

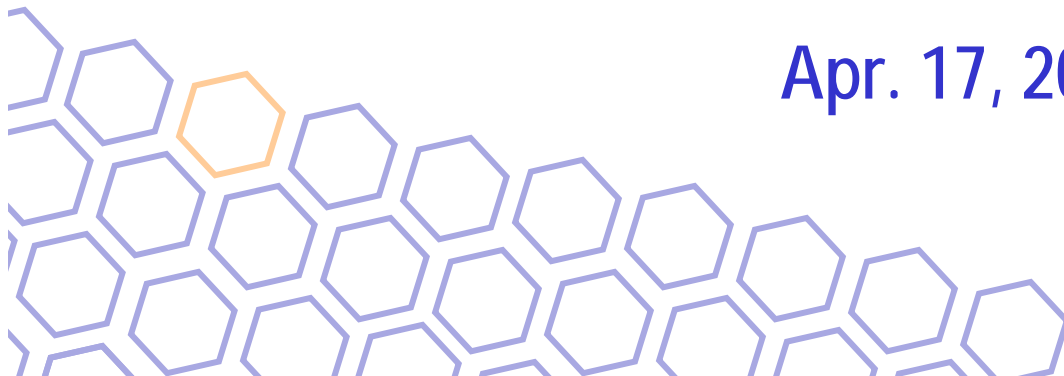


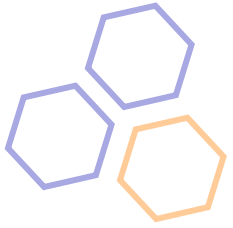
How to Review a Paper

Prof. Dr. Guowang Xu

Elsevier Author Workshop

Apr. 17, 2009





Opening Question

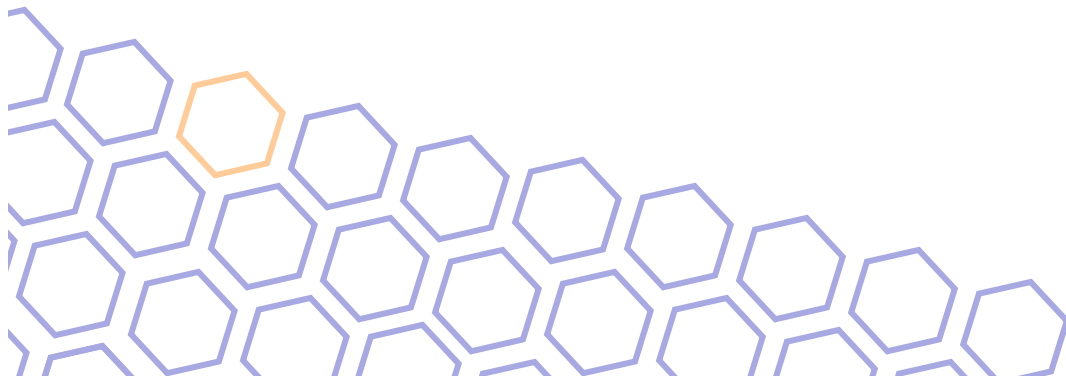
- Why is peer review a part of the scholarly publishing process?



Objectives

- What is the history of peer review and what role does it serve?
- Why should I consider being a reviewer?
- How do I carry out a proper and thorough review?

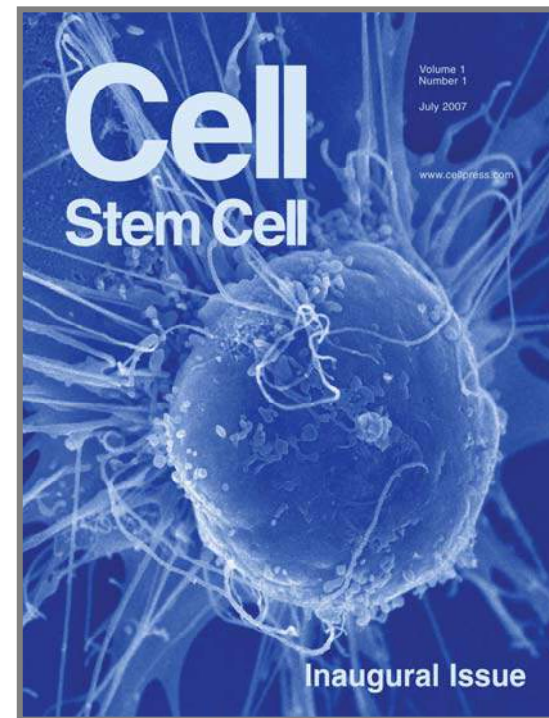
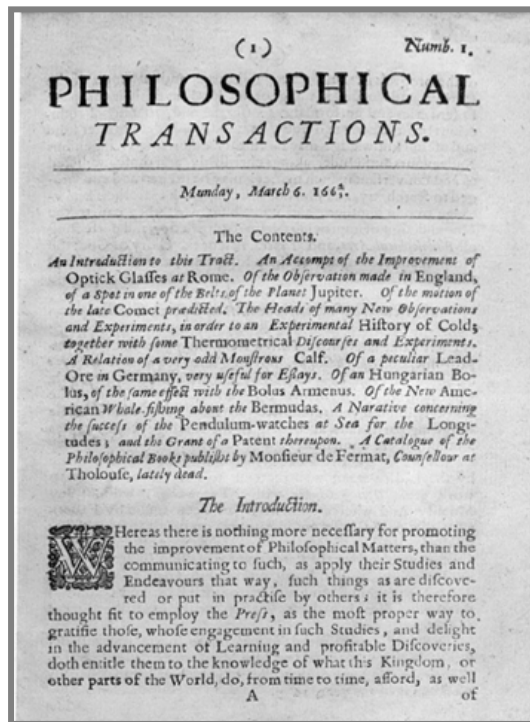
What is the history of peer review and what role does it serve?

