OPEN PEER REVIEW REPORT 1

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Title: Neuroprotection of Cyperus esculentus L. orientin (CLO) against cerebral ischemia/reperfusion induced brain injury
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COMMENTS TO AUTHORS:

In this paper, the authors tried to investigate the neuroprotective capacity and the potential mechanisms of Cyperus esculentus L. orientin (CLO) against ischemia/reperfusion injury using standard orientin (STO) as control. They found that CLO exhibits protection against CoCl2-induced HT22 cells I/R injury by lowering lipid peroxidation and reactive oxygen species content as well as decreasing protein oxidation, which indicated that CLO flavonoids from C. esculentus L. leaves can be taken as a natural antioxidant and bacteriostatic substance in food and pharmaceutical industry.

This investigation design is really interesting with its topic, while some questions still need to be addressed before consideration of publication.

1. The cell culture for in vitro part in this research was the mouse hippocampal neuronal cell line, HT22 cells, but the experimental cerebral ischemia/reperfusion models were established on the basis of middle cerebral artery occlusion (MCAO) method, while this MCAO method mainly cause ischemia/reperfusion injury within cortex of operated hemisphere. For the integration of in vivo & vitro experiments, Primary cortical neurons, instead of HT22, might have been a better cell culture.
2. The clinical value of this research needs further investigation. The results presented in this paper have shown its statistical significance, but the absolute effect of protection wasn't that satisfactory to be inverted into a possible clinical application.
3. The formation of all the figures collected in this paper needs to be carefully revised. It has to be clarified that photographs of those culture with different treatment were too obscure and not intuitionistic enough to exhibit the difference within those cultures. The figure could have been much more satisfactory if immune-fluorescent method were applied. And the figures about cell viability-concentration correlation, SOD-Concentration correlation, etc. should be re-arranged into a more succinct formation.
4. The concentration gradient could have been designed as a wider range, so the pattern of CLO protection effect could be clearer and would be helpful for subsequent investigation for clinical purpose.
5. The part of discussion just analyzed the phenomena in the experiments but lacked deeper investigation into mechanisms and connection within these statistics, which made the paper content seemed really dense but not integrated.