PENGARUH MIKORIZA DAN RHIZOBIUM PADA BERBAGAI PROVENAN SENGON TERHADAP SERANGAN PENYAKIT KARAT TUMOR (*Uromycladium falcatarium)*

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ABSTRAK

Serangan penyakit karat tumor (*Uromycladium falcatarium*) pada tanaman sengon dapat menghambat pertumbuhan sampai mematikan tanaman sehingga mengakibatkan penurunan produk kayu sengon. Tujuan penelitian ini yaitu untuk mengetahui pengaruh mikoriza dan *rhizobium* serta melihat ketahanan 4 provenan (Solomon, Wamena, Solomon x Wamena, dan Jawa) semai sengon terhadap penyakit karat tumor. Penelitian ini dilaksanakan pada bulan April 2019 sampai bulan September 2019 di Balai Besar Penelitian dan Pengembangan Bioteknologi dan Pemuliaan Tanaman Hutan Yogyakarta. Penelitian ini menggunakan Rancangan Acak Lengkap dua faktor, faktor pertama terdiri dari 9 level perlakuan dosis mikoriza dan *rhizobium* yaitu tanpa mikoriza + tanpa *rhizobium* (M_0R_0), 5 g mikoriza (M_5R_0), 10 g mikoriza ($M_{10}R_0$), 3 g *rhizobium* (M_0R_3), 5 g *rhizobium* (M_0R_5), 5 g mikoriza + 3 g *rhizobium* (M_5R_3), 10 g mikoriza + 3 g *rhizobium* ($M_{10}R_3$), 5 g mikoriza + 5 g *rhizobium* (M_5R_5), 10 g mikoriza + 5 g *rhizobium* ($M_{10}R_5$). Faktor kedua terdiri dari 4 level penggunaan provenan sengon yaitu Solomon (P_1), Wamena (P_2), Solomon x Wamena (P_3), dan Jawa (P_4). Parameter yang diamati yaitu intensitas serangan, luas serangan, dan pertumbuhan (tinggi tanaman, diameter batang, dan jumlah daun). Data pengamatan dianalisis dengan *Analisis of Varience* jenjang 5%. Jika perlakuan ada beda nyata, maka akan diuji lanjut dengan DMRT (*Duncan's Multiple Range Test*) 5%. Hasil penelitian menunjukkan interaksi mikoriza+*rhizobium* dan provenan hanya terdapat pada parameter tinggi tanaman 16 MST dan diameter batang 16 MST. Parameter intensitas serangan dan luas serangan terdapat beda nyata pada perlakuan mikoriza+*rhizobium* dan provenan. Pada parameter jumlah daun 16 MST terdapat beda nyata, jumlah daun terbanyak ada pada perlakuan mikoriza+*rhizobium* M_5R_0 dan perlakuan provenan Solomon.

Kata kunci: mikoriza*, rhizobium,* Penyakit karat tumor*,* Sengon*,* provenan

THE EFFECT OF MYCORRHIZA AND RHIZOBIUM IN VARIOUS SENGON PROVENAN TO THE ATTACK OF GALL RUST DISEASES (*Uromycladium falcatarium*)

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ABSTRACT

Attack of the gall rust diseases (*Uromycladium falcatarium*) on sengon plants is able to inhibit plant growth and resulting the planth death, decreasing in sengon wood products. The purpose of this research was to determine the effect of mycorrhiza and rhizobium and The performance of 4 sengon provenants (Solomon, Wamena, Solomon x Wamena, and Java) seed against gall rust diseases. This research was conducted in April 2019 until September 2019 at the Center for Research and Development of Biotechnology and Forest Plant Breeding in Yogyakarta. This research was arranged in two-factor Complete Randomized Design. The first factor consisted of 9 levels of mycorrhiza and rhizobium treatment: without mycorrhiza + without rhizobium (M_0R_0); 5 g mycorrhiza (M_5R_0); 10 g mycorrhiza ($M_{10}R_0$), 3 g rhizobium (M_0R_3); 5 g rhizobium (M_0R_5); 5 g mycorrhiza + 3 g rhizobium (M_5R_3); 10 g mycorrhiza + 3 g rhizobium ($M_{10}R_3$); 5 g mycorrhiza + 5 g rhizobium (M_5R_5); and 10 g mycorrhiza + 5 g rhizobium ($M_{10}R_5$). The second factor consists of four proven of sengon, namely: Solomon (P_1), Wamena (P_2), Solomon x Wamena (P_3), and Java (P_4). The observed parameters were: disease intensity, disease insidence, and growth (plant height, stem diameter, and number of leaves). Data were analyzed by using Analysis of Variance of 5% and Duncan's Multiple Range Test. The results showed that mycorrhiza + rhizobium and provenant interactions were only found in the parameters of plant height 16 week after planting and stem diameter 16 week after planting. Parameters of disease intensity and disease insidence were significantly different in mycorrhiza + rhizobium and provenant treatments. In the parameters of the number of leaves of 16 MST there was a significant difference, the highest number of leaves was in mycorrhizal + *rhizobium* M5R0 treatment and Solomon provenant treatment.

Keywords: mycorrhizae, rhizobium, gall rust diseases, Sengon, provenants