Manuscript Review

Reviewer Information

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Manuscript Information

Journal Name:	**PeerJ**
Manuscript Number:	**peerj-58621**
Manuscript Title:	**A genomic perspective on the potential of termite-associated Cellulosimicrobium cellulans MP1 as producer of plant biomass-acting enzymes and exopolysaccharides (#58621)**
Date Received from Journal:	**26/03/2021**
Date to Send Review Report:	**10/04/2021**

Review Comments to Author

1.	Originality:	1. The originality of this paper appears on reporting for the first time, the identification and detailed genomic analysis of cellulose-degrading and levan-producing among Cellulosimicrobium genus. 2. This paper is added to the few studies combining DNA based approaches to culture-dependent approaches cellulose degradation enzymes in well known and interesting species involved in cellulose biomass degradation.
2.	Scientific Quality:	1. The work's strengths appear in paper well written, Is the text clear and easy to read. 2. The validity of questions, the use of a detailed methodology and the data analysis being done systematically.

3.	Relevance to the Field(s) of this Journal:	1. First work to describe and report for the first time, the identification and detailed genomic analysis of cellulose-degrading and levan-producing among Cellulosimicrobium genus. 2. Presence of high Cazymes numbers of GH, GT, AA family suggesting the interesting aspect of strain MP1 in breaking down cellulosic biomass. 3. Combination of Molecular and cultural approaches to support the findings suggestion the strain MP1 as a good biomass degrading enzymes and Levan producer.
4.	General Comment:	Major flows are related to missing information on: - Missing of statistical analysis to support these findings.
5.	Abstract:	▪ Abstract clear, reporting the most important result and the methodology used for a genomic analysis of strain C. Cellulans MP1 in term of gene involved in cellulose degradation. ▪ Some suggested modifications: - Line 34: Please change …phenotypic, phylogenetic, and genomic analysis. - Line 52: please add the unit (…was 14.8 ± 1.2 unit?)
6.	Introduction and Literature Review:	▪ Good introduction that placed the subject in its theorical framework and illustrating the problematic of research. ▪ The goal of research is clearly reported, regarding isolation of strain MP1 and highlight its role in cellulose degradation and Levan production through a genomic full genome sequencing/analysis. ▪ Some suggested modifications: o Line 91: please add a brief definition of what is levan?
7.	Methodology:	▪ Methodology well described. ▪ Line 117: could you explain why you make surface sterilization with ethanol?
8.	Results and Discussions:	Nice findings are here, especially revealed by DNA/metagenome approaches. The combination of both cultural, biochemical and molecular approaches to give more insight on the interesting cellulase of strain MP1for both cellulose degradation and Levan production.

		I have some remarks to report below: ▪ Line 224: remove “isolated from termite gut”, we clear know it from title, introduction and by material/methods. ▪ Line 230: in table S1, how do you explain the decrease of enzymatic activities after 72H? ▪ Line 235: how it can be rods and cocci at the same time? ▪ Based on 16S, genomic analysis, GC%, echophysiology analysis, could you confirm/or not that strain MP1 may represent a new species among Cellulosimicrobium genus? ▪ In line 246 you reported GC content is 57.5% and in line 258 you said that GC% is 73.9%. which one is correct? ▪ Figure 3: please remove the text red underline of Cellulosimicrobium cellulans. It would be more talking if you add a color legend of each color in this this figure instead having it figure legend captions. ▪ I suggest citing Fig. 4 in line 264 instead of line 267. ▪ Line 296, Could you please add more information in you Figure S1 (similarities %, bootstrapping nodes…) ▪ Line 388: Cellulosimicrobium consist of 7 species (6 validly published, and one non-validly published): a. Cellulosimicrobium variabile Bakalidou et al. 2002 b. Cellulosimicrobium terreum Yoon et al. 2007 c. Cellulosimicrobium marinum Hamada et al. 2016 d. Cellulosimicrobium funkei Brown et al. 2006 e. Cellulosimicrobium cellulans (Metcalfe and Brown 1957) Schumann et al. 2001 f. Cellulosimicrobium aquatile Sultanpuram et al. 2016 g. and "Cellulosimicrobium arenosum" Oh et al. 2018 ▪
9.	Conclusions:	- Interesting approach, combining molecular and cultural approaches to highlight the ability of strain MP1 to degrade cellulose and hemicellulose and produce levan. - Missing of statistical analysis.
10.	References / Bibliography:	
11.	Figures:	- Clear figures, see some comments and rectifications on results section of this reviewing report.

12.	Tables:	- Nothing to report
13.	Others:	- Nothing to report
15.	Reviewer's Decision Comment:	Acceptation with moderate revisions.

Recommandation

Accept As Is:	
Requires Minor Corrections:	
Requires Moderate Revision:	**X**
Requires Major Revision:	
Submit To Another Publication Such As:	
Rejection (Please provide reasons)	