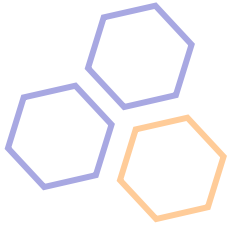




Background on Peer Review

- Cornerstone of the whole scholarly publication system
- Maintains integrity in the advancement of science
- Well-established process over 300 years old



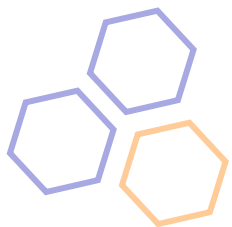


What is Peer Review?

Peer Review has two key functions:

- Acts as a filter by ensuring only good research is published. Helps to determine validity, significance and originality
- Improves the quality of the research submitted for publication by giving reviewers the opportunity to suggest improvements





Different Types of Peer Review

1. "Single blind" peer review
2. "Double blind" peer review
3. Open peer review

POST-PUBLICATION



Available online at www.sciencedirect.com

ScienceDirect

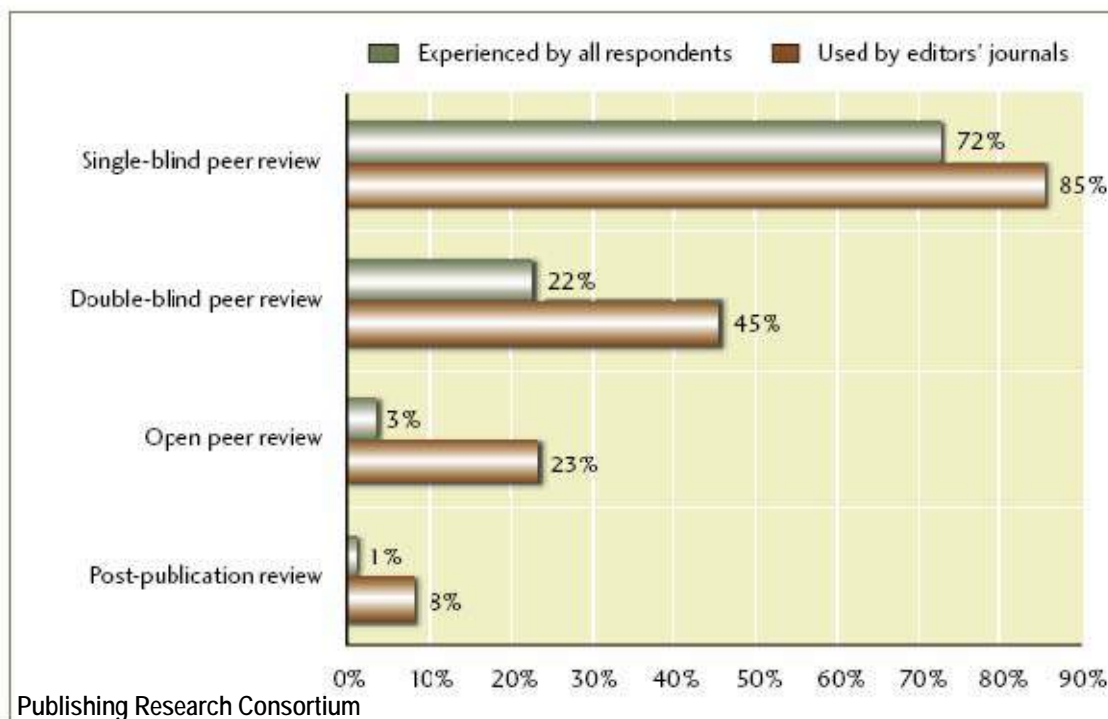
Carbon 45 (2007) 1439–1445

CARBON

www.elsevier.com/locate/carbon

Structure and electrochemical properties of resorcinol–formaldehyde polymer-based carbon for electric double-layer capacitors

NOT DISCLOSED

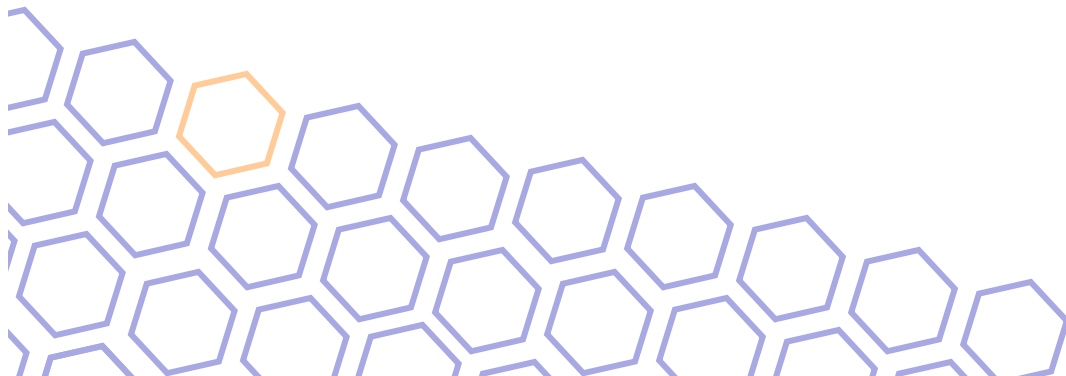


carbonization of a novel synthetic resorcinol–formaldehyde (RF) polymer without any additive materials for aqueous electric double-layer capacitors (EDLCs). This novel RF polymer with large carbonization yield (~85%), and excellent specific capacitance over 200 F/g (resorcinol to curing agent) on the specific surface area, pore size distribution, nanostructure, respectively. The results showed that a higher R/CA ratio yielded carbon with higher specific surface area and broader pore size distribution. The highest specific surface area of 825 m²/g and specific capacitance of 200 F/g occur at R/CA ratio of 50. The electrochemical behaviors were characterized by means of cyclic voltammetry and impedance spectroscopy. The correlation between electrochemical properties and the excellent capacitance properties, low cost and simple process, this RF polymer-derived EDLCs applications.

