Inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mould and its anti-mildew effect on bamboo

Jingjing Zhang, Chungui Du, Qi Li, Ailian Hu, Rui Peng, Fangli Sun and Weigang Zhang

Article citation details
R. Soc. open sci. 8: 202244.
http://dx.doi.org/10.1098/rsos.202244

Review timeline
Original submission: 14 December 2020
Revised submission: 21 March 2021
Final acceptance: 29 March 2021

Note: Reports are unedited and appear as submitted by the referee. The review history appears in chronological order.

Review History

RSOS-202244.R0 (Original submission)

Review form: Reviewer 1

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No
Recommendation?
Accept with minor revision (please list in comments)

Comments to the Author(s)
Reviewer comments (RSOS-202244):
The authors investigated inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mold and its anti-mildew effect on bamboo. The novelty of the article is very high. The study is the pioneering research on the application of citral to the mildew prevention of bamboo. Before publication, authors are required to revise the manuscript with minor modifications as under:
1. Page 5, Line 29. The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64mm and 30.42mm, respectively” should be replaced by “The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64, and 30.42 mm, respectively”.
2. The unit “mg/mL” should be unified in the manuscript. “mg/mL” or “mg/ml”.
3. Table 2 and 3 are hard to understand. Please revise it.
4. Figure 5 and 6 are not clearly to see, please adjust font size in the figures.

Review form: Reviewer 2

Is the manuscript scientifically sound in its present form?
No

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Major revision is needed (please make suggestions in comments)

Comments to the Author(s)
My main issue with this work is why bamboo? Why is this different for bamboo than other substrates such as wood? Bamboo is fascinating to the scientific community due to its graded microstructure (lit review is weak here too). Is that fact play a role? Why is the graded structure of bamboo makes a difference? Is there a role in bamboo cell wall sizes?

the presentation needs to significantly improve. Figures are missing explanations of the abbreviation and figure captions are short.
Decision letter (RSOS-202244.R0)

We hope you are keeping well at this difficult and unusual time. We continue to value your support of the journal in these challenging circumstances. If Royal Society Open Science can assist you at all, please don't hesitate to let us know at the email address below.

Dear Ms Zhang

The Editors assigned to your paper RSOS-202244 "Inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mold and its anti-mildew effect on bamboo" have now received comments from reviewers and would like you to revise the paper in accordance with the reviewer comments and any comments from the Editors. Please note this decision does not guarantee eventual acceptance.

We invite you to respond to the comments supplied below and revise your manuscript. Below the referees’ and Editors’ comments (where applicable) we provide additional requirements. Final acceptance of your manuscript is dependent on these requirements being met. We provide guidance below to help you prepare your revision.

We do not generally allow multiple rounds of revision so we urge you to make every effort to fully address all of the comments at this stage. If deemed necessary by the Editors, your manuscript will be sent back to one or more of the original reviewers for assessment. If the original reviewers are not available, we may invite new reviewers.

Please submit your revised manuscript and required files (see below) no later than 21 days from today’s (ie 11-Mar-2021) date. Note: the ScholarOne system will ‘lock’ if submission of the revision is attempted 21 or more days after the deadline. If you do not think you will be able to meet this deadline please contact the editorial office immediately.

Please note article processing charges apply to papers accepted for publication in Royal Society Open Science (https://royalsocietypublishing.org/rsos/charges). Charges will also apply to papers transferred to the journal from other Royal Society Publishing journals, as well as papers submitted as part of our collaboration with the Royal Society of Chemistry (https://royalsocietypublishing.org/rsos/chemistry). Fee waivers are available but must be requested when you submit your revision (https://royalsocietypublishing.org/rsos/waivers).

Thank you for submitting your manuscript to Royal Society Open Science and we look forward to receiving your revision. If you have any questions at all, please do not hesitate to get in touch.

Best regards,
Lianne Parkhouse
Editorial Coordinator
Royal Society Open Science
openscience@royalsociety.org

on behalf of Professor Luning Liu (Associate Editor) and Catrin Pritchard (Subject Editor)
openscience@royalsociety.org

Associate Editor Comments to Author (Professor Luning Liu):

Please revise the manuscript thoroughly based on the comments of Reviewer 1 and Reviewer 2.
Reviewer comments to Author:
Reviewer: 1
Comments to the Author(s)
Reviewer comments (RSOS-202244):
The authors investigated inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mold and its anti-mildew effect on bamboo. The novelty of the article is very high. The study is the pioneering research on the application of citral to the mildew prevention of bamboo. Before publication, authors are required to revise the manuscript with minor modifications as under:
1. Page 5, Line 29. The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64mm and 30.42mm, respectively” should be replaced by “The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64, and 30.42 mm, respectively”.
2. The unit “mg/mL” should be unified in the manuscript. “mg/mL” or “mg/ml”.
3. Table 2 and 3 are hard to understand. Please revise it.
4. Figure 5 and 6 are not clearly to see, please adjust font size in the figures.

