Reviewer’s report

Title: Gastrodia elata Blume alleviates L-DOPA-induced dyskinesia by normalizing FosB and ERK activation in a 6-OHDA-lesioned Parkinson’s disease mouse model

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Reviewer: Masatoshi Inden

Reviewer’s report:

This manuscript by Doo et al. examined the effects of GEB on L-DOPA-induced dyskinesia in 6-OHDA-induced experimental Parkinsonism. Authors suggest that the GEB improve L-DOPA-induced AIMS in a dose-dependent manner. In addition, GEB normalized the abnormal LID-induced increased of pERK1/2 and FosB. This is an interesting and a sound study and most of the methods are appropriate. I have comments and questions, as following:

1. In Fig 2 shows the result of chromatogram for GEB extract sample. The authors focus on the gastrodin. However, it is inarticulate which peak is gastrodin. The authors should clearly indicate the peak of gastrodin in Figure 2. In addition, authors suggest that gastrodin is main biologically active components of GEB against L-DOPA-induced dyskinesia in 6-OHDA-induced experimental Parkinsonism. However, the content of gastrodin in the GEB extract was very low. The authors should discuss the issue.

2. In Fig 2 shows effect of the GEB extract on four subtypes of AIM score induced by L-DOPA. The authors should perform statistical analysis.

3. The author discuss that abnormal activation of proteins, such as pERK1/2, FosB and DARPP-32, induces abnormal dyskinesia in LID animal models. In Fig 5, the authors clearly showed that GEB normalized the abnormal LID-induced increased of pERK1/2 and FosB. It is unclear that GEB normalized the abnormal LID-induced increased of DARPP-32. So, the authors should examine whether GEB normalized the abnormal LID-induced increased of DARPP-32.

Level of interest: An article of importance in its field

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.

Declaration of competing interests:

I declare that I have no competing interests.