RINGKASAN

enyakit kerdil atau *Banana bunchy top disease* (BBTD) merupakan penyakit penting pada tanaman pisang yang disebabkan oleh *Banana bunchy top virus* (BBTV). Virus ditularkan melalui vektor *Pentalonia nigronervosa*. Penyakit kerdil ditandai dengan gejala berupa garis dan titik berwarna hijau tua pada bagian tangkai daun, ukuran daun mengecil dan memendek serta daun tumbuh bergerombol atau membentuk roset lalu tumbuh tegak. Salah satu upaya pengendalian penyakit ini adalah dengan peningkatan ketahanan tanaman pisang dengan aplikasi bakteri endofit. Penelitian ini bertujuan untuk 1) Mengetahui peranan empat bakteri endofit (*Bacillus* sp., *Serratia* sp., *Enterobacter* sp., dan *Stenotrophomonas* sp.) pada ketahanan tanaman pisang terinfeksi BBTV, dan 2) Menentukan potensi empat bakteri endofit terhadap pertumbuhan tanaman pisang.

Penelitian ini dilaksanakan di *Screenhouse* dan Laboratorium Perlindungan Tanaman Fakultas Pertanian Universitas Jenderal Soedirman, mulai bulan Januari hingga Juli 2025. Kegiatan penelitian ini meliputi koleksi tanaman uji, *rearing P. nigronervosa*, pembuatan suspensi dan aplikasi bakteri endofit, penularan BBTV, pengamatan dan analisis data. Penelitian dilakukan menggunakan Rancangan Acak Lengkap (RAL) 2 faktor. Faktor pertama adalah kultivar pisang meliputi yaitu kultivar Cavendish dan Kepok dan faktor kedua adalah bakteri endofit meliputi B1=Bakteri *Bacillus* sp., B2= Bakteri *Serratia* sp., B3= Bakteri *Enterobacter* sp., dan B4=Bakteri *Stenotrophomonas* sp. dan setiap perlakuan diulang sebanyak 4 kali sehingga diperoleh 48 tanaman. Variabel yang diamati meliputi intensitas penyakit, nilai AUDPC, komponen biokimia, fisiologi dan parameter agronomis.

Hasil penelitian diperoleh bahwa aplikasi keempat bakteri endofit mampu berperan dalam meningkatkan ketahanan tanaman pisang terhadap infeksi BBTV, terutama bakteri endofit *Stenotrophomonas* sp. Aplikasi ketiga bakteri endofit menunjukkan peranan dalam meningkatkan pertumbuhan tanaman meliputi bakteri *Bacillus velezensis, Serratia* sp *Stenotrophomonas* sp. Sedangkan, *Enterobacter* sp. tidak memberikan pengaruh pada pertumbuhan tanaman.

SUMMARY

Banana bunchy top disease (BBTD) is an important disease caused by the Banana Bunchy top Virus (BBTV) which is spread by the Pentalonia nigronervosa. Infection of this disease is characterized by dark green lines and dots on the lowest portion of the leaf stalk, shrinking and shortening of leaf size, and growth of leaves in clusters or forming a rosette, followed by upright growth. One method for controlling this illness is to increase banana plant resistance through the use endophytic bacteria. This studi seeks to 1) evaluate the influence of four endophytic bacteria (Bacillus sp., Serratia sp., Enterobacter sp., and Stenotrophomonas sp.) on the resistance of banana plants infected with BBTV, and 2) determine the potential of four endophytic bacteria on the growth of banana plants.

This research was conducted at the Screenhouse and Plant Protection Laboratory of the Faculty of Agriculture, Jenderal Soedirman University, from January to July 2025. This research began with several stages including collection of test plants, rearing banana aphids, preparation of suspensions and application of endophytic bacteria, transmission of BBTV, observation and data analysis. This research was conducted using a Completely Randomized Design (CRD) including 2 factors Cavendish and Kepok cultivars with 6 treatments namely K1=Healthy control, K2=Pain control, B1=Bacillus velezensis. bacteria, B2=Serratia sp. bacteria, B3=Enterobacter sp. bacteria and B4=Stenotrophomonas sp. bacteria and each treatment repeated 4 times to obtain 48 plants. The variables observed included disease intensity, AUDPC value, components biochemical, physiological and physiological agronomic.

The results of the study shows that the application of the four endophytic bacteria was able to play a role in increasing the resistance of banana plants to BBTV infection, especially the endophytic bacteria Stenotrophomonas sp. Application of the three endophytic bacteria showed its role in increasing plant growth, including the bacteria Bacillus velezensis, Serratia sp., and Stenotrophomonas sp. Enterobacter sp. did not have an effect on plant growth..