**Reviewer's report**

**Title:** An investigation into the ameliorating effect of black soybean extract on learning and memory impairment

**Version:** 2  **Date:** 1 August 2014

**Reviewer:** Jae Hoon Cheong

**Reviewer's report:**

The present study entitled “An investigation into the ameliorating effects of black soybean extract on learning and memory impairment” describes the cell protective, neuroprotective, and amnesic effect of the non-anthocyanin fraction from black soybean seed coat. In addition, three major phenolics [(-)-epicatechin, procyanidin B1, and procyanidin B2] were quantitatively analyzed from the non-anthocyanin fraction and among these three, (-)-epicatechin was considered as the major contributor to the amnesic effect of the non-anthocyanin fraction from black soybean seed coat. I acknowledged that a lot of work and effort have been poured out in the present work; however, numerous concerns need to be addressed before the paper can be accepted for publication.

**Major Compulsory Revisions**

The main problem of the present study is on how it is written. The thoughts of the manuscript are disorganize and convoluted. In addition, spellings and grammatical errors can be found throughout the manuscript. Moreover, the methods described were unclear and confusing. Here are some of the specific points that need to be change/improve:

1. The Method sections needs revision.
   a. In measuring cellular oxidative stress, cells were treated with or without A# but the dose were not indicated. Dosages of non-anthocyanin must also be pointed out in this section.
   b. During the in vivo study, animals were given different dosages of non-anthocyanin for 3 weeks. Was it once or twice a day? When did the administration of A# occur? Before or after the non-anthocyanin treatment? Please clarify.
   c. If A#1-40 was injected to animals belonging to the control groups then is it the same materials used during in vitro experiment as control? If yes, then please state it clearly.

2. Result, discussion, and figures
   a. Vitamin C was used as a positive control during cell experiment; however there was no positive control with behavioral test. If this was not performed, then it must be indicated.
   b. If non-anthocyanin was used as pre-treatment then it must be clearly stated in
the results and discussion to avoid confusion.
c. It was stated in the method section that non-anthocyanin was pre-treated for 48 hours; however figure 2 legends says pre-treated for 24 hours. Please clarify.
d. In the non-anthocyanin treated groups presented in the figures, is it treated with or without A#? Please clarify since it was stated in the method section that “cells were treated with or without A#”.
e. The present study used A#1-40 as control during in vitro studies. Figure 3 and 4 presented 5 different groups and that is Control, A#, N5, N10, and N20. Do Control and A# group differ? Figures must be properly and consistently described and labeled.

Minor Essential Revisions
a. Figures need improvement. Different groups must not be identical; they must differ in style or color for it to be more understandable.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.