

RINGKASAN

Gulma adalah vegetasi yang tumbuh pada lahan tanaman budidaya dan kehadirannya dapat merugikan tanaman lain yang ada di dekat atau di sekitarnya. Pengendalian alternatif yang ramah lingkungan perlu dicari. Pengendalian gulma secara hayati dipandang lebih aman dan menguntungkan menurut segi lingkungan. Penelitian ini bertujuan untuk 1) Mengetahui virulensi jamur patogen terhadap gulma berdaun sempit; 2) Mengetahui pengaruh jamur patogen terhadap gulma berdaun sempit di lapangan terbatas; 3) Mengetahui jenis gulma yang rentan terhadap tiga jenis jamur patogen.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman dan *Experimental Farm* Fakultas Pertanian Universitas Jenderal Soedirman. Penelitian dilaksanakan mulai Agustus sampai dengan November 2020. Rancangan yang digunakan adalah rancangan petak terbagi. Petak utama terdiri atas jamur patogen *Chaetomium* sp., *Fusarium oxysporum*, dan *Curvularia* sp. serta anak petak terdiri atas gulma *Cynodon dactylon*, *Cyperus rotundus*, *Eleusine indica*, *Echinochloa crus-galli*, dan *Cyperus beryifolus*. Variabel yang diamati adalah gejala dan tanda penyakit, masa inkubasi, intensitas penyakit, laju infeksi, *Area Under Disease Progres Curve* (AUDPC), bobot segar tanaman, bobot kering tanaman, tinggi tanaman, jumlah daun, dan pengamatan perkecambahan biji gulma.

Hasil penelitian ini menunjukkan bahwa Jamur patogen virulen terhadap gulma berdaun sempit terutama jamur *Curvularia* sp. yang ditunjukkan dengan masa inkubasi tercepat 20,53 hari. Jamur *F. oxysporum* dapat menekan perkecambahan biji rumput grinting sebesar 5,56%. Jamur *Chaetomium* sp. pada grinting yang ditunjukkan oleh kombinasi perlakuan jamur patogen dan gulma pada laju infeksi sebesar 30,75%, nilai AUDPC pada *C. rotundus* sebesar 3,01%, serta penurunan bobot segar akar *C. rotundus* sebesar 28,51%, bobot segar tajuk *C. rotundus* sebesar 33,78%, bobot kering akar *C. rotundus* sebesar 28,91%, bobot kering tajuk *C. rotundus* sebesar 26,64%, tinggi gulma *C. kyllingia* sebesar 7,84%, dan jumlah daun *C. rotundus* sebesar 17,43%. Jenis gulma yang paling rentan terhadap aplikasi jamur patogen *Curuvularia* sp. di lapangan terbatas yaitu *C. rotundus* ditunjukkan dengan intensitas penyakit sebesar 67,00%.

SUMMARY

Weeds presence can harm other cultivated plants near or around the weeds. Environmental friendly alternative controls need to be developed. Biological weed control is considered safer and environmentally benefit. This study aimed to determine virulence of pathogenic fungi against narrow leaf weeds; the effect of the fungi on the weeds in limited fields; and the most susceptible weeds towards the pathogenic fungi.

The study was conducted at the Plant Protection Laboratory, Experimental Farm, Agriculture Faculty of Jenderal Soedirman University from August to November 2020. Split plot design was used with main plot consisted of the pathogenic fungi (*Chaetomium* sp., *Fusarium oxysporum*, and *Curvularia* sp.) and subplots consisted of the weeds (*Cynodon dactylon*, *Cyperus rotundus*, *Eleusine indica*, *Echinochola crus-galli*, and *Cyperus Kyllingia*). Variables observed were symptoms and signs of disease, incubation period, disease intensity, infection rate, Area Under the Disease Progress Curve (AUDPC), weeds fresh and dry weight, weed height, number of leaves, and percentage of weed seed germination.

Results of this study indicated that the the pathogenic fungi were virulent against narrow leaved weeds, especially the fungus *Curvularia* sp. which is indicated by the fastest incubation period of 20.53 days. *F. oxysporum* can suppress the germination for *C. dactylon*, as 5,56%, *Chaetomium* sp. was the most virulent fungus against narrow leaf weeds in limited fields indicated by the fastest an infection rate in *C. rotundus* as 30,75%, AUDPC value in *C. rotundus* as 3,01%, decrease root fresh weight in *C. rotundus* as 28,51%, decrease canopy fresh weight in *C. rotundus* as 33,78%, reduce root dry weight in *C. rotundus* as 28,91%, canopy dry weight in *C. dactylon* as 26,64%, high growth in *C. kyllingia* as 7,84%, and number of *C. rotundus* leaves as 17,43%. The most susceptible weed towards application of *Curvularia* sp. in a limited field was *C. rotundus* indicated by the disease intensity as 67,00%.