

RINGKASAN

Pertumbuhan gulma di sekitar tanaman budidaya menyebabkan pertumbuhan tanaman terhambat, karena bersaing dalam memperebutkan air tanah, cahaya matahari, unsur hara, ruang tumbuh, dan udara. Pengendalian gulma yang dilakukan dengan aplikasi herbisida kimia berdampak negatif bagi makhluk hidup dan lingkungan. Adanya bahaya herbisida yang tinggi, maka perlu mencari alternatif teknik pengendalian yang aman, yaitu dengan pengendalian hayati menggunakan jamur patogen. Berdasarkan hal tersebut dilakukan penelitian dengan tujuan mengetahui jenis jamur patogen pada gulma daun lebar, mengetahui virulensi jamur patogen gulma daun lebar terhadap gulma daun lebar, dan mengetahui virulensi jamur patogen gulma daun lebar terhadap tanaman kacang tanah dan kedelai.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman dan *Screen House*, Fakultas Pertanian Universitas Jenderal Soedirman mulai bulan November 2018 sampai April 2019. Penelitian dilakukan dengan tiga tahap yaitu (1) eksplorasi jamur patogen gulma daun lebar; (2) uji virulensi terhadap gulma daun lebar menggunakan rancangan rancangan petak terbagi, diulang tiga kali. Petak utama terdiri atas tiga jamur patogen dan kontrol serta anak petak terdiri atas lima jenis gulma daun lebar; dan (3) uji virulensi terhadap tanaman budidaya menggunakan rancangan rancangan petak terbagi, diulang empat kali. Petak utama terdiri atas tiga jamur patogen dan kontrol serta anak petak terdiri atas dua jenis tanaman budidaya. Variabel pengamatan meliputi gejala penyakit, morfologi jamur patogen, masa inkubasi, intensitas penyakit, serta bobot segar gulma dan tanaman.

Hasil penelitian menunjukkan bahwa eksplorasi diperoleh jamur *Fusarium* sp., *Colletotrichum* sp., dan *Curvularia* sp. Jamur *Fusarium* sp., *Colletotrichum* sp., dan *Curvularia* sp. mampu meningkatkan intensitas penyakit pada *Ageratum conyzoides*, *Hyptis brevipes*, *Synedrella nodiflora*, *Emilia sonchifolia*, dan *Stachys arvensis* berturut-turut sebesar 37,78; 97,78; 31,11; 44,44; dan 35,56% oleh *Fusarium* sp., 44,44; 95,56; 28,89; 35,56; dan 46,67% oleh *Colletotrichum* sp., dan 51,11; 100; 28,89; 31,11; dan 26,67% oleh *Curvularia* sp. Ketiga jamur patogen tersebut mampu mempercepat masa inkubasi pada kacang tanah dan kedelai berturut-turut sebesar 61,43 dan 85,71% oleh *Fusarium* sp., 51,91 dan 89,51% oleh *Colletotrichum* sp., dan 57,14 dan 86,2% oleh *Curvularia* sp.

SUMMARY

Weeds growing around cultivated plants cause hampered growth of the plants because of competing ground water, sun light, nutrient, growth space, and air. Weeds controlled by herbicide application resulted in negative impact to the living creature and the environment. Because of the highest impact of herbicide, safety control alternative is needed by the use of biological control with pathogenic fungi. Based on that, this research aimed to know kinds of pathogenic fungi on broad leave weeds, their virulence on broad leave weeds, and on peanuts and soybeans.

The research was conducted at the Plant Protection Laboratory and Screen House, Faculty of Agriculture, Jenderal Soedirman University from November 2018 until April 2019. The research consisted of three stages, i.e.: (1) exploration of broad leave weeds fungal pathogens; (2) virulence test on broad leave weeds using split plot design repeated three times. The main plot consisted of three fungal pathogens and control and subplots consisted of five types of broad leave weeds; and (3) virulence test on cultivated plants using a split plot design repeated four times. The main plot consisted of three fungal pathogens and control and subplots consisted of soybeans and peanuts. Variables observed were disease symptoms, pathogen morphology, incubation period, disease intensity, fresh weight of weeds and crops.

Results of the research showed that the exploration found three fungal pathogens namely Fusarium sp., Colletotrichum sp., and Curvularia sp. The fungi were able to increase the disease intensity on Ageratum conyzoides, Hyptis brevipes, Synedrella nodiflora, Emilia sonchifolia, and Stachys arvensis as 37,78; 97,78; 31,11; 44,44; and 35,56%, respectively, by Fusarium sp., 44,44; 95,56; 28,89; 35,56; and 46,67%, respectively, by Colletotrichum sp., and 51,11; 100; 28,89; 31,11; and 26,67%, respectively, by Curvularia sp. The three fungal pathogens were able to accelerate the incubation period on peanuts and soybeans as 61,43 and 85,71%, respectively, by Fusarium sp., 51,91 and 89,51%, respectively, by Colletotrichum sp., and 57,14 and 86,2%, respectively, by Curvularia sp.