

RINGKASAN

Gulma merupakan masalah utama dalam budidaya tanaman. Keberadaan gulma di tengah tanaman budidaya dapat memberikan dampak kerugian besar. Pengendalian gulma menggunakan herbisida kimia sintetis dapat menimbulkan dampak negatif, sehingga memerlukan alternatif pengendalian gulma. Pengendalian alternatif dapat dilakukan dengan memanfaatkan jamur patogen gulma. Penelitian bertujuan untuk mengetahui kemampuan jamur patogen gulma dalam menginfeksi beberapa jenis gulma berdaun sempit di lapang.

Penelitian ini dilaksanakan di Lahan Percobaan dan di Laboratorium Perlindungan Tanaman, Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian dimulai pada bulan Oktober 2020 hingga Mei 2021. Rancangan percobaan yang dipakai adalah Rancangan Acak Kelompok Faktorial dengan 12 kombinasi perlakuan dengan dua faktor utama yaitu tiga jenis jamur patogen (*Chaetomium* sp., *Fusarium* sp., dan *Curvularia* sp.) dan tiga jenis gulma (*Cynodon dactylon*, *Cyperus rotundus*, dan *Imperata cylindrica*) serta ulangan 3 kali. Variabel yang diamati dalam penelitian ini adalah intensitas penyakit, laju infeksi dan *area under diseases progress curve* (AUDPC), serta tinggi tanaman, jumlah daun, bobot segar tanaman dan bobot kering tanaman.

Hasil penelitian menunjukkan bahwa aplikasi jamur patogen infeksi untuk menginfeksi ketiga jenis gulma daun sempit di lapang dengan tingkat intensitas tertinggi yaitu jamur patogen *Curvularia* sp. dengan intensitas penyakit 82,67%, dan AUDPC 72,94% lebih tinggi dibandingkan kontrol. Jamur patogen *Chaetomium* sp. merupakan yang paling virulen kedua setelah jamur *Curvularia* sp. dengan intensitas penyakit 78,84% dan AUDPC 68,68% lebih tinggi dibandingkan kontrol. Jamur patogen *Fusarium* sp. merupakan yang paling rendah tingkat virulensinya dengan intensitas penyakit 70,49% dan AUDPC 54,47% lebih tinggi dibandingkan kontrol. Laju infeksi tertinggi yaitu pada jamur *Chaetomium* sp. dengan 81,57% lebih tinggi dibandingkan perlakuan kontrol. Ketiga jamur patogen tidak menunjukkan hasil yang signifikan untuk dapat menekan bobot segar, bobot kering, tinggi tanaman dan jumlah daun. Gulma *Cyperus rotundus* merupakan yang paling rentan mengalami kerusakan akibat aplikasi jamur patogen dengan intensitas penyakit sebesar 18,84% dan AUDPC sebesar 39,57%.

SUMMARY

Weeds are a major problem in plant cultivation. The presence of weeds in the middle of cultivated plants can have a large loss impact. Weed control using synthetic chemical herbicides can have a negative impact, thus requiring alternative weed control. Alternative control can be done by utilizing weed pathogenic fungi. The aim of this study was to determine the ability of weed pathogenic fungi to infect several types of weeds in the field.

*This research was carried out in the experimental field and in the Plant Protection Laboratory, Faculty of Agriculture, Jenderal Sudirman University. The study started from October 2020 to May 2021. The experimental design used was a factorial randomized block design with 12 treatment combinations with two main factors, namely three types of fungal pathogens (*Chaetomium* sp., *Fusarium* sp., and *Curvularia* sp.) and three types of weeds. (*Cynodon dactylon*, *Cyperus rotundus*, and *Imperata cylindrica*) and replicated 3 times. The variables observed in this study were disease intensity, infection rate and area under disease progress curve (AUDPC), as well as plant height, number of leaves, plant fresh weight and plant dry weight.*

*The results showed that the application of infective pathogenic fungi to infect three types of narrow leaf weeds in the field with the highest intensity level, namely the pathogenic fungus *Curvularia* sp. with disease intensity 82.67%, and AUDPC 72.94% higher than control. The pathogenic fungus *Chaetomium* sp. is the second most virulent fungus after *Curvularia* sp. with disease intensity 78.84% and AUDPC 68.68% higher than control. The pathogenic fungus *Fusarium* sp. is the lowest level of virulence with disease intensity 70.49% and AUDPC 54.47% higher than the control. The highest infection rate was *Chaetomium* sp. with 81.57% higher than the control treatment. The three pathogenic fungi did not show significant results in suppressing fresh weight, dry weight, plant height and number of leaves. *Cyperus rotundus* weed was the most susceptible to damage due to application of pathogenic fungi with disease intensity of 18.84% and AUDPC of 39.57%.*