ABSTRACT

Farah Nur Imanda, 24020121140176. **The Effect of Organic and Inorganic Fertilizers on the growth of *Dendrobium nindii* .Hill Orchid during the Seedling Period**. Under the guidance of Endang Saptiningsih and Nintya Setiari

Orchids are high-value horticultural commodities with significant economic potential. *Dendrobium nindii* possesses aesthetic appeal through its distinctive flower color and shape. However, its growth during the seedling phase is relatively slow, requiring appropriate fertilization strategies to support vegetative development. This study aimed to analyze the effects of organic fertilizer, inorganic fertilizer, and their combination on the early *D. nindii* seedlings. The experiment was conducted ex vitro in a greenhouse using a Completely Randomized Design (CRD). Treatments included the application of liquid organic fertilizer (LOF) derived from fruit waste, vegetables, onion, milk and goat manure; inorganic fertilizer (Gaviota), a combination of both, and a control, applied to two-month-old seedlings. Fertilizers were applied by foliar spraying once a week, and observations were carried out for seven weeks. Parameters observed included leaf number and area, new leaf growth, root number and length, *pseudobulb* length, photosynthetic pigment content, and stomatal density. Results showed that LOF treatment produced the best vegetative growth, with mean leaf area of 55.18 cm^2, new leaf area of 13.95 cm^2, *pseudobulb* length of 6.17 cm, root length of 97 cm, and root number of 25. Conversely, physiological parameters such as total chlorophyll (327.05 µg/g), carotenoids (125.70 µg/g), and stomatal density (41.85) were higher in the control treatment (without fertilizer). Overall, fertilization enhanced the early growth of *D. nindii*, with organic fertilizer providing the most optimal results.

Keywords: *Dendrobium nindii*, *seedling stage, organic fertilizer, inorganic fertilizer*