

## RINGKASAN

Tanaman padi (*Oryza sativa*) merupakan tanaman pangan penting dan menjadi bahan pangan pokok masyarakat Indonesia. Produksi Gabah Kering Giling (GKG) Indonesia sebesar 53,63 juta ton di Tahun 2023. Angka tersebut terjadi penurunan dari Tahun 2022 dapat memproduksi sebesar 54,74 juta ton GKG. Rata-rata konsumsi beras masyarakat Indonesia sebanyak 80 kg per orang. Serangan walang sangit dapat menyebabkan gabah padi menjadi hampa dan menurunkan kualitas gabah hingga 50%. Peningkatan populasi walang sangit dapat menurunkan produksi tanaman padi. Pengendalian hama walang sangit masih bergantung pada pestisida kimiawi sintetis. Hal tersebut dapat menyebabkan walang sangit mengalami resistensi apabila diaplikasikan menggunakan bahan aktif sama dalam waktu lama. Penggunaan jamur entomopatogen *Lecanicillium saksenae* dapat membunuh walang sangit dengan hasil kematian sebesar 100% dalam interval waktu 72 jam. Kelemahan agen hayati belum dapat mengatasi 100% permasalahan serangan yang OPT, sehingga dikembangkan turunan metabolit primer yaitu metabolit sekunder sebagai alternatif pengendalian hama. Penelitian ini bertujuan untuk mengetahui pengaruh konsentrasi, frekuensi, dan interaksinya dari jamur entomopatogen *L. saksenae* terhadap intensitas kerusakan, populasi walang sangit, dan musuh alami.

Penelitian ini dilaksanakan di lahan Desa Kediri, Kecamatan Karanglewas, Kabupaten Banyumas dan Laboratorium Perlindungan Tanaman Fakultas Pertanian Unsoed. Penelitian ini dimulai dari Juli hingga Desember 2024. Rancangan percobaan yang digunakan Rancangan Acak Kelompok (RAK) dengan 2 faktorial dilakukan sebanyak 3 ulangan. Faktor 1 yaitu konsentrasi metabolit sekunder jamur entomopatogen *L. saksenae* yang terdiri dari kontrol, 10%, 20%, 30%, metabolit sekunder jamur entomopatogen *L. saksenae*, dan Pestisida kimiawi berbahan aktif Nitenpyram. Faktor 2 yaitu frekuensi aplikasi yang terdiri dari aplikasi 1 minggu sekali dan aplikasi 2 minggu sekali. Variabel yang diamati pada penelitian meliputi intensitas kerusakan, populasi hama walang sangit, jenis serta populasi musuh alami, dan bobot gabah. Data hasil pengamatan dianalisis menggunakan sedik ragam ANOVA dengan taraf 5% untuk mengetahui pengaruh perlakuan. Apabila menunjukkan berbeda tidak nyata maka dilakukan uji lanjut DMRT.

Hasil penelitian menunjukkan bahwa perlakuan konsentrasi metabolit sekunder jamur entomopatogen *L. saksenae* konsentrasi 20% dapat menekan intensitas serangan dan populasi walang sangit sebesar 22,66% dan 54,05%. Perlakuan frekuensi aplikasi 1 minggu sekali paling efektif menekan intensitas serangan sebesar 5,79% dan tidak mempengaruhi musuh alami. Tidak terdapat interaksi yang nyata antara perlakuan konsentrasi dan frekuensi aplikasi terhadap intensitas kerusakan, populasi walang sangit, maupun populasi musuh alami.

## SUMMARY

Rice (*Oryza sativa*) is an important food crop and the staple food of the Indonesian people. Indonesia's milled dry grain (MDG) production is 53.63 million tons in 2023. This figure has decreased from 2022 which can produce 54.74 million tons of MDG. The average rice consumption of Indonesian people is 80 kg per person. The attack of *Leptocorisa oratorius* can cause rice grain to become hollow and reduce grain quality by up to 50%. An increase in the mantis population can reduce rice production. Pest control still relies on synthetic chemical pesticides. This can cause the mantis to experience resistance when applied using the same active ingredient for a long time. The use of the entomopathogenic fungus *Lecanicillium saksenae* can kill the mantis with 100% mortality in a 72-hour interval. The weakness of biological agents has not been able to overcome 100% of the problem of pest attacks, so that derivatives of primary metabolites are developed, namely secondary metabolites as an alternative to pest control. This study aims to determine the effect of concentration, frequency, and interaction of the entomopathogenic fungus *L. saksenae* on the intensity of damage, *L. oratorius* population, and natural enemies.

This research was conducted in the field of Kediri Village, Karanglewas District, Banyumas Regency and Plant Protection Laboratory, Faculty of Agriculture, Unsoed. This research started from July to December 2024. The experimental design used was Randomized Block Design (RBD) with 2 factorials conducted as many as 3 replicates. Factor 1 is the concentration of secondary metabolites of entomopathogenic fungi *L. saksenae* consisting of control, 10%, 20%, 30%, secondary metabolites of entomopathogenic fungi *L. saksenae*, and chemical pesticides made from Nitenpyram. Factor 2 was the frequency of application consisting of once a week application and once every two weeks application. The variables observed in the study included the intensity of damage, the population of *L. oratorius* pests, types and populations of natural enemies, and grain weight. Observation data were analyzed using ANOVA variance at the 5% level to determine the effect of treatment. If it shows that it is not significantly different then DMRT further test is conducted.

The results showed that the treatment of secondary metabolite concentration of entomopathogenic fungi *L. saksenae* at a concentration of 20% could suppress the intensity of attack and the population of grasshoppers by 22.66% and 54.05%. The treatment of application frequency once a week most effectively suppressed the intensity of the attack by 5.79% and did not affect natural enemies. There was no significant interaction between the concentration treatment and the frequency of application on the intensity of damage, the locust population, or the population of natural enemies.