

**PERBANYAKAN ANGGREK MACAN  
(*Grammatophyllum scriptum* (Lindl.) Bl. ) SECARA IN VITRO DENGAN  
PHOTOAUTOTROPHIC MICROPROPAGATION SYSTEM**

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**INTISARI**

Anggrek yang dibudidayakan dengan kultur *in vitro* pada umumnya memiliki tingkat persentase hidup yang rendah, karena selama proses perbanyakannya tanaman tersebut sangat bergantung dengan medium kultur. *Photoautotrophic Micropropagation System* (PMS) adalah teknik kultur yang dapat meningkatkan kemampuan fotosintesis plantlet dengan memanfaatkan karbondioksida di udara. Penelitian ini bertujuan untuk mengetahui pengaruh PMS terhadap pertumbuhan dan struktur anatomi pada kultur *in vitro* *Grammatophyllum scriptum*. Pertumbuhan diukur dengan pengukuran jumlah dan panjang akar, jumlah dan panjang daun, dan kadar klorofil daun yang diukur dengan spektrofotometri. Struktur stomata diamati dengan membuat cetakan bagian abaksial daun, dan ketebalan daun diamati dengan membuat preparat sayatan melintang daun. Rerata jumlah daun tertinggi ditunjukkan oleh perlakuan plantlet dalam PMS dengan sukrosa 20 g/l yaitu sebanyak 7,7 helai, rerata panjang daun tertinggi ditunjukkan oleh perlakuan PMS dengan sukrosa 5 g/l, rerata jumlah akar terbanyak ditunjukkan oleh perlakuan PMS dengan variasi sukrosa 5 g/l dan 10 g/l, yaitu 5,7 buah, rerata panjang akar tertinggi ditunjukkan oleh plantlet pada perlakuan PMS dengan sukrosa 20 g/l, yaitu 10,4 cm, kadar klorofil tertinggi ditunjukkan oleh perlakuan PMS dengan sukrosa 10 g/l, yaitu dengan kadar klorofil a 0,01148 mg/g; klorofil b 0,0054 mg/g; klorofil total 0,00091 mg/g, jumlah stomata terendah ditunjukkan oleh daun pada perlakuan PMS dengan sukrosa 10 g/l, yaitu 67,89 buah/4mm<sup>2</sup>.

Kata kunci: Kultur *in vitro*, Anggrek, *Grammatophyllum scriptum*, *Photoautotrophic Micropropagation System*

**IN VITRO PROPAGATION OF ANGGREK MACAN  
(*Grammatophyllum scriptum* (Lindl.) Bl.) BY PHOTOAUTOTROPHIC  
MICROPROPAGATION SYSTEM**

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**ABSTRACT**

Orchids cultivated by in vitro culture have a low rate of life, because during the process of propagation of these plants is very dependent on the nutrient medium. Photoautotrophic Micropropagation System (PMS) is a culture technique that can improve the ability of photosynthesis on plantlets by using carbon dioxide in the air. This study aimed to determine the effect of PMS on growth and anatomical structures of *Grammatophyllum scriptum* in vitro culture. Growth was measured by measuring the number and root length, number and length of leaves, while leaf chlorophyll content was measured by spectrophotometry method. Stomata structure was observed by making abaksial mold of leaves, and leaf thickness was observed by making transversal section of leaves. The highest average number of leaves was shown by the treatment of plantlets in PMS with sucrose 20 g / l i.e. 7.667 leaves, the highest leaf length was in the treatment of PMS with sucrose 5 g / l, the average number of roots most was found in the treatment of PMS with a variety of sucrose 5 g / l and 10 g / l, ie 5.667 , the highest average root length was in the plantlets treated with PMS with sucrose 20 g / l, which is 10.4 cm, the highest chlorophyll content was shown by the treatment of PMS with sucrose 10 g / l, by levels of chlorophyll a 0.01148 mg / g; chlorophyll b 0.0054 mg / g; total chlorophyll 0.00091 mg / g, the lowest number of stomata on the leaf was shown by the treatment of PMS with sucrose 10 g / l, which is 67.89 piece/ 4mm<sup>2</sup>.

**Keywords:** in vitro culture, Orchid, *Grammatophyllum scriptum*, Photoautotrophic Micropropagation System