

## RINGKASAN

Bawang merah merupakan salah satu komoditas sayuran yang mempunyai arti penting bagi masyarakat baik dilihat dari nilai ekonomisnya yang tinggi maupun dari kandungan gizinya. Permintaan bawang merah akan terus meningkat seiring dengan kebutuhan masyarakat yang terus meningkat karena adanya penambahan jumlah penduduk, semakin berkembangnya industri makanan dan pengembangan pasar. Rendahnya produksi bawang merah disebabkan oleh berbagai faktor, salah satunya yaitu kurangnya teknologi budidaya yang dapat menunjang peningkatan produktivitas tanaman bawang merah yang ramah lingkungan dan berkelanjutan. Secara umum peningkatan produksi pertanian dapat dicapai melalui dua cara, salah satunya dengan meningkatkan produktivitas lahan melalui penerapan teknologi inovatif yaitu dengan pemanfaatan PGPE (*Plant Growth Promoting Endophytes*). Penelitian ini bertujuan untuk (1) Mengevaluasi potensi bakteri endofit akar padi dalam meningkatkan pertumbuhan dan hasil bawang merah, dan (2) Mendapatkan isolat bakteri endofit akar padi yang efektif dalam meningkatkan pertumbuhan dan hasil bawang merah.

Penelitian terbagi ke dalam dua tahap yaitu uji potensi bakteri endofit yang dilaksanakan di Laboratorium Perlindungan Tanaman dan uji *in planta* dilaksanakan di *screen house* yang terletak di Dusun I Desa Tambaksari Kidul, Kecamatan Kembaran, Kabupaten Banyumas, pada bulan Januari sampai dengan Agustus 2022. Data uji potensi bakteri endofit akar padi dianalisis secara deskriptif dan data *in planta* dianalisis dengan menggunakan Rancangan Acak Kelompok (RAK) non faktorial. Jumlah perlakuan yang diujikan sebanyak 6 perlakuan dan 4 kali ulangan sehingga terdapat 24 unit percobaan, setiap unit percobaan terdapat 4 polibag sehingga diperoleh 96 polibag. Setiap polibag terdiri atas 2 tanaman. Perlakuan meliputi tanpa pemberian bakteri endofit (E0), aplikasi bakteri endofit A5 (E1), aplikasi bakteri endofit A6 (E2), aplikasi bakteri endofit KR4 (E3), aplikasi bakteri endofit KR7 (E4), dan aplikasi bakteri endofit SB3 (E5).

Hasil menunjukkan bakteri endofit berpotensi meningkatkan pertumbuhan tanaman, dengan menghasilkan enzim kitinase, selulase, protease, IAA, siderofor, pelarut fosfat dan HCN, akan tetapi bakteri endofit isolat A5, A6, KR4 dan SB3 belum mampu memacu pertumbuhan dan hasil bawang merah, namun pada perlakuan bakteri isolat KR7 dapat meningkatkan kehijauan daun dan panjang akar.

## SUMMARY

*Shallots are a vegetable commodity that has important meaning for the community, both in terms of its high economic value and nutritional content. The demand for shallots will continue to increase in line with the increasing needs of the community due to an increase in population, the growing food industry and market development. The low production of shallots is caused by various factors, one of which is the lack of cultivation technology that can support increased productivity of shallots that are environmentally friendly and sustainable. In general, increased agricultural production can be achieved in two ways, one of which is by increasing land productivity through the application of innovative technology, namely by utilizing PGPE (Plant Growth Promoting Endophytes). This study aims to (1) evaluate the potential of rice root endophytic bacteria in increasing the growth and yield of shallots, and (2) obtain isolates of endophytic rice root bacteria that are effective in increasing the growth and yield of shallots.*

*The research was divided into two stages, namely the potential test of endophytic bacteria carried out at the Plant Protection Laboratory and the in planta test carried out at a screen house located in Hamlet I, Tambaksari Kidul Village, Kembaran District, Banyumas Regency, from January to August 2022. Potential test data rice root endophytic bacteria were analyzed descriptively and in planta data were analyzed using a non-factorial Randomized Block Design (RBD). The number of treatments tested was 6 treatments and 4 replications so that there were 24 experimental units, each experimental unit had 4 polybags so that 96 polybags were obtained. Each polybag consists of 2 plants. Treatments included without application of endophytic bacteria (E0), application of endophytic bacteria A5 (E1), application of endophytic bacteria A6 (E2), application of endophytic bacteria KR4 (E3), application of endophytic bacteria KR7 (E4), and application of endophytic bacteria SB3 (E5).*

*The results showed that endophytic bacteria have the potential to increase plant growth, by producing the enzymes chitinase, cellulase, protease, IAA, siderophores, phosphate solvents and HCN, but the endophytic bacteria isolates A5, A6, KR4 and SB3 have not been able to stimulate the growth and yield of shallots, but in treatment of bacterial isolate KR7 can increase the greenness of leaves and root length.*