RINGKASAN

Cabai rawit banyak terserang patogen tular-benih yang disebabkan oleh bakteri, jamur, virus, dan nematoda. Sampai sekarang, penggunaan benih unggul yang tersedia dan belum ada jaminan benih tersebut sehat. Penelitian ini dilakukan dengan tujuan untuk 1) mengetahui jenis patogen tular-benih yang ada pada benih gagal berkecambah, 2) mengetahui lama perendaman kombinasi Bio P60 dan Bio T10 terhadap benih yang sesuai untuk mengendalikan penyakit tular-benih dan menghasilkan bibit cabai rawit sehat, 3) mengetahui konsentrasi kombinasi Bio P60 dan T10 yang efektif untuk mengendalikan penyakit tular-benih dan menghasilkan bibit cabai rawit sehat.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman dan Rumah Kaca Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Penelitian dilaksanakan dari bulan Oktober 2024 sampai Januari 2025. Perlakuan benih dengan menggunakan metabolit sekunder yang diformula. Perlakuan konsentrasi kombinasi metabolit sekunder Bio P60 dan Bio T10 meliputi kontrol, kombinasi Bio P60 5 mL/L dan Bio T10 10 mL/L, kombinasi Bio P60 5 mL/L dan Bio T10 20 mL/L, serta kombinasi Bio P60 10 mL/L dan Bio T10 10 mL/L. Perlakuan lama perendaman terdiri atas lama perendaman 30 dan 60 menit. Rancangan Acak Kelompok Lengkap digunakan dengan ulangan 4 kali. Pengamatan meliputi identifikasi patogen, insidensi penyakit, keserempakan tumbuh, kecepatan tumbuh, daya kecambah, potensi tumbuh maksimum, panjang akar, tinggi tanaman, jumlah daun, bobot kering dan bobot segar tanaman. Uji F dilakukan pada taraf kesalahan 5% dan Uji DMRT pada taraf kesalahan 5% dilakukan apabila uji F nyata.

Hasil penelitian menunjukkan pada benih cabai rawit gagal berkecambah ditemukan jamur patogen tular-benih *Culvularia lunata.* Perlakuan tunggal konsentrasi Bio P60 10 mL/L dan Bio T10 10 mL/L memberikan pengaruh nyata terhadap semua variabel pengamatan dengan penurunan persentase serangan patogen hingga 84,05% dan peningkatan tertinggi pada bobot kering mencapai 25%. Perlakuan tunggal lama perendaman 60 menit berbeda nyata terhadap variabel pengamatan tinggi tanaman dengan peningkatan 3,33% dan jumlah daun dengan persentase peningkatan mencapai 4,87%. Kombinasi perlakuan terbaik adalah Bio P60 10 mL/L dan Bio T10 10 mL/L dengan lama perendaman 30 menit mampu menurunkan penyakit hingga 85,89% serta meningkatkan bobot kering tertinggi mencapai 40%. Perlakuan ini efektif untuk mengendalikan patogen tular-benih dan menghasilkan bibit cabai rawit sehat.

SUMMARY

Bird's eye chili (Capsicum frutescens L.*) seeds are frequently attacked by seed-borne pathogens. Recently, the use of available superior seeds does not guarantee seed health. This study aimed to: 1) identify the types of seed-borne pathogens present in non-germinating seeds, 2) determine the optimal soaking duration of Bio P60 and Bio T10 combinations for controlling seed-borne pathogen and producing healthy germination, and 3) determine the effective concentration of the Bio P60 and T10 combined with soaking period for controlling the pathogen and producing the healthy bird's eye chili seedlings.*

The research was conducted at the Plant Protection Laboratory and the Greenhouse, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto, from October 2024 to January 2025. The research employed a Completely Randomized Block Design with four replicates and two factors. The first factor was concentration of combination Bio P60 and Bio T10 consisted of control, Bio P60 5 mL/L + Bio T10 10 mL/L, Bio P60 5 mL/L + Bio T10 20 mL/L, and Bio P60 10 mL/L + Bio T10 10 mL/L. The second one was soaking durations consisted of 30 and 60 minutes. Variables observed included pathogen identification, disease incidence, uniformity of emergence, germination speed, germination rate, maximum growth potential, root length, plant height, number of leaves, dry weight, and fresh weight of plants. ANOVA was performed at a 5% significance level, and DMRT was conducted at a 5% significance level if the ANOVA was significant.

The results showed that the seeds of bird's eye chili failed to germinate and the seed-borne pathogen Culvularia lunata *was found. The single treatment of Bio P60 10 mL/L and Bio T10 10 mL/L concentrations gave a significant effect on all observation variables with a decrease in the percentage of pathogen attack up to 84,05% and the highest increase in dry weight reaching 25%. The single treatment of 60 minutes soaking time was significantly different on the observation variable of plant height with an increase of 3.33% and the number of leaves with a percentage increase of 4.87%. The best combination treatment was Bio P60 10 mL/L and Bio T10 10 mL/L with 30 minutes of soaking time which was able to reduce the disease up to 85.89% and increase the highest dry weight to 40%. This treatment was effective to control seed-borne pathogens and produce healthy chilli seedlings.*