such as high specific surface area and large pore volume [5,6]. Almost any carbonaceous material can be converted

the reviewer is... "

Who conducts reviews and why do they do it?





Who Conducts Reviews?

- Scientific experts in specific fields and topics
- Young, old, and mid-career
- Average number of completed reviews is 8 per year*

* "Peer Review in Scholarly Journals – perspective on the scholarly community: an international study". M Ware and M Monkman. Publishing Research Consortium



Why Do Reviewers Review?

- Fulfill an academic 'duty'
- Keep up-to-date with latest developments
- Helps with their own research
- Build associations with prestigious journals and editors
- Remain aware of new research
- Develop one's career

Sample invitation to review

Dear <Reviewer name>

Re: <Name of journal Paper>

I would appreciate your critical review of the enclosed manuscript that has been submitted for publication in <journal name>. <journal name> wishes to be a natural choice for the publication of original papers of high quality in a broad range of <journal subject area> research. Consequently in reviewing the manuscript do not hesitate to reject it if it is scientifically flawed; provides no new insights; merely sets out observations with no analysis or is of insufficient priority to warrant publication.

Invitation to review and mission of the journal

If you recommend revision, please make your comments as constructive as possible to help the authors improve their paper. Do not attempt to re-write the paper. It is the responsibility of the authors to produce a clear manuscript in correct English. **Extensive editing and/or rephrasing is not your task.** It is however helpful if you can mark typographical, spelling and grammatical errors on the manuscript, but this is not essential. Authors are allowed to submit only one revision and therefore your comments should be sufficiently detailed for the authors to make all necessary changes that can eventually lead to acceptance. If a revised manuscript is sent back to you the only response required will be a simple yes or no to the question, 'Is the paper now suitable for publication'?

Specific reviewing instructions

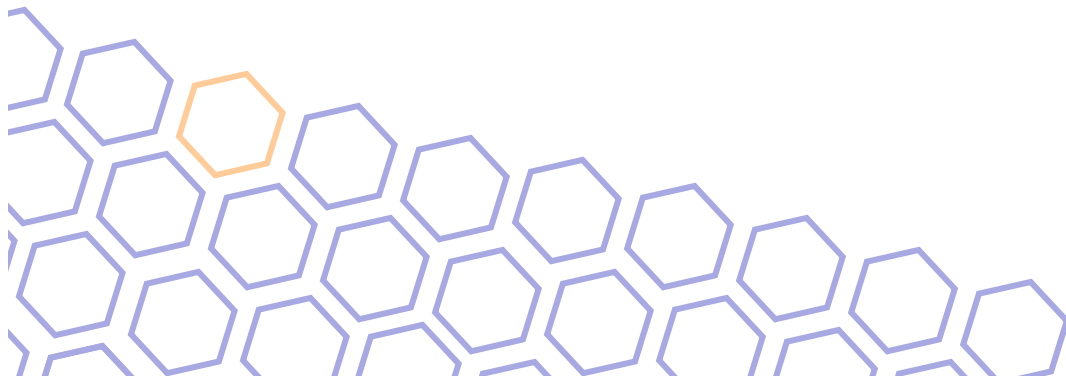
If the modifications you request do not necessitate the return of the manuscript please destroy it since it has been submitted in confidence. Please return the checklist and your detailed comments to me within 14 days. If you are unable to complete the review within this time, please return the manuscript to me immediately.

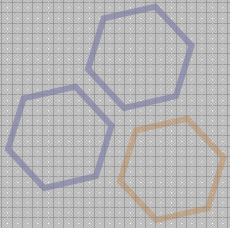
Stipulated deadline

Thank you for your help.

