

Pengaruh Pemeliharaan Lanjutan Berupa Penambahan *Trichoderma* Formulasi dan Pupuk Terkendali Terhadap Kualitas Bibit Tusam (*Pinus merkusii* Jungh. et de Vriese)

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INTI SARI

Penggunaan teknologi *single tube* dikenalkan di persemaian pinus untuk meningkatkan efisiensi dalam penyediaan bahan tanaman. Teknologi ini di lapangan menghadapi banyak masalah, seperti kualitas semai tumbuh di bawah standar. Pemeliharaan persemaian masih memerlukan banyak perbaikan, terutama untuk usaha peningkatan kualitas bibit semai. Pendekatan biologis yang ramah lingkungan dan dikombinasikan dengan usaha memanipulasi lingkungan tempat tumbuh untuk memperoleh semai yang berkualitas.

Penelitian ini bertujuan untuk menguji pengaruh pemeliharaan lanjutan berupa pemberian agen pengendali hayati *Trichoderma* spp. dan pupuk terkendali terhadap kualitas bibit tusam. Penelitian ini dilakukan di persemaian Linggoasri, KPH Pekalongan Timur dan di Laboratorium Perlindungan Hutan, Fakultas Kehutanan, Universitas Gadjah Mada. Penelitian ini menggunakan semai berumur 4 bulan dari medium IV (*top soil*, serbuk gergaji, dan kompos reguler) dan perlakuan penambahan *Trichoderma* formulasi dan pupuk terkendali. Semai diperlakukan dengan perlakuan lanjutan *Trichoderma* formulasi dan pupuk terkendali. Rancangan penelitian adalah rancangan *split plot* menggunakan 768 satuan percobaan. Pengaruh perlakuan yang diamati adalah kualitas pertumbuhan, kesehatan, dan kematian semai.

Hasil penelitian menunjukkan bahwa perlakuan kombinasi antara *Trichoderma* formulasi dan pupuk terkendali mempunyai pengaruh lebih baik dibandingkan tanpa perlakuan. Perlakuan mempunyai pengaruh paling baik terhadap nilai kekokohan semai, persentase kesehatan. Nilai kekokohan pada perlakuan kombinasi *Trichoderma* formulasi dan pupuk terkendali berkisar antara 5-6. Persentase kesehatan sebesar 79,03%, perlakuan mampu meningkatkan kesehatan semai 29,03%. Persentase kematian menurun 13,64 %, ketahanan semai meningkat menjadi 36,36%. Perlakuan non reguler lebih menguntungkan daripada perlakuan reguler dari segi efisiensi biaya pemeliharaan dan efektivitasnya terhadap kualitas pertumbuhan semai tusam.

Kata kunci: semai tusam, *single tube*, kualitas semai, *Trichoderma*, pupuk terkendali

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**EFFECT OF ADVANCE MAINTENANCE SUCH OF
TRICHODERMA AND CONTROLLED RELEASE
FERTILIZER AGAINST SEEDLING QUALITY OF PINE
(*Pinus merkusii* Jungh. et de Vriese)**

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ABSTRACT

The using of single tube technology was introduced into pine nursery to improve the efficiency of planting stock production. This technology is facing some problem in the field, for example under growth quality standard of seedling growth. Seedling maintenance still need some improvement, especially in the quality of seedling. Biological approach, which is environment friendly combined to the environment manipulation will improve the quality of the pine seedling.

This experiment aimed to examine the effect of application of *Trichoderma* formulation and controlled release fertilizer increase quality of seedling pine. The experiment was set up at Linggoasri pine nursery, East Pekalongan forest district and Laboratory of Forest Protection, Faculty of Forestry, Gadjah Mada University. The sample of this experiment was four month old seedling from fourth medium (top soil, sawpowder, and regular compos) and treated by application of *Trichoderma* formulation and controlled release fertilizer of previous study. Seedling which was selected and subjected to advanced maintenance treatment by application of *Trichoderma* formulation and controlled release fertilizer. The treatment were arranged in split plot design using 768 seedling as unit sampling. Seedling quality, health and death was measured as respond treatment.

The results of this experiment showed that combination of *Trichoderma* formulation and controlled release fertilizer gave better effect than untreated group. The best effect of the treatment was on the seedling strength and healthy. The seedling strength value of the group treated by combination of *Trichoderma* formulation and slow release fertilizer was 5 to 6. Percentage of healthy was 79.03%. The treated group was 79.03% healthier than untreated group. Seedling death was 13.64% lower among treated group and treatment could increase the seedling resistance by 36.36%. Non regular treatment gave more beneficial effect than regular treatment in the point of view of production cost efficiency and the effectivity of pine seedling growth quality.

Key word: pine seedling, single tube, seedling quality, *Trichoderma*, controlled release fertilizer