

RINGKASAN

Hawar daun bakteri (*bacterial leaf blight*) adalah salah satu penyakit penting padi yang dapat menginfeksi pada semua stadia padi, disebabkan oleh *Xanthomonas oryzae*. Busuk pelepah (*sheath rot*) adalah penyakit penting yang menyerang tanaman padi pada stadia generatif, disebabkan oleh jamur patogen *Sarocladium oryzae*. Pupuk NZEO-SR Plus dengan kandungan silika dapat berperan meningkatkan ketahanan tanaman. Pupuk NPK, Urea, SP-20, dan KCl merupakan pupuk yang sering digunakan oleh petani. Pemberian kompos dapat digunakan untuk memperbaiki kondisi tanah akibat pupuk anorganik. Penelitian mengenai kombinasi pemupukan N, P, K (NPK, NZEO-SR Plus, Urea, SP-20, dan KCl) dan kompos terhadap penyakit hawar daun bakteri dan busuk pelepah belum dilakukan. Penelitian ini bertujuan untuk: (1) mengetahui dampak kombinasi pupuk N, P, K terhadap penyakit padi, (2) mengetahui dampak pupuk kompos terhadap penyakit padi.

Penelitian dilaksanakan di kebun atap (*rooftop garden*) yang berlokasi di Kelurahan Purwokerto Utara, Kecamatan Purwokerto, Kabupaten Banyumas dan Laboratorium Perlindungan Tanaman Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) dengan dua faktor perlakuan. Faktor pertama adalah macam pupuk N, P, K (P) yaitu P1= Pupuk Urea 1,35 gram/pot + NPK 1,89 gram/pot; P2= Pupuk NZEO-SR Plus 4,55 gram/pot + NPK 1,89 gram/pot; P3= Pupuk NZEO-SR Plus 4,55 gram/pot + KCl 0,5 gram/pot + SP-20 1,51 gram/pot diaplikasikan di awal; P4= Pupuk NZEO-SR Plus 4,55 gram/pot + KCl 0,5 gram/pot + SP-20 1,51 gram/pot diaplikasikan bertahap. Faktor kedua yaitu pupuk kompos (K), K0 = Pupuk Kompos 0 gram/pot, dan K1= Pupuk Kompos 1000 gram/pot. Data yang diamati berupa pengamatan gejala penyakit yang muncul pada tanaman padi, tingkat serangannya dihitung dengan persentase kejadian penyakit dan intensitas penyakit. Variabel pendukung yaitu tinggi tanaman, jumlah anakan, umur berbunga, jumlah anakan produktif, bobot gabah panen. Data persentase gabah hampa dihitung untuk mengetahui besarnya kehilangan hasil akibat penyakit.

Hasil penelitian yaitu gejala hawar daun bakteri (*Xanthomonas oryzae*) ditandai dengan adanya bercak abu-abu pada ujung tepi daun yang menyebar ke arah pinggir daun secara tidak merata dan akhirnya daun mengering secara keseluruhan. Intensitas penyakit 28,63 % - 32,62% dengan kategori sedang. Kombinasi pupuk N, P, K tidak berpengaruh pada intensitas penyakit, sedangkan pemberian kompos meningkatkan intensitas penyakit sebesar 32,27%. Busuk pelepah (*Sarocladium oryzae*) menunjukkan gejala berupa bercak dengan bentuk memanjang berwarna coklat kehitaman pada bagian pelepah atas padi, gabah menghitam menghitam dan pengisian bulir tidak sempurna. Perlakuan P3=Pupuk NZEO-SR Plus 4,55 gram/pot + KCl 0,5 gram/pot + SP-20 1,51 gram/pot diaplikasikan di awal mampu menekan kejadian penyakit di angka 44,51%. Pemberian kompos tidak berbeda nyata pada busuk pelepah. Pupuk NPK+Urea menunjukkan hasil yang lebih baik pada variabel pertumbuhan tanaman yaitu jumlah anakan 34,63 anakan, anakan produktif 26,13 anakan, dan bobot panen 102

gram. Berdasarkan persentase gabah hampa, perlakuan terbaik yaitu pada NZEO-SR Plus 4,55 gram/pot + KCl 0,5 gram/pot + SP-20 1,51 gram/pot yang diberikan pada awal tanam sebesar 10,48%, sedangkan NPK+Urea menunjukkan kehilangan tertinggi 17,67%. Tidak ada interaksi antara pupuk N, P, K dan pupuk kompos.

