

Etna Ianah Miskiyah (210311100028). Pengaruh Kombinasi Konsentrasi Benzyl Amino Purin (Bap) dan L-Arginin Terhadap Pertumbuhan Planlet Anggrek (*Dendrobium* Sp). Pada Masa Aklimatisasi. Dibawah bimbingan Mohammad Syafii, S.P., M.Si and Dr. Farida Yulianti S.TP. MP

ABSTRAK

Penelitian ini mengkaji pengaruh kombinasi konsentrasi Benzyl Amino Purin (BAP) dan L-Arginin terhadap pertumbuhan planlet anggrek (*Dendrobium* sp.) pada masa aklimatisasi. Anggrek *Dendrobium* memiliki nilai ekonomi tinggi, namun perbanyakannya konvensional mengalami kendala. Mikropropagasi atau kultur jaringan menjadi solusi penting, tetapi tahap aklimatisasi merupakan fase kritis dimana planlet rentan terhadap stres lingkungan, penurunan aktivitas hormon endogen seperti BAP, dan keterbatasan nitrogen. Studi ini bertujuan untuk mendapatkan informasi mengenai pengaruh kombinasi BAP dan Arginin terhadap pertumbuhan dan perkembangan planlet *Dendrobium* selama aklimatisasi, serta menemukan kombinasi konsentrasi optimal untuk tunas dan akar. Penelitian ini menggunakan planlet anggrek hibrida *Dendrobium Pure Delight* x *Enobi* yang diaklimatisasi pada media vermikulit-perlit dengan penambahan BAP (0.1 dan 0.3 mg/L) dan L-Arginin (25, 50, 100 mg/L) selama 8 minggu. Data dianalisis menggunakan Analisis Sidik Ragam (ANOVA) Rancangan Acak Lengkap (RAL) non-faktorial dengan taraf kepercayaan 95% ($\alpha = 0,05$), dilanjutkan dengan uji Duncan jika berbeda secara nyata. Hasil pengamatan menunjukkan bahwa pertumbuhan planlet secara keseluruhan sangat lambat, dengan beberapa planlet mengalami kerontokan daun dan kematian. Namun, perlakuan yang melibatkan kombinasi BAP dan Arginin cenderung menghasilkan warna daun yang lebih hijau tua dibandingkan dengan perlakuan lain yang menunjukkan warna lebih pucat atau kekuningan, yang mengindikasikan adanya stres fisiologis yang lebih tinggi pada planlet tanpa kombinasi tersebut. Penelitian ini menggarisbawahi pentingnya formulasi media dan perlakuan yang tepat untuk meningkatkan adaptasi planlet selama aklimatisasi.

Kata Kunci : Aklimatisasi, BAP, *Dendrobium* Sp, L-Arginin, Planlet

Etna Ianah Miskiyah (210311100028). The Effect of Combined Concentrations of Benzyl Amino Purine (BAP) and L-Arginine on the Growth of Orchid Plantlets (*Dendrobium* Sp.) During Acclimatization. Supervised by Mohammad Syafii, S.P., M.Si and Dr. Farida Yulianti S.TP. MP

ABSTRACT

This study investigated the effect of combined concentrations of Benzyl Amino Purine (BAP) and L-Arginine on the growth of *Dendrobium* orchid plantlets during acclimatization. *Dendrobium* orchids had high economic value, but conventional propagation faced challenges. Micropropagation or tissue culture became an important solution, but the acclimatization stage was a critical phase where plantlets were vulnerable to environmental stress, decreased endogenous hormone activity such as BAP, and nitrogen limitation. This study aimed to obtain information regarding the effect of combining BAP and Arginine on the growth and development of *Dendrobium* plantlets during acclimatization, and to find the optimal concentration combination for shoots and roots. This research used *Dendrobium Pure Delight* x *Enobi* hybrid orchid plantlets, which were acclimatized on vermiculite-perlite media with the addition of BAP (0.1 and 0.3 mg/L) and L-Arginine (25, 50, 100 mg/L) for 8 weeks. Data were analyzed using non-factorial Completely Randomized Design (CRD) Analysis of Variance (ANOVA) at a 95% confidence level ($\alpha = 0.05$), followed by Duncan's test if significant differences were found. Observations showed that the overall growth of the plantlets was very slow, with some plantlets experiencing leaf shedding and mortality. However, treatments involving the combination of BAP and Arginine tended to produce a darker green leaf color compared to other treatments that showed paler or yellowish colors, which indicated higher physiological stress in plantlets without the combination. This research highlighted the importance of appropriate media formulation and treatment in enhancing plantlet adaptation during acclimatization.

Keywords: Acclimatization, BAP, *Dendrobium* sp., L-Arginine, Plantlet