# RINGKASAN

Jagung merupakan komoditas pangan utama yang menduduki peringkat kedua setelah padi di Indonesia. Produksi jagung masih terkendala oleh adanya penyakit tanaman salah satunya adalah penyakit busuk pelepah yang disebabkan oleh jamur *Rhizoctonia solani* Kuhn. Penyakit hawar pelepah ini mampu menimbulkan kerugian hingga 100%. Oleh sebab itu dibutuhkan cara untuk mengendalikan penyakit tersebut salah satunya dengan memanfaatkan agensia hayati bakteri *Bacillus* sp. endofit tanaman jagung. Tujuan penelitian ini yaitu untuk mengetahui pengaruh bakteri antagonis *Bacillus* sp. endofit tanaman jagung terhadap patogen *R. solani* dan terhadap pertumbuhan tanaman jagung.

Penelitian dilakukan di Laboratorium Perlindungan Tanaman dan di Rumah Kaca, Fakultas Pertanian, Universitas Jenderal Soedirman, mulai April 2018 sampai Januari 2019. Isolat bakteri antagonis diperoleh melalui kegiatan eksplorasi yang dilakukan di Kabupaten Banyumas (Sumbang, Kembaran, Baturraden) dan di Kabupaten Purbalingga (Padamara, Bojongsari, Pratin). Pengambilan sampel tanaman menggunakan metode *Diagonal Sampling.* Percobaan dilakukan dengan Rancangan Acak Kelompok (RAK) dengan jumlah perlakuan sebanyak 5 perlakuan dan diulang sebanyak 5 kali. Variabel yang diamati meliputi karakteristik bakteri endofit dan jamur patogen, diameter penghambatan, masa inkubasi, tinggi tanaman, jumlah daun, panjang akar, bobot segar tanaman, bobot segar tajuk, bobot segar akar, intensitas penyakit, kejadian penyakit dan AUDPC.

Hasil percobaan diperoleh 15 isolat bakteri *Bacillus* sp. endofit. Bakteri endofit yang mampu menghambat jamur patogen adalah isolat bakteri PD A.4 dan BK A.1 dengan masing masing nilai penghambatan sebesar 56.93% dan 51.5 %. Perlakuan perendaman menggunakan bakteri antagonis endofit BK A.1 mampu menekan intensitas penyakit sebesar 59.377%, dan nilai AUDPC 34.19%. Bakteri endofit berpengaruh terhadap komponen pertumbuhan yaitu tinggi tanaman sebesar 24.098%.

## *SUMMARY*

*Corn in Indonesia is a second major food commodity after rice. Corn production is still constrained by plant diseases, one of the diseases is sheath bligh it caused by Rhizoctonia solani* Kuhn. *The disease could result in losses up to 100%. Therefore, control of the diseases is needed, and one the control is the used of biological agents such as endophytic bacteria Bacillus* sp. *from corn. The aimed of this research was know the effect of thr endophytic bacteria on R. solani andon corn growth.*

*The research was conducted at the Plant Protection Laboratory and in the Greenhouse, Faculty of Agriculture, Jenderal Soedirman University, start on April 2018 until January 2019. The antagonistic bacterial isolates were obtained through exploration activities carried out in Banyumas Regency (Sumbang, Kembaran, Baturraden) and Purbalingga Regency (Padamara, Bojongsari, Pratin). Taking plant samples using Purposive Random Sampling method and Diagonal Sampling method. The taking of plant samples was carried out by randomized block design (RBD) with the number of treatments as much as 5 treatments and repeated 5 times. The variables observed included the characteristics of endophytic bacteria and pathogenic fungi, inhibition diameter, incubation period, plant height, leaf number, root length, plant fresh weight, canopy fresh weight, root fresh weight, disease intensity, incidence of disease and AUDPC.*

*Results of the research that 15 isolates of endophytic Bacillus sp. were obtained. The endophytic bacteria were able to inhibit the pathogenic fungi were PD A.4 and BK A.1 isolates indicated by inhibition of 56.93% and 51.5%. Soaking in the endophytic bacteria could suppress the diseases intensity and AUDPC value as 59.377%, and 34.19% respectively. Endophytic bacteria influence plant growth components such as plant height 24.098%*