Yours sincerely

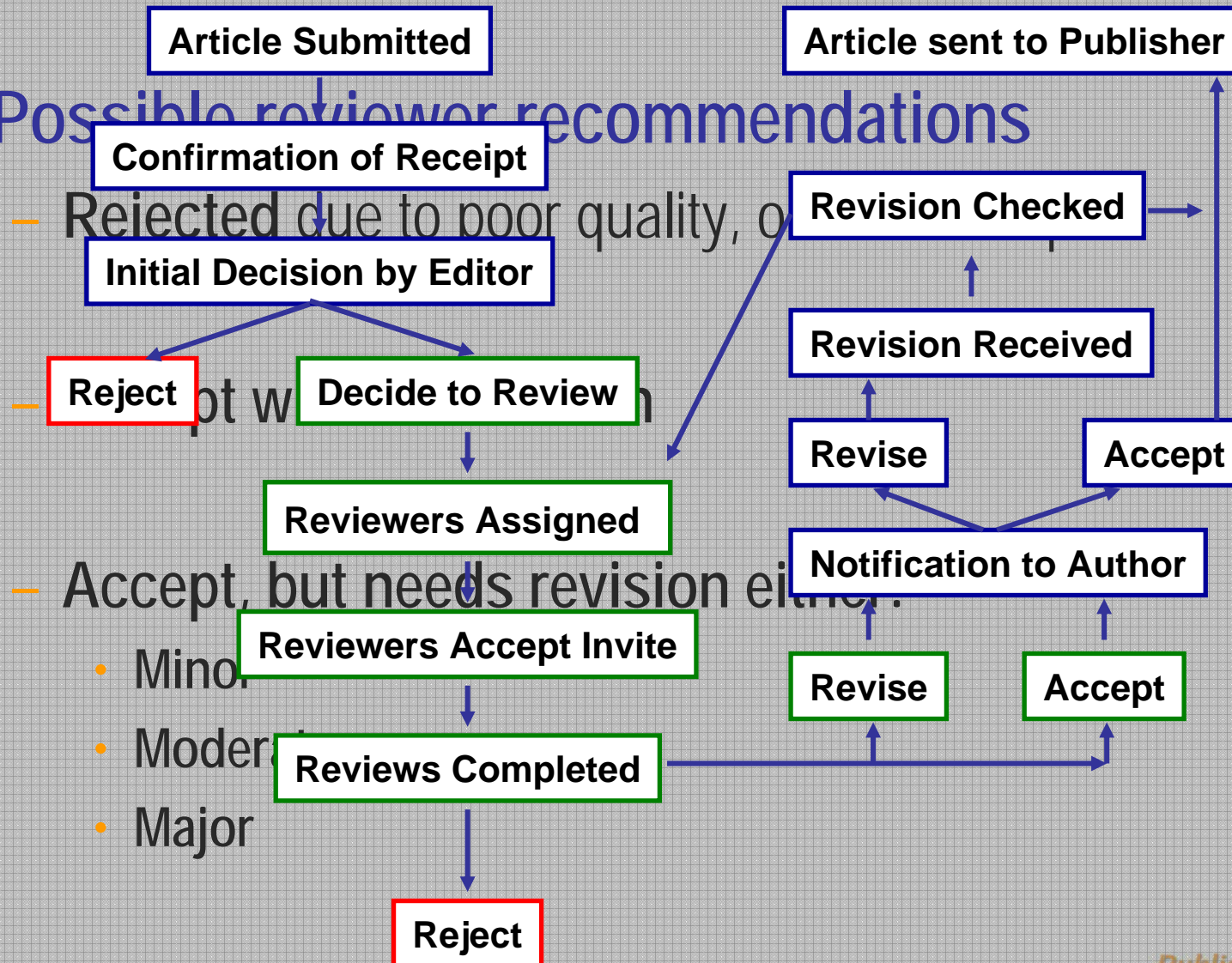
How do I carry out a proper and thorough review?





Overview of Peer Review Process

- Possible reviewer recommendations



- Rejected due to poor quality, or

- Accept with minor revisions

- Accept, but needs revision either:

- Minor
- Moderate
- Major



Conducting the Review Comments to Editor:

Please tick YES or NO, as appropriate.

1. Is the **subject suitable for publication in the Journal of Pharmaceutical and Biomedical Analysis?**

YES NO

2. Has the paper sufficient **scientific value and novelty?**

YES NO

3. Is it clearly **presented and well organized (including experimental data and the optimization procedure)?**

YES NO

4. Is the proposed method/procedure adequately **validated?**

YES NO

5. Does it give all the relevant **as well as up-to-date references** to related work?

YES NO

6. Have the authors addressed the question of how their proposed methodology compares with previously reported methods?

YES NO

7. Is the method supported by a demonstration of its application to real samples? (For bioanalytical methods human-/animal-derived real samples, not simply spiked, should be used)

YES NO

8. **Is the English satisfactory?**

YES NO

PLEASE ADD ANY FURTHER COMMENTS TO THE 'BLIND COMMENTS TO AUTHOR' SECTION

Summarize the article

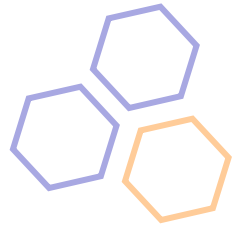
Comments to Author:

In this paper, in order to control the quality, standard fingerprint of *P. cablin* collected from different regions was developed by using GC-MS-MS. The compounds including β -patchoulene, caryophyllene, α -guaiene, seychellene, β -guaiene, δ -guaiene, α -bisabolene, and pogostone were identified among ten main peaks in *P. cablin*. Hierarchical clustering analysis of 10 investigated peaks in GC profiles showed that 18 samples were divided into three types: α -bisabolol-type, pogostone-type and an interim-type that was the one between the two che... The simulative mean chromatogram for the three types *P. cablin* was generated using the Computer-aided Similarity Evaluation System.

