Reviewer’s report

Title: Anti-inflammatory, analgesic and acute toxicity effects of fermented soybean

Version: 0 Date: 19 Sep 2019

Reviewer: Haiqiu Huang

Reviewer's report:
This manuscript reported the anti-inflammatory and analgesic effects of fermented soybean extracts. There are several issues with the study design and statistical analyses, and the results cannot support the claimed biological effects. This manuscript needs significant improvement and more data before it can be accepted.

1. Page 6, Line 126. LPS induction concentration used in the in-vitro assay was too high. At >1 µg/mL LPS, which is a much higher concentration of LPS than that in sepsis, the inflammatory pathways were perpetually activated, and such activation possesses little resemblance to any biological conditions. Considering the minor effects shown in this study (< 1 fold change), it may be hard to observe any effect in any in-vivo system.

2. Page 8, Line 166. Since soybean is consumed as a food, and most peptides, phytochemicals, and lipids undergo extensive digestion and metabolization in the GI tract, the topical route of administration designed in this study may not generate any relevant results. The choice of this surrogate assay cannot support the conclusion of fermented soybean, as a food, to have an anti-inflammatory effect.

3. Page 9, Line 185. 0.2 and 1 g/kg feeding levels are relatively high. Are the choices of such feeding levels supported by any food consumption data? How much tempeh shall a person consume to achieve similar level used in the animal model?

4. Page 10, Line 210. Figure 2. The asterisks in the figure cannot symbolize the pairwise comparison results from the Duncan test. Without the pairwise comparison, the conclusion of the dose-dependent inhibition effect cannot be reached. Please update the figure to reflect the result of each comparison.

5. Page 11, Line 233. Figure 3. No statistic results were shown in the figure.

6. Page 12, Line 276. If the toxicity in question may arise from foodborne infection, using extract was not a representative sampling and testing method. Acute toxicity, in this case, may only result from chemical toxins or metabolites, rather than a bacterial source. Therefore, the author cannot claim the safety of foodborne infection using the described analysis methods.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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