Reviewer: 2
Comments to the Author(s)
My main issue with this work is why bamboo? Why is this different for bamboo than other substrates such as wood? Bamboo is fascinating to the scientific community due to its graded microstructure (lit review is weak here too). Is that fact play a role? Why is the graded structure of bamboo makes a difference? Is there a role in bamboo cell wall sizes?

the presentation needs to significantly improve. Figures are missing explanations of the abbreviation and figure captions are short.

===PREPARING YOUR MANUSCRIPT===

Your revised paper should include the changes requested by the referees and Editors of your manuscript. You should provide two versions of this manuscript and both versions must be provided in an editable format:
one version identifying all the changes that have been made (for instance, in coloured highlight, in bold text, or tracked changes);
a 'clean' version of the new manuscript that incorporates the changes made, but does not highlight them. This version will be used for typesetting if your manuscript is accepted.
Please ensure that any equations included in the paper are editable text and not embedded images.

Please ensure that you include an acknowledgements' section before your reference list/bibliography. This should acknowledge anyone who assisted with your work, but does not qualify as an author per the guidelines at https://royalsociety.org/journals/ethics-policies/openness/.

While not essential, it will speed up the preparation of your manuscript proof if accepted if you format your references/bibliography in Vancouver style (please see https://royalsociety.org/journals/authors/author-guidelines/#formatting). You should include DOIs for as many of the references as possible.

If you have been asked to revise the written English in your submission as a condition of publication, you must do so, and you are expected to provide evidence that you have received
language editing support. The journal would prefer that you use a professional language editing service and provide a certificate of editing, but a signed letter from a colleague who is a native speaker of English is acceptable. Note the journal has arranged a number of discounts for authors using professional language editing services (https://royalsociety.org/journals/authors/benefits/language-editing/).

===PREPARING YOUR REVISION IN SCHOLARONE===

To revise your manuscript, log into https://mc.manuscriptcentral.com/rsos and enter your Author Centre - this may be accessed by clicking on "Author" in the dark toolbar at the top of the page (just below the journal name). You will find your manuscript listed under 'Manuscripts with Decisions'. Under "Actions", click on "Create a Revision".

Attach your point-by-point response to referees and Editors at Step 1 'View and respond to decision letter'. This document should be uploaded in an editable file type (.doc or .docx are preferred). This is essential.

Please ensure that you include a summary of your paper at Step 2 'Type, Title, & Abstract'. This should be no more than 100 words to explain to a non-scientific audience the key findings of your research. This will be included in a weekly highlights email circulated by the Royal Society press office to national UK, international, and scientific news outlets to promote your work.

At Step 3 'File upload' you should include the following files:
-- Your revised manuscript in editable file format (.doc, .docx, or .tex preferred). You should upload two versions:
1) One version identifying all the changes that have been made (for instance, in coloured highlight, in bold text, or tracked changes);
2) A 'clean' version of the new manuscript that incorporates the changes made, but does not highlight them.
-- An individual file of each figure (EPS or print-quality PDF preferred [either format should be produced directly from original creation package], or original software format).
-- An editable file of each table (.doc, .docx, .xls, .xlsx, or .csv).
-- An editable file of all figure and table captions.
Note: you may upload the figure, table, and caption files in a single Zip folder.
-- Any electronic supplementary material (ESM).
-- If you are requesting a discretionary waiver for the article processing charge, the waiver form must be included at this step.
-- If you are providing image files for potential cover images, please upload these at this step, and inform the editorial office you have done so. You must hold the copyright to any image provided.
-- A copy of your point-by-point response to referees and Editors. This will expedite the preparation of your proof.

At Step 6 'Details & comments', you should review and respond to the queries on the electronic submission form. In particular, we would ask that you do the following:
-- Ensure that your data access statement meets the requirements at https://royalsociety.org/journals/authors/author-guidelines/#data. You should ensure that you cite the dataset in your reference list. If you have deposited data etc in the Dryad repository, please include both the 'For publication' link and 'For review' link at this stage.
-- If you are requesting an article processing charge waiver, you must select the relevant waiver option (if requesting a discretionary waiver, the form should have been uploaded at Step 3 'File upload' above).
-- If you have uploaded ESM files, please ensure you follow the guidance at https://royalsociety.org/journals/authors/author-guidelines/#supplementary-material to
include a suitable title and informative caption. An example of appropriate titling and captioning may be found at https://figshare.com/articles/Table_S2_from_Is_there_a_trade-off_between_peak_performance_and_performance_breadth_across_temperatures_for_aerobic_scope_in_teleost_fishes_/3843624.

