

RINGKASAN

Penelitian ini bertujuan untuk (1) mendapatkan formula biopestisida berbasis *B.subtilis* B1 yang paling efektif dalam mengendalikan penyakit penting pada tanaman jagung manis di lapangan, (2) mendapatkan formula biopestisida berbasis *B. subtilis* B1 yang paling efektif dalam pertumbuhan dan hasil tanaman jagung manis di lapangan.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman Fakultas Pertanian Universitas Jenderal Soedirman dan lahan percobaan Fakultas Pertanian, Kelurahan Karangwangkal, Kecamatan Purwokerto Utara, Kabupaten Banyumas pada bulan Maret sampai Agustus 2017. Percobaan yang dilakukan menggunakan Rancangan Acak Kelompok Lengkap (RAKL), terdiri dari tujuh perlakuan: A: Yeast Ekstrak 0,25%+Ekstrak Kentang+Air Kelapa+*B. subtilis* B1, B: Yeast Ekstrak 0,25%+Ekstrak Kentang+*B. subtilis* B1; C: Yeast Ekstrak 0,25%+Air Kelapa+ *B. subtilis* B1; D: Yeast Ekstrak 0,25%+ *B. subtilis* B1, E: *B. subtilis* B1, F: Bakterisida berbahan aktif tembaga oksida 56%. Variabel yang diamati adalah tinggi tanaman (cm), jumlah daun (helai), diameter batang (cm), umur berbunga (hst), bobot tanaman segar (g), bobot tongkol segar (g), bobot tanaman kering (g), bobot tongkol kering (g) dan intensitas penyakit (skor).

Hasil penelitian menunjukkan bahwa (1) Formula biopestisida berbasis *B. subtilis* B1 memberikan pengaruh terhadap variabel penyakit yaitu karat daun dan busuk pelepah. Formula biopestisida berbasis *B. subtilis* B1 belum efektif dalam menekan penyakit karat daun dan busuk pelepah dibandingkan dengan bakterisida berbahan aktif tembaga oksida 56%. (2) Formula biopestisida berbasis *B. subtilis* B1 memberikan pengaruh terhadap variabel pertumbuhan yaitu diameter batang. Namun tidak berpengaruh pada tinggi tanaman, jumlah daun dan variabel hasil tanaman. (3) Diameter batang terbaik formula biopestisida berbasis *B. subtilis* B1 dicapai pada formula B dan formula C sama dengan formula A, D, E, F dan K.

Kata Kunci : jagung manis, biopestisida, *B. subtilis*, penyakit penting, pertumbuhan.

SUMMARY

*This research aimed to (1) obtaining biopesticide formula based *B. subtilis* B1 is most effective in controlling important diseases in sweet corn plants in the field, (2) obtaining biopesticide formula based *B. subtilis* B1 that is most effective in the growth and yield of sweet corn crops in the field.*

*This research was conducted at Plant Protection Laboratory of Agriculture Faculty of Jenderal Soedirman University and experimental field of Agricultural Faculty, Karangwangkal Subdistrict, North Purwokerto District, Banyumas Regency from March to August 2017. The experiments conducted using Randomized Complete Block Design (RCBD), consisted of seven treatments: A: Yeast Extract 0.25% + Potato Extract + Coconut Water + *B. subtilis* B1, B: Yeast Extract 0.25% + Potato Extract + *B. subtilis* B1; C: Yeast Extract 0.25% + Coconut Water + *B. subtilis* B1; D: Yeast Extract 0.25% + *B. subtilis* B1, E: *B. subtilis* B1, F: Bactericides with activated copper oxide 56%. The variables observed were plant height (cm), number of leaves (stem), stem diameter (cm), flowering age (hst), fresh plant weight (g), fresh cob weight (g), dry plant weight (g) dry cobs (g) and disease intensity (score).*

*The results of research showed that: (1) Biopesticide formula based *B. subtilis* B1 gives effect to disease variables that is rust leaf and midrib rot. Biopesticide formula based *B. subtilis* B1 has not been effective in suppressing leaf rust and rot of rust compared with bactericide with active copper oxide of 56%. (2) Biopesticide formula based *B. subtilis* B1 gives effect to growth variable that is stem diameter. However, no effect on plant height, number of leaves and plant yield variables. (3) The best stem diameter of biopesticide formula based *B. subtilis* B1 is achieved in the B formula and C formula equals the A, D, E, F and K formula.*

Keywords: *sweet corn, biopesticide, *B. subtilis*, important diseases, growth.*