 100 to 400 nm, BET surface area of 1,446.4 m 2 g -1 , a pore volume of 0.829 cm 3 g -1 , and thermal degradation temperature of 358°C. The potential of Fe-MIL100, a drug carrier device, was tested against Furosemide (a loop diuretic). As studied using the Langmuir adsorption isotherm model, 392.4 mg of Furosemide can be loaded per g of Fe-MIL100. The kinetic release of Furosemide was examined at 2 different biological pH of 5.8 and 7.4. The release profile of Furosemide was recorded within 24 h; it was found that the release profile follows the pseudo-first-order kinetics at pH 5.8 with a percent cumulative release of 41.56% and Korsmeyer-Peppas model at pH 7.4 with a percent cumulative release of 68.46%. The electrostatic repulsion drove the release of

	Furosemide from Fe-MIL100 due to the same negative charge of the compounds. Fe-MIL 100 at low concentration (< 30 µg/mL) shows good biocompatibility toward the 7F2 normal cell lines.	
Funding Information:	Kementerian Riset, Teknologi dan Pendidikan Tinggi (130S/WM01.5/N/2020)	Prof. Suryadi Ismadji