

ABSTRACT

Phalaenopsis amabilis (L.) is an orchid species that is susceptible to post-transplant stress caused by environmental changes and root damage during the acclimatization process. These conditions may disrupt vegetative growth, reduce photosynthetic pigment content, and induce physiological and anatomical changes in plants. Therefore, an approach is needed to improve plant adaptability during the post-transplantation phase, one of which is through the application of biostimulants. This study aimed to determine the effect of biostimulants and identify the optimal concentration for enhancing the growth, physiological responses, and anatomy of *P. amabilis*. The experiment employed a single-factor Completely Randomized Design (CRD) with biostimulant concentrations of 0, 5, 10, and 15 mL/L. The orchids were cultivated in fern fiber and moss media, with biostimulant spraying applied once a week for 12 weeks. Observed parameters included the time of leaf emergence, number of leaves, leaf length and width, time of root emergence, number and length of roots, proline, vitamin C, chlorophyll, carotenoid contents, and stomatal density as an additional parameter. Data were analyzed using Analysis of Variance (ANOVA) followed by Duncan's Multiple Range Test at a 5% significance level. The results showed that biostimulant application significantly accelerated the emergence of new leaves and roots and improved vegetative growth. Physiologically, biostimulants increased chlorophyll and carotenoid contents while reducing proline accumulation, indicating a reduction in stress levels during the adaptation phase. In conclusion, the biostimulant concentration of 10 mL/L was the optimal treatment for improving the physiological adaptation response of *P. amabilis* during the post-transplant vegetative phase.

Keyword : *Phalaenopsis amabilis*, biostimulant, post-transplanting