

## ABSTRACT

Amelia Dini Mahbubah. 24020122130113. **Physiological Response of *Phalaenopsis amabilis* L. Orchids After Transplanting with NASA Liquid Organic Fertilizer.** Department of Biology, Faculty of Science and Mathematics, Diponegoro University, Semarang, under the guidance of Nintya Setiari and Yulita Nurchayati.

*Phalaenopsis amabilis* L. orchids are ornamental plants with high economic value that are susceptible to physiological stress after transplanting due to root damage and changes in the growing environment. One effort to support the plant's adaptation to these conditions is through the application of NASA Liquid Organic Fertilizer (POC), which contains macro and micronutrients. This study aims to analyze the effect and determine the optimal concentration of NASA POC on the physiological response of *P. amabilis* after transplanting. This research was conducted by growing *P. amabilis* orchids planted in fern media with the addition of moss, then hung on a rack and placed under shade (average temperature 28.9°C, humidity 71.2%, and light intensity 14,458 lux) and watered regularly. The study used a single factor Completely Randomized Design (CRD) in the form of NASA POC concentrations, namely 0, 10, 20, and 30 mL/L which were applied through spraying for three months of observation. The parameters observed were the time of emergence and the number of new leaves, the increase in the area of old leaves and the area of new leaves, the time of emergence, the number and length of new roots, the content of chlorophyll, carotenoids, vitamin C, proline and stomatal density as supporting parameters. Data were analyzed using ANOVA at a significance level of 95% ( $\alpha = 0.05$ ) and continued with the Duncan test, qualitative data were analyzed using descriptive methods. The results showed that the application of NASA Liquid Organic Fertilizer (POC) significantly affected the time to new leaf emergence, new leaf area, number of new roots, new root length, and proline content, with a concentration of 10 mL/L indicating the optimal concentration. Based on these results, it can be concluded that NASA POC is able to support the adaptation process of *P. amabilis* after transplanting, enabling the plant to grow more optimally in its new environment.

**Keywords:** *Phalaenopsis amabilis*, NASA Liquid Organic Fertilizer (POC), Physiological Response