At Step 7 'Review & submit', you must view the PDF proof of the manuscript before you will be able to submit the revision. Note: if any parts of the electronic submission form have not been completed, these will be noted by red message boxes.

Author's Response to Decision Letter for (RSOS-202244.R0)

See Appendix A.

Decision letter (RSOS-202244.R1)

We hope you are keeping well at this difficult and unusual time. We continue to value your support of the journal in these challenging circumstances. If Royal Society Open Science can assist you at all, please don't hesitate to let us know at the email address below.

Dear Ms Zhang,

It is a pleasure to accept your manuscript entitled "Inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mold and its anti-mildew effect on bamboo" in its current form for publication in Royal Society Open Science.

You can expect to receive a proof of your article in the near future. Please contact the editorial office (openc@royalsociety.org) and the production office (openc_proofs@royalsociety.org) to let us know if you are likely to be away from e-mail contact -- if you are going to be away, please nominate a co-author (if available) to manage the proofing process, and ensure they are copied into your email to the journal.

Due to rapid publication and an extremely tight schedule, if comments are not received, your paper may experience a delay in publication.

Please see the Royal Society Publishing guidance on how you may share your accepted author manuscript at https://royalsociety.org/journals/ethics-policies/media-embargo/. After publication, some additional ways to effectively promote your article can also be found here https://royalsociety.org/blog/2020/07/promoting-your-latest-paper-and-tracking-your-results/.

Thank you for your fine contribution. On behalf of the Editors of Royal Society Open Science, we look forward to your continued contributions to the Journal.

Best regards,

Lianne Parkhouse
Editorial Coordinator
Royal Society Open Science
Appendix A

Response to comments of reviewers and editors

Reviewer1:

The authors investigated inhibition mechanism and antibacterial activity of natural antibacterial agent citral on bamboo mold and its anti-mildew effect on bamboo. The novelty of the article is very high. The study is the pioneering research on the application of citral to the mildew prevention of bamboo. Before publication, authors are required to revise the manuscript with minor modifications as under:

1. Page 5, Line 29. The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64mm and 30.42mm, respectively” should be replaced by “The sentence “When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64, and 30.42 mm, respectively”.

Response: Thank you for your advice. It has been modified as suggested and shown as the follow:

When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64, and 30.42 mm, respectively.

2. The unit “mg/mL” should be unified in the manuscript. “mg/mL” or “mg/ml”.

Response: Thank you for your suggestion. According to the suggestion, they have been unified in the manuscript. The concentration unit is “mg/ml”.

3. Table 2 and 3 are hard to understand. Please revise it.

Response: I'm really sorry. Maybe because of the typesetting of the manuscript, the tables were confused after the manuscript was uploaded, which made them difficult to understand. We have adjusted them and shown as follows:

**Table 2.** Effects of citral on the inhibition rates of bamboo mold.

| Concentration (mg/ml) | Inhibition rates (%) |
|-----------------------|----------------------|
|                       | PC       | TV        | AN        | Hun       |
| 3.125                 | 1.13     | 8.29      | 6.32      | 8.79      |
| 6.250                 | 8.20     | 18.00     | 8.33      | 13.11     |
| 12.500                | 13.82    | 44.86     | 67.61     | 15.13     |
| 25.000                | 26.88    | 71.14     | 97.04     | 61.82     |
| 50.000                | 32.60    | 124.57    | 144.89    | 107.20    |
| 100.000               | 200.95   | 358.29    | 392.47    | 338.32    |
Table 3. Minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) of citral on bamboo mold.

| Mold name | MIC (mg/ml) | MBC (mg/ml) |
|-----------|-------------|-------------|
| PC        | 0.180       | 0.499       |
| TV        | 0.265       | 0.495       |
| AN        | 0.226       | 0.381       |
| Hun       | 0.233       | 0.509       |

4. Figure 5 and 6 are not clearly to see, please adjust font size in the figures.

Response: Thank you for your suggestion. According to the reviewer’s comments, we have adjusted them, as follows:

**Figure 5.** Effects of citral on absorbance at 260nm of extracellular fluids of bamboo mold (0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group).