Explain and support the judgments

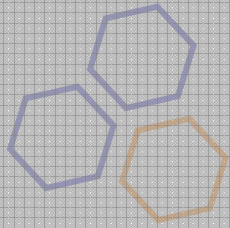
1. It's well known in China that the fingerprint can be used to control the quality of TCMs. In *P. cablin* volatile oil, normally, there are several tens of peaks based on 1D GC or hundreds of peaks on GCxGC (see following literature 1), but in this paper, authors used only 10 peaks to investigate the fingerprint, information content is not enough. Authors didn't say why they didn't make use of the peaks with the retention times longer than 36 min.
2. In Table 2 authors used the relative content (%) of investigated compounds in *Pogostemon cablin*. They assigned the total relative content of 10 peaks is 100%, this is not suitable because there are many peaks in volatile oil. The better mode is using relative content of total volatile component peaks.
3. The manuscript is not well organized. For example, in Legends, peak identification information in Figure 1 is repeated with Table 1, and peak 9 and peak 10 are not corresponded. The sample information in the legends of Fig. 3 and Fig. 4 is totally repeated with the footnote in Table 2.
4. The references haven't been well cited. Perhaps following relative literatures should be cited,
 - 1) Wu J, Lu X, Tang W, et al. Application of comprehensive two-dimensional gas chromatography-time-of-flight mass spectrometry in the analysis of volatile oil of traditional Chinese medicines. *J Chromatogr A (Netherlands)*, Apr 23 2004, 1034(1-2) p199-205
 - 2) Li W, Wei G, Pan CM, et al. [Investigation on the influential factors of the volatile oil and main constituent content in *Pogostemon cablin*] *Zhongguo Zhong Yao Za Zhi (China)*, Jan 2004, 29(1) p28-31
 - 3) Tian J, Lu X, Yang J, et al. [Multidimensional separations used in pharmaceutical and biological fields] *Se Pu (China)*, Jan 2005, 23(1) p32-6
 - 4) Hu HY, Peng JF, Huang SL, et al. [Study on purification technology of patchouly oil with molecular distillation] *Zhongguo Zhong Yao Za Zhi (China)*, Apr 2004, 29(4) p320-2, 379
 - 5) Luo J, Guo X, Feng Y [Constituents analysis on volatile oil of *Pogostemon cablin* from different collection time cultivated in Hainan] *Zhong Yao Cai (China)*, Jan 2002, 25(1) p21-3
 - 6) Li W, Pan C, Xu H, et al. [The observation and comparison of *Pogostemon cablin* from different habitats] *Zhong Yao Cai (China)*, Jul 2002, 25(7) p463-5
 - 7) Guo X, Feng Y, Luo J [Re-study on characteristic fingerprint of volatile oil from *Herba Pogostemonis* by GC] *Zhong Yao Cai (China)*, Dec 2004, 27(12) p903-8

Reviewer Recommendation Term: Requires major revision



Conducting the Review - Originality

- Sufficiently novel and interesting to warrant publication?
- Adds to the canon of knowledge?
- Answers an important research question?
- Satisfies the journal's standards?
- Falls in the top 25% of papers in this field?
- A literature scan of review articles can help the reviewer determine originality



Conducting the Review - Structure

Key sections are included and are laid out clearly

Title
Abstract
Introduction
Methodology
Results
Discussion/ Conclusion
References

Title
Abstract <ul style="list-style-type: none">• Does it reflect what was done and what the major findings
Introduction
Methodology
Results
<ul style="list-style-type: none">• Discussion/ Conclusion• Are the claims in this section supported by the results, do they seem reasonable?
References/Previous Research <ul style="list-style-type: none">• If the article builds upon previous research does it reference that work appropriately?• Are there any important works that have been omitted?• Are the references accurate?
<ul style="list-style-type: none">• Does the article make it clear what type of data was recorded, has the author been precise in describing measurements?



Conducting the Review – Tables & Figures

- Relevant and important
- Consistency
- Color
- Caption length and appropriateness
- Figures describe the data accurately

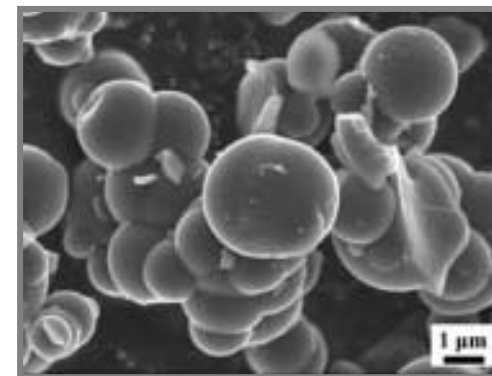
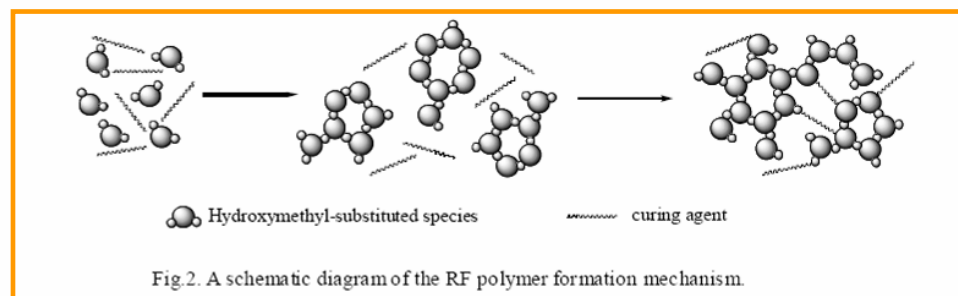
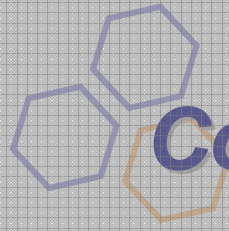


Fig.3. FE-SEM images of RFP-50 at 1,0000×



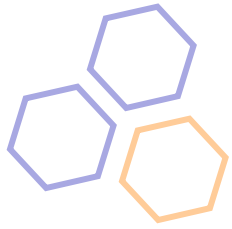
functionalized polymer clusters (7 to 10 nm in diameter). These clusters then aggregate together through organic-organic interaction between curing agent molecules and organic clusters and finally form RF polymer.





