ABSTRAK

Muklasin. 2024. "Potensi Metabolit Sekunder *Trichoderma* sp. dan *Pseudomonas fluorescens* Dalam Mengendalikan Penyakit Busuk Pangkal Batang (*Ganoderma boninense*) Pada Tanaman Kelapa Sawit di *Pre-Nursery",* dibimbing oleh Syamsafitri dan Yenni Asbur. Penelitian ini bertujuan untuk mengetahui potensi metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* secara tunggal maupun gabungan dalam mengendalikan penyakit busuk pangkal batang (*G. boninense*) pada tanaman kelapa sawit di *pre-nursery*, mengetahui pengaruh konsentrasi metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* dalam mengendalikan penyakit busuk pangkal batang (*G. boninense*) pada tanaman kelapa sawit di *pre-nursery* dan mengetahui interaksi antara metabolit sekunder dan konsentrasi *Trichoderma* sp. dan *P. fluorescens* dalam mengendalikan penyakit busuk pangkal batang (*Ganoderma boninense*) pada tanaman kelapa sawit di *pre-nursery*. Penelitian ini dilaksanakan di Laboratorium BBPPTP Medan dan dan kebun *pre-nursery* kelapa sawit pada bulan April 2023 sampai dengan Februari 2024. Penelitian di *pre-nursery* menggunakan rancangan acak kelompok (RAK) dengan 2 faktor. Faktor pertama adalah jenis metabolit sekunder (metabolit sekunder *Trichoderma* dan *P. fluorescens*) dan faktor kedua adalah konsentrasi metabolit sekunder (10 cc/l air, 20 cc/l air dan 30 cc/l air). Jumlah perlakuan sebanyak 5, dengan 3 taraf konsentrasi, diulang sebanyak 3 kali dan masing-masing ulangan menggunakan 2 tanaman sampel, sehingga jumlah tanaman yang dipergunakan sebanyak 90 tanaman. Hasil penelitian di laboratorium menunjukkan bahwa perlakuan metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* baik tunggal maupun gabungan berpotensi terhadap penghambatan pertumbuhan koloni *G. boninense* di Laboratorium. Sedangkan hasil penelitian di pre-nursery menunjukkan bahwa perlakuan metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* baik tunggal maupun gabungan tidak berpotensi terhadap penurunan kejadian penyakit, penurunan intensitas penyakit, peningkatan pertumbuhan tinggi tanaman, jumlah daun, jumlah klorofil daun, dan bobot kering akar tanaman kelapa sawit di *pre-nursery*; perlakuan konsentrasi metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* baik tunggal maupun gabungan tidak berpotensi terhadap semua parameter yang diamati di *pre-nursery* dan tidak ada interaksi antara perlakuan dan konsentrasi metabolit sekunder *Trichoderma* sp. dan *P. fluorescens* baik tunggal maupun gabungan terhadap semua parameter yang diamati di *pre-nursery*.

Kata kunci: metabolit sekunder, *Trichoderma* sp., *Pseudomonas fluorescens*, penyakit busuk pangkal batang (*Ganoderma boninense*).

ABSTRACT

Muklasin. 2024. *"Potential of The Trichoderma sp. and Pseudomonas fluorescens Secondary Metabolites in controlling root rot disease (Ganoderma boninense) in oil palm plants in pre-nursery", supervised by Syamsafitri and Yenni Asbur. This study aims to determine the potential of the Trichoderma sp. and P. fluorescens secondary metabolites singly or in combination in controlling stem rot disease (G. boninense) in oil palm plants in pre-nursery, knowing the effect of secondary metabolite concentrations of Trichoderma sp. and P. fluorescens in controlling stem rot disease (G. boninense) in oil palm plants in pre-nursery and knowing the interaction between secondary metabolites and concentrations of Trichoderma sp. and P. fluorescens in controlling stem rot disease (Ganoderma boninense) in oil palm plants in pre-nursery. This research was carried out at the BBPPTP Medan Laboratory and an oil palm pre-nursery plantation from April 2023 to February 2024. Research at the pre-nursery used a randomized block design (RAK) with 2 factors. The first factor is the type of secondary metabolite (secondary metabolite of Trichoderma and P. fluorescens) and the second factor is the concentration of secondary metabolite (10 cc/l water, 20 cc/l water and 30 cc/l water). The number of treatments was 5, with 3 concentration levels, repeated 3 times and each repetition used 2 sample plants, so the number of plants used was 90 plants. The results of research in the laboratory show that secondary metabolite treatment of Trichoderma sp. and P. fluorescens, both alone and in combination, have the potential to inhibit the growth of G. boninense colonies in the laboratory. Meanwhile, the results of pre-nursery research showed that secondary metabolite treatment of Trichoderma sp. and P. fluorescens, either alone or in combination, does not have the potential to reduce disease incidence, reduce disease intensity, increase plant height growth, number of leaves, amount of leaf chlorophyll, and root dry weight of oil palm plants in pre-nursery; treatment of secondary metabolite concentrations of Trichoderma sp. and P. fluorescens either alone or in combination had no potential for all parameters observed in pre-nursery and there was no interaction between treatment and secondary metabolite concentrations of Trichoderma sp. and P. fluorescens both alone and in combination with all parameters observed in pre-nursery.*

Key words: secondary metabolites, Trichoderma sp., Pseudomonas fluorescens, stem root disease (Ganoderma boninense).