Dear Editor

Journal of Tropical Biodiversity and Biotechnology

 Yogyakarta, January 17. 2021

Thank you very much for delivering the reviewer comments to improve our manuscript entitled:

" Growth of *Phalaenopsis amabilis* transgenic orchid plant from somatic embryos in the process of acclimatization in ex vitro conditions "

I hereby submit our response to the reviewer’s comments and the revised manuscript that we have improved in accordance to the reviewer’s suggestions.

We hope that this manuscript can be accepted as a research article for publication in JTBB.

I am waiting for further information from you.

Best regards,

Corresponding author,

Endang Semiarti

==================================================================================

**Author’s Response to Reviewer’s Comments**

1. **Comments from Reviewer A:**

Overall statement or summary of the article:

 Authors developed transgenic *P. amabilis* genome and function normally in keeping the embryo and plant forms unchanged as in non-transformant plants.

Specific comments on the weaknesses of the article:

 they didn't mention why did they do this work. Authors did not mention the novelty of this research.

**Author response:**

We did this study because we wanted to know whether there was a secondary effect of genetic transformation of an embryo gene AtRKD4 from model *plant Arabidopsis thaliana* via Agrobacterium to the *P. amabilis* orchid. When we insert the key genes for somatic embryo initiation into orchid plant cells from somatic cells, it is hoped that what will emerge is a large number of embryos from orchid somatic cells that they will grow and regenerates into phenotypically normal plants like the original plant (non-transformant plants). In this study, we proved that there were no significant differences in the morphology and anatomy of leaves and roots of the transformant *P. amabilis* plants carrying 35S::AtRKD4 aged 18 months compared to non-transformant plants of the same age as the control. These results indicate that Agrobacterium-mediated AtRKD4 embryo gene into P. amabilis orchid plants did not change the phenotype of *P. amabilis* transformant plants. This data is highly expected by orchid industry/nursery for plant propagation in large quantities and relative fast time for orchid conservation and agribusiness.

------------------------------------------------------

1. **Comments from Reviewer B:**

The research design is too simple for full paper publication.

The title does not reflect the overall goal of the data presented. Therefore, the manuscript is suitable for a short communication

**Author response:**

We have changed the title as follow:

**“Stable Transformant of *Phalaenopsis amabilis* somatic embryo carrying 35::AtRKD4 develops into normal phenotype of transgenic plant”**

We added data on morphological and anatomical observations of WT and T plants to analyze the growth and development of plants from somatic embryos to plant growth and their growth in ex vitro conditions. It is desirable that plants grow normally like non-transformant plants.

Our data showed there were no significance different on the anatomic structure and the size of cells in both organs. This phenomenon has shown that there is no negative effect from the action of the embryo gene *AtRKD4* that has been inserted to initiate somatic embryos, which turns out that after the embryo is formed, the embryo can grow and develop normally just like the original mother plant (non-transformant).

------------------------------------------------------

1. **Comments from Reviewer C:**

please see the attachment

Reviewer’s comment #1:

Please rewrite the novelty of this research

**Author response:**

The novelty of this research is the insertion of embryo gene AtRKD4 from a model plant Arabidopsis thaliana into *P. amabilis* orchid can induced production of large number of somatic embryos from leaves of orchid transformant’s leaves and the somatic embryos can regenerate into plants with normal phenotypes.

Reviewer comment #2: Please mention figure 1 on manuscript

Author response:

Done. We have changed the picture in Figure 1 with better picture and mentioned the figure 1 in the manuscript in Introduction part line 23-28.

Reviewer comment #3: *P. amabilis* in italic

Author response: Yes, it has already revised into italic.

Reviewer comment #4: Change all font on this figure 4 to Times New Roman

Author response: Yes, done. It has already changed into Times New Roman