Conducting the Review – Ethical Issues

- Plagiarism
- Fraud
- Medical ethical
- concerns



Sending Your Report to the Editor

- Anticipate the deadline
- Summarize the article at the top of your report
- The report should be comprehensive
- Explain and support your judgments
- Make a distinction between your own opinions and your comments based on data
- Be courteous and constructive

Sample Paper

Editorial Office Journal of Chromatography B
P.O. Box 681
1000 AR Amsterdam
The Netherlands

Dear Sir or Madam,

I am submitting a paper entitled "Normalization Strategies for Metabonomic Analysis of Urine Samples" for publication in the Journal of Chromatography B. Prior to submission, the abstract for this paper was reviewed by Dr. D.K. Lloyd of the Journal of Chromatography B Editorial Board and he confirmed that this topic was within the scope of the journal.

Following are three potential referees for the paper.

Professor Elizabeth Want
Department of Biomolecular Medicine
Imperial College London
Sir Alexander Fleming Building
South Kensington
London SW7 2AZ - UK
e.want@imperial.ac.uk

Professor Liang Li
University of Alberta
Department of Chemistry
Chemistry Centre W3-39
Edmonton, AB T6G 2G2
Canada
liang.li@ualberta.ca

Dr. William H. Schaefer
Merck Research Labs
WP81-203
770 Summeytown Pike
West Point, PA 19486
USA
william_schaefer@merck.com

Thank you for your consideration.

Sincerely,
Bethanne M. Warrack



Reviewer's Invitation

Dear %TITLE% %LAST_NAME%,

I am writing to you with regard to the manuscript %MS_NUMBER%: %ARTICLE_TITLE%, which has been submitted for possible publication in %JOURNALFULLTITLE%.

I would like to ask if you would be willing to review this paper. To view the PDF, please click on the link below: %VIEW_REVIEWER_PDF%

As a reviewer you are entitled to access references, abstracts, and full-text articles in Scopus and ScienceDirect for 30 days. Full instruction details will be provided upon accepting this invitation to review.

If you are willing to review this manuscript, please click on the link below: %ACCEPT_REVIEW_INVITATION%

If you are not able to review this manuscript, please click on the link below. We would appreciate receiving suggestions for alternative reviewers: %DECLINE_REVIEW_INVITATION%

Alternatively, you may also register your response by accessing the Elsevier Editorial System for %JOURNALFULLTITLE% as a REVIEWER using the logon credentials below:

%JOURNAL_URL%

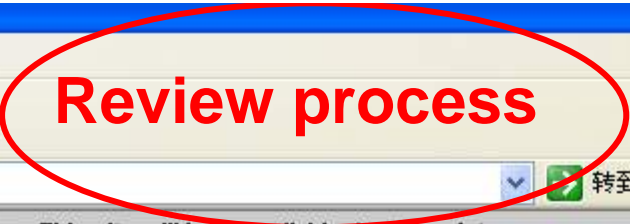
%BLINDED_USERNAME%

%BLINDED_PASSWORD%

Once you accept to review this paper, you will find this manuscript in your "Pending Reviews" menu and will be allowed to complete your review online.

In order for us to be able to keep the time taken for review to a minimum, our reviewers are generally requested to return their comments within three weeks. If this timeframe does not suit you, or if the subject area is outside your field of expertise, I would welcome any suggestion for alternative reviewers.

NOTE: If this is your first time reviewing for us in the Elsevier Editorial System for %JOURNALFULLTITLE%, please update your personal contact information and your



Review process

ANALYTICAL BIOCHEMISTRY

Contact us Help ?



This site will be unavailable due to maintenance on Saturday 11 April from 06:00 till 12:00 GMT. (more...) Sign up for maintenance alerts here.

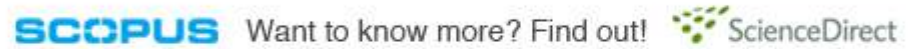
main menu | submit paper | guide for authors | register | change details | log out

Username: GXU Role: Reviewer

Version: 6

Pending Reviewer Assignments for

Let Scopus and ScienceDirect assist you in your reviewing process. Try it!



Page: 1 of 1 (1 total assignments)

Action	My Reviewer Number	Manuscript Number	Article Type	Article Title	Status Date	Current Status
Action Links			Full Length Article	A method for enzyme quenching in microbial metabolome analysis successfully applied to gram-positive and negative bacteria and yeast.	Mar 18, 2009	Under Review

- View Submission
- View Linked References
- Similar Articles in MEDLINE
- Scopus Author Search
- Scirus Title Search
- Submit Recommendation
- Send E-mail

Page: 1 of 1 (1 total assignments)

<< Reviewer Main Menu

You should use the free Adobe Acrobat Reader 6 or later for best PDF Viewing



Your UltraMed Query: "A method for enzyme quenching in microbial metabolome analysis successfully applied to gram-positive and negative bacteria and yeast"

CONCEPT MAPPINGS: ANALYSIS (SUBHEADING) [ANALYSIS] (MeSH® Explosion)
 BACTEREMIA [BACTERIA] (MeSH® Explosion)
 BACTERIA [BACTERIA] (MeSH® Explosion)
 ENZYMES [ENZYME] (MeSH® Explosion)
 METABOLIC PROFILE [METABOLOME] (Synonym)
 METABOLOME [METABOLOME] (MeSH® Explosion)
 METABOLOMIC [METABOLOME] (MeSH® Explosion)
 METHODS [METHOD] (MeSH® Explosion)
 NEGATIVISM [NEGATIVE] (MeSH® Explosion)
 YEASTS [YEAST] (MeSH® Explosion)