**Figure 6.** Effect of citral on pH value of extracellular fluid of bamboo mold (0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group).
Reviewer 2:

1. My main issue with this work is why bamboo?

Response: Thanks for your kind question. The increasing demand for the limited forest resources in various applications, has led to the shortage in wood supply. Thus, there is an urgent need to look for new materials as alternatives of wood. Bamboo is the fastest growing woody plants in the world, which grows to its maximum height in about 3 months and reaches maturity in 3~4 years. Due to its natural aesthetic beauty, incredible strength, and an advantage as a sustainable and eco-friendly substitute for increasingly depleted wood resources, bamboo has been taken as a notable economical and versatile raw material extensively used in the fields of decoration, architecture and furniture. However, bamboo is easy to mildew, and mildew causes the surface contamination of bamboo, showing brown or black, which causes bamboo to lose its value. Thus, it is imperative to prevent mildew in bamboo. In order to overcome this problem and enhance the value of bamboo, in this work, we explored the anti-mildew effect of bamboo treated with citral.

2. Why is this different for bamboo than other substrates such as wood?

Response: Thanks for your kind question. Compared with wood, bamboo has fundamental differences in growth, structure and property: bamboo has no growth rings, and its height growth is completed in 2~4 months, and there is no diameter growth after height growth, unlike trees, which grow in height and diameter for decades; The vascular bundles of bamboo are all arranged longitudinally without transverse ray tissue; Bamboo contains more sugar, starch, protein and so on than wood, which is more susceptible to mildew and decay.

3. Bamboo is fascinating to the scientific community due to its graded microstructure (lit review is weak here too). Is that fact play a role? Why is the graded structure of bamboo makes a difference? Is there a role in bamboo cell wall sizes?

Response: Thanks for your kind question. Bamboo can be seen as a two-phase composite material with multi-level structure composed of vascular bundles and basic tissues. The fiber sheath in the vascular bundle can be regarded as a reinforcing phase, with a large aspect ratio and a thicker cell wall. The basic structure is composed of parenchyma cells, which can be regarded as the matrix phase. The perfect combination of vascular bundles and basic tissues is the fundamental reason that bamboo has excellent mechanical properties, which makes the specific strength of bamboo 3~4 times higher than that of steel. Bamboo is also a typical natural gradient material. The distribution of vascular bundle of bamboo along the direction of bamboo wall thickness shows a gradient. The vascular bundle distribution is dense in the outer region and sparse in the inner region. The gradient structure of bamboo makes the permeability of bamboo much worse than that of wood, which leads to the effect of pressure impregnation treatment of bamboo worse than that of wood. Therefore, it is necessary to study the effect of pressure impregnation and mould-proof treatment of bamboo.
4. the presentation needs to significantly improve.

**Response:** Thank you for your suggestion. According to the suggestion raised by the reviewer, we have added and modified some contents and shown as the follows:

Some contents have been added in the part of introduction and shown as the follows:

(1) The increasing demand for the limited forest resources in various applications, has led to the shortage in wood supply [1]. Thus, there is an urgent need to look for new materials as alternatives of wood. Bamboo is one of the fastest growing natural plants in the world, which grows to its maximum height in about 3 months and reaches maturity in 3-4 years [2], well-exceeding the 20-60 years growth cycle of traditional timber used in structural applications.

(2) Out of many natural materials, bamboo offers significant structural and environmental advantages given its rapid growth, moisture resistance, climate tolerance, and tensile strength comparable to mild steel, good toughness, low processing cost, biodegradability, and so on [4].

(3) Therefore, bamboo and bamboo products have been widely used in the fields of decoration, architecture, furniture, gardens as alternatives of wood. [5-8], and there is a momentum of rapid growth. However, bamboo is easier to mildew because it contains more sugar, starch, protein and so on than wood,…

Some contents have been modified, such as:

(1) When the concentration of citral was 100 mg/ml, the diameters of the inhibitory zone of PC, TV, AN, and Hun were 31.57, 32.08, 36.64, and 30.42 mm, respectively.

(2) The concentration unit is “mg/ml”.

(3) We have adjusted the font size in the figures:

![Figure 5](image-url). Effects of citral on absorbance at 260nm of extracellular fluids of bamboo mold (0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group; PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).
Figure 6. Effect of citral on pH value of extracellular fluid of bamboo mold (0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group; PC, TV, AN, Hun were Penicillium citrinum, Trichoderma viride, Aspergillus niger and a hybrid fungi group comprising PC, TV, and AN, respectively).

