Author’s response to reviews

Title: The synergistic hepatoprotective potential of Beta vulgaris juice and 2,3- dimercapto-
succinic acid in lead-intoxicated rats via improving the hepatic oxidative and inflammatory stress

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Response letter
It is with excitement that I resubmit to you again a revised version of manuscript BCAM-D-19-
00193 " The synergistic hepatoprotective potential of Beta vulgaris juice and 2,3- dimercapto-
succinic acid in lead-intoxicated rats via improving the hepatic oxidative and inflammatory stress",
BMC Complementary & Alternative Medicine.
Authors thank again journal editor and reviewers for their efforts in getting the paper out in the
best form. The manuscript has certainly benefited from these perceptive revision recommendations.
Revisions in the text are shown with a green highlight. The following are our point-by-point
responses to each of the reviewers' comments. All line numbers here refer to the revised
manuscript.

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Responses to the comments of the reviewer

1. Authors will need to revise carefully the entire document for typo and grammar issues.
   Response
   the entire document was revised and improved.

2. Page 8, line 24, Abstract — Dose is relatively large. Beta vulgaris is a source of table sugar, which could cause as a side effect hyperglycemia and may not be the most appropriate choice for diabetic patients.
   Response
   The dose used here is 1g/kg b.w. of rats.
   The yield of the BVJ was 13 g /100 mL juice, so this dose nearly equal to 8 mL of the Beta vulgaris juice [i.e. 1g BVJ/kg b.w. equal to 8mL fresh juice/kg b.w. of rats]. This volume contains about 1g total sugars and 0.7 g sucrose [1]. Although the presence of these sugars, Beta vulgaris roots and leaves were used in lowering the hyperglycemia and blood pressure associated with diabetic patients by different mechanisms. Different doses were examined like 400 mg/kg, 2g/kg in rats [2,3,4]. In addition, 70 mL [5], 270 mL [6], and 500 mL [7] of the Beta vulgaris root juice had anti-diabetic effect in patients. Therefore, from these previous data, authors found that the dose of 1g BVJ/kg b.w. of rats may have antidiabetic effect also. However, this need further investigation and analysis.


Response
The sentence was checked and corrected.

4. Page 10, line 42, Background — Run-on sentence. Check for proper grammar.
Response
The sentence was checked and corrected.

5. Page 20, line 24, Results — Run-on sentence. Check for proper grammar.
Response
The sentence was checked and corrected.

6. Page 22, line 58, Results — Check for proper grammar.
Response
The sentence was checked and corrected.

7. Page 24, lines 14-16, Results — Check for proper grammar. The verb "was" has been overused in the entire manuscript, even when another verb may fit better in a clause.
Response
The sentence was checked and corrected.

8. Page 29, lines 30-49, Conclusion — Conclusion poorly written/developed. For instance, "harmful effects on the liver" are due to BVJ or DMSA? Please revise for clear understanding.
Response
The conclusion was improved for clear understanding.

9. Page 42, Table 1 — Use the same unit for all (either mg or microgram).
Response
The same unit was used for all constituents [in µg].

10. Page 43, Table 2 — Concentration used for some of the experiments seems very high. High doses of the natural extract/product could correlate with potential side effects.
Response
Authors agree with the reviewer that the high concentration of the natural extract/product could correlate with potential side effects. However, Table 2 doesn't contain concentrations for the used natural extract. Table 2 here shows the combination index [CI] values for the tested parameters, which may be less/more or equal to "one" and indicates the synergism/antagonism or additive effect of the combination between Beta vulgaris juice (BVJ) and meso-2,3-dimercaptosuccinic acid (DMSA). This value was calculated...
by dividing the predictable value by the observed value. The predictable value for BVJ-DMSA was calculated by the summation of the BVJ and DMSA half values for each studied in vitro antioxidant assay. While for other tested parameters, the predictable value is determined as 

\[ \frac{\text{observed value for BVJ}}{\text{control value}} \times \frac{\text{observed value for DMSA}}{\text{control value}} \times \text{control value}. \]

Response

Figures were improved as possible.