

RINGKASAN

Penyakit kerdil pisang merupakan salah satu penyakit penting tanaman pisang yang disebabkan oleh *Banana bunchy top virus* (BBTV) dan disebarkan oleh kutu daun *Pentalonia Nigronevosa*. Pengendalian penyakit tanaman yang disebabkan oleh virus, saat ini masih kurang efektif karena belum terdapat bahan kimia yang mampu mengendalikan virus. Tindakan preventif yang dapat dilakukan saat ini yaitu mencegah tersebarnya vektor pembawa virus, serta melakukan sanitasi lingkungan. Bakteri endofit merupakan bakteri yang hidup di dalam jaringan tanaman dan mampu meningkatkan pertumbuhan tanaman serta ketahanan tanaman terhadap patogen. Penelitian ini bertujuan untuk mengetahui respon empat kultivar pisang yang diinduksi dua bakteri endofit terhadap ketahanan dan pertumbuhan empat kultivar pisang yang diinfeksi BBTV.

Penelitian dilaksanakan dalam dua tahapan yaitu tahap infeksi patogen yang dilaksanakan di Screen house Fakultas Pertanian dan tahap kedua yaitu analisis fitokimia dilaksanakan di Laboratorium Perlindungan Tanaman Universitas Jenderal Soedirman. Rancangan yang digunakan pada penelitian ini yaitu Rancangan Petak Terbagi terdiri dari dua faktor yaitu bakteri endofit dan kultivar pisang, yang meliputi kultivar Mas, Cavendish, Kepok, dan Raja. Variabel pengamatan terdiri atas masa inkubasi, gejala penyakit, intensitas penyakit, *Area Under Disease Progress Curve* (AUDPC), nilai kerentanan, *Lateral Flow Assay* (LFA), analisis fitokimia, tinggi tanaman, jumlah daun, kadar klorofil, dan luas daun. Data dianalisis dengan ANOVA pada taraf 95% hasil yang menunjukkan pengaruh nyata dilanjutkan dengan DMRT (*Duncan's Multiple Range Test*) pada taraf kesalahan 5%.

Berdasarkan penelitian yang telah dilakukan tersebut, dapat disimpulkan bahwa aplikasi bakteri endofit A3 dan A4 mampu meningkatkan ketahanan empat kultivar tanaman pisang terhadap infeksi BBTV, meliputi kultivar Raja, Kepok dan Mas. Bakteri endofit A3 dan A4 tidak berpengaruh nyata terhadap komponen pertumbuhan tanaman, tetapi berpengaruh nyata terhadap kandungan klorofil a, b dan total.

SUMMARY

Banana bunchy top disease is an important disease of banana caused by banana bunchy top virus (BBTV), which is transmitted by Pentalonia nigronervosa. Management control of the virus disease is currently less effective because there are no pesticides that can control the viruses. Preventive measures can prevent the spread of virus's vector, which can be done with environmental sanitation activities. Endophytic bacteria are a type of bacteria in which live and associate with plant tissue and to enhance plant growth and provide resistance in plant from pathogens. The objectives of this study are to test the response four cultivars of banana has been induction of two endophytic bacteria on the resistance and banana plant growth four cultivar banana plant has been infected by BBTV.

The research was conducted in two stages, including infection BBTV was conducted in screen house of Faculty of Agriculture, Jenderal Soedirman University and the phytochemicals analysis was conducted in Plant Protection Laboratory Faculty of Agriculture, Jenderal Soedirman University. The experimental design used was a split plot design and consisted of two factors which includes induction endophytic bacteria and cultivar banana seedlings which included cultivar Raja, Cavendish, Mas and Kepok. The observed parameters were incubation period, symptom expression disease, disease intensity, area under disease progression curve (AUDPC), susceptibility level, lateral flow assay (LFIA), phytochemical analysis, plant height, number of leaves, chlorophyll content and leaf area. The data were analyzed by ANOVA, and if the results obtained showed a significant effect, then DMRT (Duncan's Multiple Range Test) was continued at the 5% level of error.

According to this research conducted, it can be concluded that application of endophytic bacteria A3 and A4 can increase the resistance of four banana cultivars against BBTV infection, including cultivars Raja, Kepok and Mas. However, endophytic bacteria A3 and A4 had no significant effect on plant growth components, but it showed an important effect on chlorophyll a, b, and total chlorophyll.