

PEER-REVIEW REPORT

Name of journal: World Journal of Gastroenterology

Manuscript NO: 57791

Title: A new strain of *Pediococcus pentosaceus* alleviates ethanol-induced liver injury by modulating the gut microbiota and short-chain fatty acid metabolism

Reviewer's code: 01518946

Position: Editorial Board

Academic degree: MD, PhD

Professional title: Professor, Research Fellow, Senior Consultant Dermatologist

Reviewer's Country/Territory: Japan

Author's Country/Territory: China

Manuscript submission date: 2020-06-23

Reviewer chosen by: AI Technique

Reviewer accepted review: 2020-06-23 23:27

Reviewer performed review: 2020-06-28 01:53

Review time: 4 Days and 2 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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SPECIFIC COMMENTS TO AUTHORS

This manuscript describes the effect of a new strain of *Pediococcus pentosaceus* administration on the ethanol-induced liver injury. The authors found down-regulation of expression of inflammatory cytokines in the ethanol-induced liver injury of mouse models with administration of this bacterium. As a result from correlation network model, the authors found the involvement of short chain fatty metabolism in the reduced live injury. Although detailed molecular mechanism remains unknown, this manuscript is hot topic in alcoholic liver injury and intestinal bacteria. One more experiment should be performed before publication. The authors should investigate the effect of other strain of *Pediococcus pentosaceus* and or other bacteria on ethanol-induced liver injury.

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Title: A new strain of *Pediococcus pentosaceus* alleviates ethanol-induced liver injury by modulating the gut microbiota and short-chain fatty acid metabolism

Reviewer's code: 03733090

Position: Peer Reviewer

Academic degree: MD, PhD

Professional title: Professor

Reviewer's Country/Territory: Japan

Author's Country/Territory: China

Manuscript submission date: 2020-06-23

Reviewer chosen by: AI Technique

Reviewer accepted review: 2020-06-24 10:35

Reviewer performed review: 2020-07-04 12:00

Review time: 10 Days and 1 Hour

Scientific quality	[<input checked="" type="radio"/>] Grade A: Excellent [<input type="radio"/>] Grade B: Very good [<input type="radio"/>] Grade C: Good [<input type="radio"/>] Grade D: Fair [<input type="radio"/>] Grade E: Do not publish
Language quality	[<input type="radio"/>] Grade A: Priority publishing [<input checked="" type="radio"/>] Grade B: Minor language polishing [<input type="radio"/>] Grade C: A great deal of language polishing [<input type="radio"/>] Grade D: Rejection
Conclusion	[<input checked="" type="radio"/>] Accept (High priority) [<input type="radio"/>] Accept (General priority) [<input type="radio"/>] Minor revision [<input type="radio"/>] Major revision [<input type="radio"/>] Rejection
Re-review	[<input checked="" type="radio"/>] Yes [<input type="radio"/>] No
Peer-reviewer statements	Peer-Review: [<input checked="" type="radio"/>] Anonymous [<input type="radio"/>] Onymous Conflicts-of-Interest: [<input type="radio"/>] Yes [<input checked="" type="radio"/>] No

SPECIFIC COMMENTS TO AUTHORS

Reviewer comments to authors This paper mainly observed the regulatory effect of the probiotic *Pediacoccus pentosaceus* on intestinal microflora and SCFA metabolism, and found that *P. pentosaceus* could improve the intestinal barrier function of mice with alcoholic liver injury, reduce the levels of circulating endotoxin, proinflammatory cytokines and chemokines, and reduce alcoholic liver inflammation and steatosis. The results have important reference value in the research and treatment of alcoholic liver injury. However, there are still some shortcomings need clarification in this paper. M & M: 1. Please explain why the number of animals is different between the experimental groups, the control group (n = 8), the EtOH group (n = 10), and the *P. pentosaceus* group (n = 10). 2. The time point of collection of fresh feces needs to be explained clearly. Results: 3. Many of the descriptions in the results belong to the background or discussion, and should be transferred to the background or discussion, respectively. Such as, "Gut-derived lipopolysaccharide translocated to the liver, which promoted immune cell activation via Toll-like receptors and the release of cytokines and chemokines to enhance liver inflammatory responses." "Overall, *P. pentosaceus* supplementation reduced the systemic levels of endotoxin and proinflammatory cytokines to alleviate the hepatic inflammatory response." "The intestinal barrier protects against bacterial translocation from the gastrointestinal tract to the liver, so we further investigated whether *P. pentosaceus* supplementation improved gut barrier function to decrease LPS levels." "Previous studies reported that ethanol-induced intestinal bacterial overgrowth contributed to bacterial translocation, so we evaluated the overall bacterial load with qPCR using 16S rRNA primer sets. " "The antibacterial peptides Reg3 β and Reg3 γ are secreted by epithelial cells to restrict bacterial overgrowth, and the gene expression of Reg3 β and Reg3 γ was determined by qPCR. " Discussion: 4.



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“isocaloric maltose dextrin” needs to be mentioned in the discussion References: 5. Magazine abbreviations are not standardized. Such as, references 7, 15, 18, 20, 22, 23, 24, 29, 31, 36, 41, 42, 44, 46, 47 and 50 Figures legend: 6. The title of figure should not be a result of conclusion of the study, but just like Figure 7, it outlines the issues of the figure and explains the various signs in the figure. The rest figures (Figures 1-6, and Supplementary Figure 1) need to rewrite. (The titles in Figure 5 and Figure 4 are identical?) 7. Scales = ? in figures 1 and 3 8. Language description needs further improvement.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Manuscript submission date: 2020-06-23

Reviewer chosen by: Ji-Hong Liu (Technical Editor)

Reviewer accepted review: 2020-08-12 07:13

Reviewer performed review: 2020-08-12 13:02

Review time: 5 Hours

Scientific quality	<input checked="" type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
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SPECIFIC COMMENTS TO AUTHORS



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Nothing.

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Reviewer chosen by: Ji-Hong Liu (Technical Editor)

Reviewer accepted review: 2020-08-12 08:14

Reviewer performed review: 2020-08-13 10:21

Review time: 1 Day and 2 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
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SPECIFIC COMMENTS TO AUTHORS

This manuscript has been revised very well. Good job!!