(4) We have adjusted the format of our references. Such as:

1. F. Bohlin, A. Roos. 2006. Wood fuel supply as a function of forest owner preferences and management styles. Biomass Bioenergy 22, (2002) 237-249. (doi:10.1016/S0961-9534(02)00002-8)

2. J. Scurlock, D. Dayton, B. Hames. 2000. Bamboo: an overlooked biomass resource?. Biomass Bioenergy 19, 229–244. (doi:10.1016/S0961-9534(00)00038-6)

3. Zhou B, Fu M, Yang X, Xie J, Li Z. 2006. Energy-oriented bamboo species resources and potential for exploitation. World Forestry Research 19, 49-52. (doi: 10.3969/j.issn.1001-4241.2006.06.011)

……

5. Figures are missing explanations of the abbreviation and figure captions are short.

Response: Thanks to the reviewer for your comments. According to the suggestion raised by the reviewer, they have been modified, as follows:
Figure 1. Inhibitory effect of citral against bamboo mold (PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).

Figure 2. Effects of citral on the diameters of the inhibition zones of bamboo mold (PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).
Figure 3. Effect of citral on mycelia morphology of bamboo mold (a₁, a₂, and a₃ were PC control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group, respectively; b₁, b₂, and b₃ were the TV respectively control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group; c₁, c₂, and c₃ were the AN control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group, respectively).

Figure 4. Effects of citral on cellular structures of bamboo mold (a₁, a₂, and a₃ were PC control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group, respectively; b₁, b₂, and b₃ were the TV respectively control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group; c₁, c₂, and c₃ were the AN control group, minimal inhibitory concentration treatment group and minimal bactericidal concentration treatment group, respectively).
Figure 5. Effects of citral on absorbance at 260nm of extracellular fluids of bamboo mold (0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group; PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).

Figure 6. Effect of citral on pH value of extracellular fluid of bamboo mold(0: control group; MIC: minimal inhibitory concentration treated group; MBC: minimal bactericidal concentration treated group; PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).

Figure 7. The anti-mildew photographs of bamboo strips treated with citral at different concentrations on the 28th day(PC, TV, AN, Hun were *Penicillium citrinum*, *Trichoderma viride*, *Aspergillus niger* and a hybrid fungi group comprising PC, TV, and AN, respectively).
Editors

1. Please ensure that any equations included in the paper are editable text and not embedded images.

Response: Thanks for your kind reminder. We have ensured that all equations included in the paper are editable text. For example:

Bacteriostatic rate = (diameter of inhibition zone in treatment group − diameter of inhibition zone in control group)/diameter of inhibition zone in control group × 100% −−−−−−−−−−−−−−−−(1)

E=(1−D1D0)×100%−−−−−−−−−−−−−−−−(2)

2. Please ensure that you include an acknowledgements' section before your reference list/bibliography. This should acknowledge anyone who assisted with your work, but does not qualify as an author per the guidelines at https://royalsociety.org/journals/ethics-policies/openness/.

Response: Thanks for your kind reminder and suggestion. According to your suggestion and the guidelines at https://royalsociety.org/journals/ethics-policies/openness/, we have modified it and shown as the follow:

J.Z. carried out the work, participated in data analysis, participated in the design of the study and drafted the manuscript; C.D. conceived of the study, designed the study and critically revised the manuscript; Q.L., A.H., and R.P. helped to perform the experiments and analyse part date; F.S., and W.Z. provided experimental guidance. All authors gave final approval for publication and agree to be held accountable for the work performed therein.

3. While not essential, it will speed up the preparation of your manuscript proof if accepted if you format your references/bibliography in Vancouver style (please see https://royalsociety.org/journals/authors/author-guidelines/#formatting). You should include DOIs for as many of the references as possible.

Response: Thanks for your kind suggestion. We have adjusted the format of our references. Such as:

1. F. Bohlin, A. Roos. 2006. Wood fuel supply as a function of forest owner preferences and management styles. Biomass Bioenergy 22, (2002) 237-249. (doi:10.1016/S0961-9534(02)00002-8)

2. J. Scurlock, D. Dayton, B. Hames. 2000. Bamboo: an overlooked biomass resource?. Biomass Bioenergy 19, 229–244. (doi:10.1016/S0961-9534(00)00038-6)

3. Zhou B, Fu M, Yang X, Xie J, Li Z. 2006. Energy-oriented bamboo species resources and potential for exploitation. World Forestry Research 19, 49-52. (doi: 10.3969/j.issn.1001-4241.2006.06.011)

......