Reviewer’s report

Title: Superoxide-producing lipoprotein fraction from Stevia leaves: definition of specific activity

Version: 1 Date: 20 Feb 2019

Reviewer: Yang Zhang

Reviewer's report:

The manuscript entitled "Superoxide-producing lipoprotein fraction from Stevia leaves: the definition of specific activity" described the preparation, preliminary characterization and simple in vitro activity of superoxide-producing lipoprotein fraction from Stevia leaves. The obtained results were not fully in line with the conclusion as well as the organization of overall text would not reach the criteria to be published in BMC Complementary and Alternative Medicine. Points for the authors to ponder on improving the work are as follows:

1. The title should be revised to specify "the definition of specific activity".

2. In Section of Abstract
   1) The Background probably has to be rewritten to better understand the novelty and the aim of the work.
   2) The Methods should contain the methods regarding isolation, purification, characterization, and activity evaluation of superoxide-producing lipoprotein fraction from stevia leaves in brief in stead of declaration of novelty.
   3) Results obtained from present work would not fully sustain the conclusion, an accurate and specified conclusion would better highlight the importance of this manuscript.

3. In Section of Background, the organization should be adjusted, particularly the second paragraph (Page 2, line 40-51), are there any relationships between plant NADPH oxidases and pharmacological activities of Stevia? In addition, a brief introduction on the botanical description of Stevia should be added in somewhere.

4. In Section of Methods
   1) If agree, a clear flow chart of experimental design could be useful in this part.
   2) It would be more legible if this part is divided into several subsections such as Plant material, Chemicals and reagents, Isolation and purification of suprol fraction……
3) Any results and explanations should not be included in this part and some references should be added. Particularly the reason why suprol was not observed on gel electrophoresis (Page 4, line 6-10) and the reason why determination of lipid composition thin-layer chromatography was difficult (Page 4, line 29-30) should be deleted.

4) In addition to the quantification of suprol, I would also suggest to quantify NADPH in suprol due to the fact that NADPH would mainly contribute to the suppression of ROS, and only qualified by fluorescence spectra would not be sufficient.

5) Please detail the analytical parameters of optical absorption and fluorescence spectra.

6) Please add the software of mathematical statistics.

5. In Section of Results

1) Subtitles should be added in each part.

2) Any discussions should not be contained in this part, particularly "These data, as well as the results of electrophoresis indicate that……" (Page 5, line 8-9), "This indicates the presence of……" (Page 5, line 16-19), "this highlights the prevalence of……" (Page 5, line 21-23), and so on.

6. The discussion probably has to be rewritten based on the results obtained from this work, rather than references list. Moreover, is it certain that the effects of suprol is closely related to the modulation of redox sensitive NF-kB pathway?

7. The discussion probably has to be also rewritten, see the published article in Journal of BMC Complementary and Alternative Medicine, which can be downloaded freely.

**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.

Unable to assess
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 recommend additional statistical review

Quality of written English
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Needs some language corrections before being published

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