- [New Search](#) -

RESULT SET: 200 documents displayed out of 2231724 documents found

Page: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - Next 20

Relevance	Abstract included	Select all		
View-Export-Email selected				
Max				
64%	Yes	<input type="checkbox"/>	View	Bolten CJ, Kiefer P, Letisse F, et al. Sampling for metabolome analysis of microorganisms. Anal Chem (United States), May 15 2007, 79(10) p3843-9 Find authors Related titles
63%	Yes	<input type="checkbox"/>	View	Cheng HR, Jiang N Extremely rapid extraction of DNA from bacteria and yeasts . Biotechnol Lett (Netherlands), Jan 2006, 28(1) p55-9 Find authors Related titles
60%	Yes	<input type="checkbox"/>	View	Taymaz-Nikerel H, de Mey M, Ras C, et al. Development and application of a differential method for reliable metabolome analysis in Escherichia coli . Anal Biochem (United States), Mar 1 2009, 386(1) p9-19 Find authors Related titles
60%	Yes	<input type="checkbox"/>	View	Kamgang-Youbi G, Herry JM, Meylheuc T, et al. Microbial inactivation using plasma-activated water obtained by gliding electric discharges. Lett Appl Microbiol (England), Jan 2009, 48(1) p13-8 Find authors Related titles



JCB-08-1181
 "Normalization Strategies for Metabonomic Analysis of Urine Samples"
 Original Submission

, PhD (Reviewer 1)

Submit review result

[Edit Reviewer Comments](#)

Reviewer Recommendation Term:	Minor Revision
Rate Reviewer:	<input type="text"/> (Select 1-100)
Comments to Editor:	<p>1. Does the subject matter primarily address analytical methodologies related to biological systems as described in the scope of the Journal of Chromatography B (see http://www.elsevier.com/locate/chromb)? YES</p> <p>2. Is, in your opinion, the paper clearly presented and well organized? YES</p> <p>3. Does it give adequate references to related work? YES</p> <p>4. Does the Abstract provide a quantitative summary? YES</p> <p>5. Is the English satisfactory? YES</p>
Comments to Author:	<p>JCB 08 1181</p> <p>This is an interesting paper on a timely topic that of LC-MS based metabonomics analysis. The authors use an innovative approach to study the effect of normalization or no-normalisation strategies. Findings are very interesting. I recommend publication after revision.</p> <p>Specific comments:</p> <p>The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term "peaks" in Pg4Ln15). My skepticism is bigger towards the claim (Pg8n36) that "MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts". How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know of all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.</p> <p>More results/proof of concept would be welcome. For example in addition to the PCA plots, some evidence comparing directly ion intensities of randomly selected peaks with and without normalization.</p> <p>Minor comments: Pg11Ln 8: Principal Component Pg3Ln3 stressor Pg3Ln45: induce instead of produce? Fig 2 Legend. Day14 necropsy. This should be given earlier in text. Please describe this in the experimental (in-vivo sample collection)</p>

Close

View Reviews and Comments for Manuscript
JCB-08-1181
“Normalization Strategies for Metabonomic Analysis of Urine Samples ”
Revision 1

Click the recommendation term to view the comments for the submission.

[View Manuscript Rating Card](#)

	Revision 1	Original Submission
Georgios Theodoridis, PhD (Reviewer 1)	(None)	Minor Revision
Elizabeth Want (Reviewer 2)	(None)	Minor Revision
Guowang Xu (Editor)	Accept	Minor Revision
Author Decision Letter	Accept	Minor Revision
Bethanne M. Warrack, B.A. (Author)		

Close

Editor decision -1

Date: 08 Dec 2008
To: "Bethanne M. Warrack" bethanne.warrack@bms.com
From: "Journal of Chromatography B" chromb@elsevier.com
Subject: Manuscript JCB-08-1181

Ref.: JCB-08-1181
Title: Normalization Strategies for Metabonomic Analysis of Urine Samples
Corresponding Author: Ms. Bethanne M. Warrack

Dear Ms. Warrack,

On behalf of the editor handling your manuscript,
Professor Guowang Xu, I am writing to you in reference to your manuscript entitled:

"Normalization Strategies for Metabonomic Analysis of Urine Samples"

I am pleased to inform you that the paper has been favorably received and that publication after minor revision is recommended (please see the comments below). I should be grateful if you would revise the paper in accordance with these recommendations and submit your revised manuscript within 30 days.

Please submit your revision online by logging onto the Elsevier Editorial System for Journal of Chromatography B:

<http://ees.elsevier.com/chromb/>

The manuscript record can be found in the "Submissions Needing Revision" menu.

Please upload the following items:

1. A detailed, point-to-point response to each point raised, specifically describing all changes, or the reason why no change was made. This document should be uploaded as "Response to Reviews".
2. A complete, editable, electronic copy (i.e. Word, WordPerfect, RTF, or LaTeX) of the revised manuscript.
3. An electronic copy of the revised manuscript that has all changes made in response to these comments clearly indicated (preferably underlined in red). Please identify such a marked copy on the title page and in the file name. This document should be uploaded as an "Marked Manuscript".
4. Figures should be uploaded individually as TIF or EPS files with the figure number clearly indicated in the file name.

Thank you for your cooperation.

We look forward to receiving your revised manuscript.

