Reviewer's report

Title: Essential oil purified from Schisandraceae Semen has an inhibitory effect on tumor necrosis factor-alpha-induced matrix metalloproteinase-9 activation and migration of human aortic smooth muscle cells

Version: 2
Date: 22 September 2014

Reviewer: Joydeb Kumar Kumar Kundu

Reviewer's report:

The manuscript entitled “Essential oils purified from Schisandraceae Semen has an inhibitory effect on tumor necrosis factor-alpha-induced matrix metalloproteinase-9 activation and migration of human aortic smooth muscle cells” by Jeong et al. describes the antioxidative, anti-inflammatory and anti-migratory properties of essential oil purified from an oriental medicinal herb Schisandraceae fructus. Authors reported that essential oil of Schisandraceae fructus (SSeo) attenuated tumor necrosis factor-alpha (TNF-alpha)-induced migration of human aortic smooth muscle cells (HASMCs) by blocking the activation of matrix metalloproteinase-9 (MMP9) and suppression of inflammatory signaling through the blockade of ROS generation and nuclear factor-kappaB (NF-kB) activation. Since the herb Schisandraceae fructus has long been used in traditional medicine as a remedy for inflammation and atherosclerosis, this study provides, for the first time, the mechanisms underlying its biological activity. The study has been well designed to address the objectives and the manuscript is well written. However, following issues should be addressed prior to considering this manuscript for publication.

1. The title of the manuscript may be modified as “Essential oils purified from Schisandraceae fructus inhibit tumor necrosis factor-alpha-induced matrix metalloproteinase-9 activation and migration of human aortic smooth muscle cells”

2. The results of the present study may be organized better as follows: Effects of SSeo on HASMCs migration; Effects of SSeo on the production/expression of inflammatory mediators; Effects of SSeo on the MMP-9 expression, production, activity; Effects of SSeo on ROS generation; Finally, addressing the effect of SSeo on NF-kB activation. In its current format of data organization, there is a lack of correlation between the effect of SSeo on MMP9 and inflammatory markers.

3. In the Introduction section, authors mentioned that the essential oil was purified from Schisandraceae fructus. However, the title shows Schisandraceae Semen. Will it be Semen or fructus?

4. In the Materials and methods section, authors should mention which plant parts was used to isolate essential oils and what are the components of the SSeo used in this study.

This sentence needs to be rewritten to improve the clarity.

6. In Page 6, Line 18-19: “Essential oils from various plants have beneficial effects on various smooth muscle disorders” – this sentence may be rewritten as “Plant essential oils exert beneficial effects on various smooth muscle disorders” to avoid repeated use of the word “various”.

7. Page 16, Line 5-16: The subtitle indicates that authors performed migration assay but in the text, authors talk about invasion assay. This paragraph should be carefully edited.

8. Discussion section should be improved by minimizing simple description of experimental findings.

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I have no financial or non-financial or any other type of competing interests in relation to reviewing this manuscript.