Author's response to reviews

Title: In vitro antioxidant and anticancer effects of solvent fractions from Prunella vulgaris var. lilacina

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Author's response to reviews:

<Referee #1>
The manuscript is suitable for publication if a major revision was addressed.
(1) Add the weight of the hexane, chloroform, butanol fractions.
RESPONSE: According to the reviewer’s comments, we presented the yields of the fractions (supplementary table 1). The explanations for these results are provided on page 10, line 9-12.

(2) Account for the material part of Prunella vulgaris var. lilacina.
RESPONSE: We did experiments by whole plants of Prunella vulgaris var. lilacina. And the explanations was added in methods part on page 5, line 12.

(3) In the result part, the sum of the total phenolic contents of the hexane, chloroform, butanol fractions should be lower than that of 70% ethanol extraction. However, the data was not consistent.
RESPONSE: The reviewer is correct to point out the sum of total phenolic contents. We apologized for causing confusions for the reviews. For the Table 1, the amounts of phenolic contents were represented as milligrams gallic acid equivalent (GAE) per gram of dry weight of extract (or fractions). We correct the expression in the footnote of Table 1 and in manuscript on page 6, line 7; page 10, line 16-17.

(4) Suggest the fractions in the order of water, 70% ethanol, butanol, chloroform and hexane in the tables and figures.
RESPONSE: We represent the fractionation data according to general serial solvent fractionation in non-polar to polar order. The procedures of fractionation from 70% ethanol extract were stepwise extracted with hexane, chloroform, butanol and water. It would be better to keep in that order.

(5) There are many improper descriptions.
e. g. the plant latin name: should be “Prunella vulgaris var. lilacina” instead of
Prunella vulgaris var. lilacina.

RESPONSE: We re-checked the plant latin name in manuscript and corrected “Prunella vulgaris var. lilacina” instead of “Prunella vulgaris var. lilacina”, on page 3, line 14.

In the sentence “#-Tocopherol was used as a positive control”, the first letter should be uppercase.

RESPONSE: We corrected #-tocopherol to #-Tocopherol on page 6, line 13.

In the background part, the word “fraction” should be “fractions”.

RESPONSE: We corrected fraction to fractions on page 2, line 10.

<Referee #2>

REVIEW REPORT

Yu-Jin et al. studied the effect of the antioxidant and anticancer activities of five extracts prepared from Prunella vulgaris var. lilacina, a medicinal plant widely used in Korea. From this study the authors concluded that the ethanol extract and its fractions could be applied as a natural source of antioxidant and anticancer in food and pharmaceutical industry. It was a pleasure to review this article of importance in its field. I found the research question stated clearly enough and the objectives well expressed. The methods applied seem appropriate and fully described in the article. Similarly, the results section is well furnished, illustrative and self explanatory enough, to answer the questions posed although the discussion is less furnished that expected.

Some important issues arise from the manuscript at its present state:

- Discretionary Revisions:
  The title does not seem to reflect the content of the paper. In my opinion, you did test the activity of ethanol extract, followed by fractionation of the main extract. You could simply present the work as such. It is obvious that solvents of different nature solubilize different types of compounds. So highlighting this obvious effect of the solvents may sound confusing.

RESPONSE: As suggested by the reviewer, to reflect the content of the paper, the title of the manuscript has been changed to “In vitro antioxidant and anticancer effects of solvent fractions from Prunella vulgaris var. lilacina”.

- Minor Essential Revisions:
  1) More details should be provided regarding the choice of cell lines used in this study.

RESPONSE: According to the reviewer’s comments, we added the explanation for the cancer cell lines on page 8, line 2-5.

2) Methods: page 5, line 9. You wrote: “Other reagents used were of analytical grade” Please, specify the sources of each of these.

RESPONSE: As suggested by the reviewer, we represented the all reagents
used in the study on page 5, line 3-4.

Line 18. Give the full name and specification of the filter paper you used
RESPONSE: We added full name and specification of the filter paper you used in the study on page 5, line 17-18.

Line 21. You wrote: “As for further analysis, the dry residues were constituted with DMSO” I do not understand the meaning of this statement.
RESPONSE: We apologize for the confusion with reviewer. We corrected the expression on page 5, line 20-21.

Line 23 & 24. You choose any of the two following “Phenol content” or Phenolic content”, to be more consistent in the article.
RESPONSE: We corrected “Phenol content” to “Phenolic content” on page 5, line 24.

Page 6, line 9-13. Please clearly explained how the IC50 values were calculated or generated
RESPONSE: According to the reviewer’s comments, we added the explanation for the calculation of the RC50 on page 6, line 13-19.

Page 7. Line 11-13. Provide more explanation of this procedures carried out
RESPONSE: As suggested by the reviewer, we added the more detailed explanation for the SOD activity on page 7, line 19-23.

Page 9. Line 3-8. The description of the method is not clear
RESPONSE: As suggested by the reviewer, to clarify the methods, we added the more detailed explanation for the GC-MS on page 9, line 15-21.

- Major Compulsory Revisions:
  1) The quality of the English language is below standard. Please have the entire manuscript proofread by somebody with more language skills. There are typo errors and style issues throughout the document.
RESPONSE: According to the reviewer’s comments, we revised the entire manuscript carefully to avoid language errors. And we finally edited the manuscript through the English editing services.

2) Page 14. Line 19-21. The data obtained do not sound so consistent to justify the conclusion you made here.
RESPONSE: As suggested by the reviewer, we revised the discussion within a context on page 13, line 19-24; page 14, line 1-10.

3) The discussion is almost absent in the paper or is having just a very limited consistence. I may suggest that you exploit more previous work carried out on the plant species you tested or the works reported on other closer species of the same genus.
RESPONSE: To reflect the comment of the reviewer, we added the discussion on page 14, line 24; page 15, line 1-6, and correct the discussion within a context on page 13, line 19-24; page 14, line 1-10.