

PENGARUH KONSENTRASI *Plant Growth Promoting Rhizobacteria* (PGPR) TERHADAP PERTUMBUHAN BIBIT PACAT (*Harpullia arborea* (Blanco) Radlk.)

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ABSTRACT

This research aimed to study the effect of Plant Growth Promoting Rhizobacteria (PGPR) concentrations on the growth of Harpullia arborea (Pacat wood) seedlings and to determine the optimal PGPR concentration for their growth. This is crucial given the scarcity of Harpullia arborea due to high demand and its slow growth when relying solely on seeds and conventional plantation soil media.

The research method employed a Completely Randomized Design (CRD) with five levels of PGPR concentration: P0 (without PGPR), P1 (1.125% or 11.25 ml/L water), P2 (2.25% or 22.5 ml/L water), P3 (3.375% or 33.75 ml/L water), and P4 (4.5% or 45 ml/L water). Each treatment was replicated 5 times, with 5 seedlings per treatment, totaling 125 seedlings. Observed variables included seedling height, seedling diameter, number of leaves, shoot dry weight, and root dry weight.

The results showed that the application of various PGPR concentrations had a significant effect on all observed growth parameters of Harpullia arborea seedlings. Treatment P4 (PGPR concentration of 4.5% equivalent to 45 ml/L water) provided the best results in enhancing Pacat seedling growth, with an average height of 68.16 cm, average diameter of 30.44 mm, average number of leaves of 20, average shoot dry weight of 16.32 g, and average root dry weight of 1.14 g. Higher PGPR concentrations generally led to increased seedling growth.

Keywords: Plant Growth Promoting Rhizobacteria (PGPR), Harpullia arborea, Pacat Seedling, Growth, Concentration.

ABSTRAK

Penelitian ini bertujuan untuk mempelajari pengaruh konsentrasi *Plant Growth Promoting Rhizobacteria* (PGPR) terhadap pertumbuhan bibit kayu pacat (*Harpullia arborea*) dan mendapatkan konsentrasi PGPR yang tepat untuk pertumbuhan bibit tersebut, mengingat kelangkaan kayu pacat akibat tingginya permintaan dan pertumbuhan yang lambat jika hanya mengandalkan biji dan media tanah perkebunan.

Metode penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan lima taraf konsentrasi PGPR: P0 (tanpa PGPR), P1 (1,125% atau 11,25 ml/l air), P2 (2,25% atau 22,5 ml/l air), P3 (3,375% atau 33,75 ml/l air), dan P4 (4,5% atau 45 ml/l air). Setiap perlakuan diulang 5 kali, dengan 5 bibit per perlakuan, sehingga total 125 bibit digunakan. Variabel yang diamati meliputi tinggi bibit, diameter bibit, jumlah daun, berat kering tajuk, dan berat kering akar.

Hasil penelitian menunjukkan bahwa pemberian berbagai konsentrasi PGPR berpengaruh nyata terhadap semua parameter pengamatan pertumbuhan bibit kayu pacat, kecuali tinggi bibit yang tidak berpengaruh nyata namun berkorelasi positif dengan konsentrasi PGPR yang diberikan. Perlakuan P4 (konsentrasi PGPR 4,5% setara 45 ml/l air) memberikan hasil terbaik dalam meningkatkan pertumbuhan bibit Pacat, dengan tinggi rerata 68,16 cm, diameter rerata 30,44 mm, jumlah daun rerata 20 helai, berat kering tajuk rerata 16,32 g, dan berat kering akar rerata 1,14 g. Semakin tinggi konsentrasi PGPR, semakin meningkat pertumbuhan bibit.

Kata Kunci: *Plant Growth Promoting Rhizobacteria* (PGPR), *Harpullia arborea*, Bibit Pacat, Pertumbuhan, Konsentrasi.