RINGKASAN

Penelitian ini telah dilaksanakan di Balai Penilitian Sungai Putih, Pusat Penilitian Karet, Kec. Galang, Kab. Deli Serdang Sumatera Utara, Provinsi Sumatera Utara. Penelitian ini dilaksanakan pada bulan Desember 2020 s/d April 2021. Penelitian ini dibimbing oleh Ibu Dr. Syamsafitri, SP. MP sebagai Ketua Pembimbing dan Ibu Ir. Mindalisma, MM. sebagai Anggota Pembimbing.

Tujuan dari penelitian untuk menguji untuk menguji kemampuan isolat bakteri endofit dalam menghambat perkembangan penyakit gugur daun (*Pestalotiopsis sp*) di Laboratorium. Penelitian menggunakan Rancangan Acak Lengkap (RAl) Non Faktorial dengan perlakuan penggunaan bakteri endofit dengan 6 taraf perlakuan yaitu kontrol (SPE_0), isolat 1 dari Sungai Putih (SPE_1), isolat 2 dari Sungai Putih (SPE_2), isolat 3 dari Bandar Betsi (BBE_3), isolat 4 dari Bandar Betsi (BBE_4), isolat 5 dari Bandar Betsi (BBE_5). Parameter yang diamati adalah identifikasi jamur *Pestalotiopsis sp* dan bakteri endofit, persentase daya hambat luas jamur *Pestalotiopsis sp*, Uji Antagonis Bakteri Endofit Terhadap *Pestalotiopsis sp* secara In Vitro, Uji Patogenesitas Cabai Terhadap Bakteri Endofit Terpilih, Uji Pertumbuhan Tanaman Cabai terhadap Bakteri Endofit Terpilih.

Hasil analisis statistik menunjukkan isolat bakteri endofit berpengaruh nyata terhadap persentase daya hambat luas jamur *Pestalotiopsis* sp, pertumbuhan kecambah benih cabai dengan perendaman larutan bakteri endofit menghasilkan persentase yang lebih kecil dari kontrol, namun dapat meningkatkan pertumbuhan tinggi tanaman dan panjang akar tanaman cabai.

Kata Kunci : Bakteri Endofit, Jamur Pestalotiopsis sp

SUMMARY

This research was conducted at the Sungai Putih Research Center, Rubber Research Center, Kec. Galang, Kab. Deli Serdang North Sumatra, North Sumatra Province. This research was conducted from December 2020 to April 2021. This research was supervised by Dr. Syamsafitri, SP. MP as the Chief Advisor and Mrs. Ir. Mindalisma, MM. as a Advisor.

The aim of this study was to test the ability of Endofid bacterial isolates to inhibit the development of leaf fall disease (*Pestalotiopsis sp*) in the laboratory. The study used a non-factorial completely randomized design (RAl) with endophytic bacteria treatment with 6 levels of treatment, namely control (SPE0), isolate 1 from Sungai Putih (SPE1), isolate 2 from Sungai Putih (SPE2), isolate 3 from Bandar Betsi (BBE3).), isolate 4 from Bandar Betsi (BBE4), isolate 5 from Bandar Betsi (BBE5). The parameters observed were the identification of the fungus *Pestalotiopsis sp* and indophytic bacteria, the percentage of broad inhibition of the fungus *Pestalotiopsis sp*, the Antagonist Test of Endophytic Bacteria against *Pestalotiopsis sp* by In Vitro, the Pathogenicity Test of Chili Against Selected Endophytic Bacteria, the Growth Test of Chili Plants against Selected Endophytic Bacteria.

The results of statistical analysis showed that the endophytic bacterial isolate had a significant effect on the percentage of inhibition of the area of *Pestalotiopsis sp*. The growth of chili seed sprouts by immersing the endophytic bacteria solution resulted in a smaller percentage than the control, but it could increase the growth of plant height and root length of chili plants.

Keywords:Endofit Bacteria, Pestalotiopsis sp