**Surabaya, September 24th 2021**

Dear Dr. Miftahul Ilmi,

I am pleased to submit our manuscript entitled **“Effect of Carbon Source Variations on Growth, Physiological Stress, and Saponin Levels of Adventive Roots *Talinum paniculatum* Gaertn.**

**”** by **Nindi Novia Erin, Arif Yachya, Alfinda Novi Kristanti, Djarot Sugiarso, Yosephine Sri Wulan Manuhara** for consideration as a *Journal of Tropical Biodiversity and Biotechnology* research article.

In this manuscript, we show that **effect of variations in carbon sources on growth, physiological stress, and saponin levels of the adventitious roots of *Talinum paniculatum*. Adventitious roots are subcultured in liquid MS medium treated with various sugars: 3% sucrose, 3% glucose, 3% fructose, 3% lactose, 3% maltose, 3% dextrose, sucrose + fructose (1.5% + 1, 5%), sucrose+glucose (1.5% + 1.5%), glucose+fructose (1.5% + 1.5%), sucrose+dextrose (1.5% + 1.5%) for 6 weeks. Growth data (morphology and biomass), MDA content, proline content, saponin content of adventitious roots are analyzed quantitatively. The results of this study show that the 3% fructose treatment produces the highest fresh and dry biomass, which are 1.30 g and 0.23 g compared to the control. The morphology of adventitious roots in the treatment of carbon source variation is not different from the control treatment. Physiological stress data is shown through data on MDA levels and proline levels. The highest MDA levels are found in the sucrose + fructose treatment (1.5% + 1.5%). Meanwhile, the highest proline levels are found in the 3% maltose treatment. Saponin levels analyzed using thin layer chromatography show the data in the form of color intensity and stain area based on ImageJ software analysis. The 3% fructose treatment shows the highest color intensity and stain area compared to the control. Variations in carbon sources have an effect on physiological stress, biomass, and saponin levels of adventitious roots of *T. paniculatum*, but no effect on root morphology.**

We believe that our paper is appropriate for publication by *Journal of Tropical Biodiversity and Biotechnology* because is **Utilisation of tropical organisms in biotechnology. Our manuscript provide a variety of carbon sources, including sucrose, lactose, maltose, glucose, fructose, dextrose, sucrose + fructose, sucrose + glucose, sucrose + dextrose, and glucose + fructose to determine the effect on morphology, physiological stress, biomass production, and levels of saponin compounds in adventitious roots of *T. paniculatum***

This manuscript has not been published before and is not being considered for publication elsewhere.

Thank you for your consideration. Sincerely,

Yosephine Sri Wulan Manuhara

Universitas Airlangga

[yosephine-s-w-m@fst.unair.ac.id](mailto:yosephine-s-w-m@fst.unair.ac.id)

0817584872