Author's response to reviews

Title: The Anti-Allergic Activity of Cymbopogon citratus is Mediated Via Inhibition of Nuclear Factor Kappa B (Nf-Kappab) Activation

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Response to reviewers

Ref. The Anti-Allergic Activity of Cymbopogon citratus is Mediated Via Inhibition of Nuclear Factor Kappa B (NF-Kappab) Activation MS ID#: 1609598675120722

Reviewer #1: Richa Shri

Reviewer's report: Minor Essential Revisions I have the following queries: The authors report working with a crude plant extract

Q: Has the bioactive extract been evaluated phytochemically?

Q: Has the extract been standardized? If the authors have the data it should be incorporated in the section preparation of extract.

Author’s comments: We have added the standardization as well as identification of the main compounds within the extract. Thank you for your suggestion.

Reviewer #2: Jung-Taek Kwon

Reviewer's report: Major Compulsory Revisions. It is my great honor to review this manuscript. This manuscript deals with the anti-inflammatory effect of Cymbopogon citratus extract in murine asthma model. Authors insist Cymbopogon citratus extract may be reduced response of asthma through inhibition of NF-kB/p65 activation in the lung. I believe, however, this manuscript should obtain more significant and higher credit of quality for the publication in BMC Complementary and Alternative Medicine.

1) More chemical characterization of Cymbopogon citratus extract such as HPLC analysis have to be performed and described in manuscript.

Author’s comments: All the analyses were performed in order to standardize and characterize the *Cymbopogon citratus* extract.

2) For better understanding of pulmonary toxicity of *Cymbopogon citratus* extract. The more maker of pulmonary toxicity analysis such as total protein and LDH level in BAL fluid should be needed according to the concentration of *Cymbopogon citratus* extract.

Author’s comments: We have previously analyzed the toxicity of *Cymbopogon citratus* extract *in vitro* (*Figure 5*). We also performed analysis of pulmonary histopathological
changes using HE-staining lung slides and no event suggestive for pulmonary toxicity was found in any slide evaluated (data not shown). Taken both evaluations together, we believe *Cymbopogon citratus* extract has not toxic effect using the doses/concentration utilized in this study.

3) “Results” and “Discussion” parts should be rewritten. The authors should add more discussions related with their results in “Discussion” part not in “Results” part. Moreover, some experimental methods were also included in the “Results” part. The author should describe only results in “Results” part.

**Author’s comments:** We agree with reviewer #2 and we have rewritten those parts.

4) Please more detail explain every result for better understanding. The explanation should be clearly and concrete.

**Author’s comments:** We agree with reviewer #2 and we have rewritten those parts.

5) In lung, histopathology results (Fig 5, 6 and 8) should be a quantitative analysis.

**Author’s comments:** As suggested reviewer #2, we have done such analyses and they are present in Figures 9, 10 and 12. Thank you for your suggestions.

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**Reviewer #3:** Bernhard Ryffel

**Reviewer’s report:**

1. The abstract should mention the dose effect on the parameters evaluated and address all the data. Please explain why lower doses are more efficacious!

**Author’s comments:** We adjusted the abstract accordingly. In fact, we have performed some solubility tests with different concentrations of hexane extract and we have found that the highest dose (240mg/kg), did not completely solubilized as the others which probably is the why we had couple inconsistencies across the parameters evaluated in the present study using the higher dose. In this way, we decided to exclude the highest doses from the paper.

2. Analytical data of the Cy extract should be given.
Author’s comments: All the analyses were performed in order to standardize and characterize the *Cymbopogon citratus* extract.

3. The experimental Bt immunisation and challenge protocol and the plant gavage should be given schematically.

**Author’s comments:** We have properly added the figure at the Methods section (Fig 1).

4. The microscopic data in Fig 5, 6 and 8 should be quantified by a score.

**Author’s comments:** As suggested reviewer #3, we have done such analyses and they are present in Figures 9, 10 and 12.

5. The WB data Fig 7 should be quantified by densitometry.

**Author’s comments:** The NFκB level was quantified by Immunohistochemistry (Figure 12). We agree with reviewer but this is a limitation of our study. We did the qualitative analysis for WB only.

6. Please correct the title “Anti-Allergic”

**Author’s comments:** We have corrected the word. Thank you for your suggestions.