Reviewer’s report

Title: Polygonum viviparum L. induces vasorelaxation in the rat thoracic aorta via activation of nitric oxide synthase in endothelial cells

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Reviewer: Liunn-Wang Liao

Reviewer's report:

Comments to the Authors
This manuscript reported that PV is dose-dependently relaxed PE-induced contractions in endothelial-intact but not -denuded aorta and works through activating Ca2+/calmodulin-dependent NO synthesis; when NO is released and then transferred to smooth muscle cells, NO activates guanylyl cyclase and increases cGMP formation, ultimately resulting in vasorelaxation. This manuscript is well designed in vitro study and contains useful information of PV in the potential therapeutic approach for the vascular-associated disorders.

Minor comments:
1. On page 5, …the rats were killed by exsanguinations from the carotid artery…. We usually use the term of “sacrifice” instead of “kill”. Before sacrifice, do rats anesthetize by injecting or inhaling with anesthetize drugs, such as ketamine or isoflurane or others for humane treatment? Can anesthetize drugs affect the vasorelaxation or contracture in the isolated aorta rings? For what reasons?
2. In your previous studies, 5 #M ACh could successful relax 3 #M PE-induced aortic contracture, but why did you use 10 #M ACh in this study?
3. Why do you choose these two NO inhibitors (L-NAME and L-NMMA) for PV-induced vasorelaxation? Can you cite references in the text?
4. As you mentioned that HUVECs in 6-well plates were incubated with or without various concentrations of PV (10, 30, 50, and 100 µg/ml) for determination of nitric oxide (NO) production; however, no data was shown in the concentration of 50 µg/ml in Fig. 3. Does it lost? Whether cells were treated for 24 h in text or 1 h in figure 3 legend?
5. The whole name of BAPTA-AM?
6. In Fig. 4, no explanations for the time courses of HUVECs (5×105 cells/well) incubated with or without concentrations of PV (3, 10, and 30 µg/ml) or ACh (30 µM) for the short-term incubation of 0.5 h or long-term exposure for 24 h?
7. Could the authors draw a flow chart to explain the possible pathways of PV-induced vasorelaxation?

Level of interest: An article of importance in its field
Quality of written English: Acceptable

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'