Editor decision -2

Comments:

Editor:

1. the conclusions section is too long, should be simplified.
2. The title of each section should be numbered with the Arabic numeral, for example, 1. Introduction, ...

Reviewer #1: JCB 08 1181

This is an interesting paper on a timely topic that of LC-MS based metabonomics analysis.

The authors use an innovative approach to study the effect of normalization or no-normalisation strategies.

Findings are very interesting. I recommend publication after revision.

Specific comments:

The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term "peaks" in Pg4Ln15). My skepticism is bigger towards the claim (Pg8Ln36) that "MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts". How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know of all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.

More results/proof of concept would be welcome. For example in addition to the PCA plots, some evidence comparing directly ion intensities of randomly selected peaks with and without normalization.

Minor comments: Pg11Ln 8: Principal Component

Pg3Ln3 stressor

Pg3Ln45: induce instead of produce?

Fig 2 Legend. Day14 necropsy. This should be given earlier in text. Please describe this in the experimental (in-vivo sample collection)

Reviewer #2: General Comments

This manuscript describes normalization approaches for mass spectrometry-based metabonomics studies. This is an important area of metabonomics and certainly one that needs addressing. This is a thorough investigation of several different normalization strategies. The manuscript is well written and on the whole provides a clear account of the study. I would have appreciated more detail regarding the sample analysis and also the data analysis. It is interesting to find out that when the data was normalized to urine volume, separation between the groups was reduced compared with un-normalized data. I think that this manuscript will be of great interest to the field and I recommend that it is published with minor revisions. My specific comments are below.

Specific Points

Methods:

Author's Revisions to Detailed Comments

Editor:

1. the conclusions section is too long, should be simplified.

The conclusions have been shortened (see marked copy of manuscript pp. 13-14).

2. The title of each section should be numbered with the Arabic numeral, for example, 1. Introduction, ...

Sections have been numbered.

Reviewer #1: JCB 08 1181

The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term "peaks" in Pg4Ln15).

We are using a developmental algorithm that is not ready to publish in detail, but the concept is closely related to the references cited and is simply to integrate all peaks that arise from bona fide endogenous components in the sample.

My skepticism is bigger towards the claim (Pg8n36) that "MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts". How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know of all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.

Sentence was changed: In doing this, the MSTUS approach attempts to limit the contributions of xenobiotics and artifacts to the normalization factor by including only those peaks that are present in all samples, including the controls.

More results/proof of concept would be welcome. For example, in addition to the PCA plots, some

Cancel Save and Close

Manuscript JCB-08-1181R1
"Normalization Strategies for Metabonomic Analysis of Urine Samples"
Revision 1

Guowang Xu (Editor)

Date Submitted:	28 Oct 2008
Status Date:	08 Jan 2009
Current Status:	Completed - Accept
Final Disposition:	Accept
Editor's Recommendation:	Accept
Overall Editor Manuscript Rating:	<input type="text"/> (1-100) View Manuscript Rating Card
Date Assignment Completed:	07 Jan 2009
Elapsed Days:	1
Editor's Comments to Editor:	
Editor's Comments to Author:	Editor: accept it as is.

Cancel Save and Close

Final Article

Journal of Chromatography B, 877 (2009) 547–552



ELSEVIER

Contents lists available at ScienceDirect

Journal of Chromatography B

journal homepage: www.elsevier.com/locate/chromb



Normalization strategies for metabonomic analysis of urine samples

Bethanne M. Warrack^{a,b,*}, Serhiy Hnatyshyn^{a,b}, Karl-Heinz Ott^{a,c}, Michael D. Reily^{a,b}, Mark Sanders^{a,b,2}, Haiying Zhang^{a,b,1}, Dieter M. Drexler^{a,d}

^a Bristol-Myers Squibb Company, Research and Development, USA

^b Pharmaceutical Candidate Optimization – Discovery Analytical Sciences, Princeton, NJ 08543, USA

^c Applied Genomics, Pennington, NJ 08534, USA

^d Pharmaceutical Candidate Optimization – Discovery Analytical Sciences, Wallingford, CT 06492, USA

ARTICLE INFO

Article history:

Received 28 October 2008

Accepted 7 January 2009

Available online 14 January 2009

Keywords:

Normalization

Mass spectrometry

Metabonomics

Non-targeted

ABSTRACT

Unlike plasma and most biological fluids which have solute concentrations that are tightly controlled, urine volume can vary widely based upon water consumption and other physiological factors. As a result, the concentrations of endogenous metabolites in urine vary widely and normalizing for these effects is necessary. Normalization approaches that utilized urine volume, osmolality, creatinine concentration, and components that are common to all samples ("total useful MS signal") were compared in order to determine which strategies could be successfully used to differentiate between dose groups based upon the complete endogenous metabolite profile. Variability observed in LC/MS results obtained from targeted and non-targeted metabonomic analyses was highly dependent on the strategy used for normalization. We therefore recommend the use of two different normalization techniques in order to facilitate detection of statistically significant changes in the endogenous metabolite profile when working with urine samples.

© 2009 Elsevier B.V. All rights reserved.



Summary

- **What is the history of peer review and what role does it serve?**
 - Peer review is the cornerstone of the scholarly publication process
 - Filters out good research and improves it
- **Why should I consider being a reviewer?**
 - Reviewing can be a career building activity that also keeps one in touch with the latest research in the field
- **How do I carry out a proper and thorough review?**
 - Analyze the article for its originality, structure, and ethical sufficiency
 - Provide detailed, constructive comments and communicate clearly with the Editor