Kunci: intensitas, kejadian, NZEO-SR Plus, silika, *Xanthomonas oryzae*, *Sarocladium oryzae*



SUMMARY

*Bacterial leaf blight is an important disease of rice that can infect all stages of rice, caused by *Xanthomonas oryzae*. Sheath rot is an important disease that attacks rice plants in the generative stage, caused by the pathogenic fungus *Sarocladium oryzae*. NZEO-SR Plus fertilizer with silica content can play a role in increasing plant resistance. NPK, Urea, SP-20, and KCl fertilizers are fertilizers that are often used by farmers. Providing compost can be used to improve soil conditions due to inorganic fertilizers. Research on the combination of N, P, K fertilization (NPK, NZEO-SR Plus, Urea, SP-20, and KCl) and compost against bacterial leaf blight and sheath rot has not been carried out. This research aims to: (1) determine the impact of the combination of N, P, K fertilizer on rice diseases, (2) determine the impact of compost fertilizer on rice diseases.*

The research was carried out in a rooftop garden located in North Purwokerto Village, Purwokerto District, Banyumas Regency and the Plant Protection Laboratory, Faculty of Agriculture, Jenderal Soedirman University. This research used a Randomized Group Design (RGD) with two treatment factors. The first factor is the type of N, P, K (P) fertilizer, namely P1 = Urea Fertilizer 1.35 grams/pot + NPK 1.89 grams/pot; P2= NZEO-SR Plus Fertilizer 4.55 grams/pot + NPK 1.89 grams/pot; P3= NZEO-SR Plus Fertilizer 4.55 grams/pot + KCl 0.5 grams/pot + SP-20 1.51 grams/pot applied at the beginning; P4= NZEO-SR Plus fertilizer 4.55 grams/pot + KCl 0.5 grams/pot + SP-20 1.51 grams/pot applied gradually. The second factor is compost fertilizer (K), K0 = Compost Fertilizer 0 grams/pot, and K1 = Compost Fertilizer 1000 grams/pot. The data observed is in the form of observations of disease symptoms that appear on rice plants, the level of attack is calculated by the percentage of disease incidence and disease intensity. The supporting variables are plant height, number of tillers, flowering age, number of productive tillers, weight of harvested grain. Data on the percentage of empty grain is calculated to determine the amount of yield loss due to disease.

*The results of the research are that the symptoms of bacterial leaf blight (*Xanthomonas oryzae*) are characterized by the presence of gray spots on the edges of the leaves which spread towards the edges of the leaves unevenly and eventually the leaves dry out completely. Disease intensity 28.63% - 32.62% in the moderate category. The combination of N, P, K fertilizers had no effect on disease intensity, while compost application increased disease intensity by 32.27%. Sheath rot (*Sarocladium oryzae*) shows symptoms in the form of elongated blackish brown spots on the upper sheath of rice, blackened grain and incomplete grain filling. Treatment P3 = NZEO-SR Plus Fertilizer 4.55 grams/pot + KCl 0.5 grams/pot + SP-20 1.51 grams/pot applied at the beginning was able to reduce the incidence of disease with number 44.51%. Provision of compost did not significantly differ in*

sheath rot. NPK+Urea fertilizer showed better results in plant growth variables, namely number of tillers 34.63, productive tillers 26.13, and harvest weight 102 grams. Based on the percentage of empty grain, the best treatment was NZEO-SR Plus Fertilizer 4.55 grams/pot + KCl 0.5 grams/pot + SP-20 1.51 grams/pot given at the beginning of planting at 10.48%, while NPK+Urea showed the highest loss of 17.67%. There is no interaction between N, P, K fertilizer and compost fertilizer.

Key: intensity, incidence, NZEO-SR Plus, silica, *Xanthomonas oryzae*, *Sarocladium oryzae*

