

Intisari

PERANAN RHIZOBAKTERI OSMOTOLERAN DALAM PERTUMBUHAN DAN HASIL BAWANG MERAH (*Allium ascalonicum* L.) PADA CEKAMAN KEKERINGAN DI TANAH PASIR PANTAI

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Penelitian ini bertujuan untuk mengetahui peranan inokulum rhizobakteri osmotoleran dalam pertumbuhan dan hasil bawang merah, serta untuk mengetahui stabilitas inokulum rhizobakteri osmotoleran pada kondisi cekaman kekeringan di tanah pasir pantai. Tanaman bawang merah ditanam di polybag selama 65 hari dengan kondisi cekaman kekeringan pada aras lengas 60% kapasitas lapang dan diinokulasi dengan inokulum rhizobakteri osmotoleran Al-19. Pertumbuhan dan hasil bawang merah diamati dengan mengukur tinggi tajuk, panjang akar, berat kering tajuk, berat kering akar, jumlah umbi dan berat kering umbi bawang merah. Stabilitas inokulum rhizobakteri osmotoleran selama masa tanam, ditentukan berdasarkan penghitungan populasi mikrobia dengan metode *plate count*. Hasil penelitian ini menunjukkan bahwa inokulasi rhizobakteri osmotoleran dapat meningkatkan tinggi tajuk sebesar 2,50–20,33%, berat kering tajuk sebesar 12,23–80,36%, jumlah umbi sebesar 0–85,71%, dan berat kering umbi bawang merah sebesar 0–60,06% jika dibandingkan dengan perlakuan tanpa inokulasi. Inokulasi rhizobakteri osmotoleran di tanah pasir pantai dapat menghasilkan pertumbuhan dan hasil bawang merah yang lebih baik jika dibandingkan dengan di tanah pasir pantai asli pada kondisi cekaman kekeringan. Penelitian ini juga menunjukkan bahwa inokulum rhizobakteri osmotoleran pada rhizosfer tanaman bawang merah yang ditanam di tanah pasir pantai, populasinya stabil.

Kata kunci: bawang merah, rhizobakteri osmotoleran, cekaman kekeringan, tanah pasir pantai

Abstract

THE ROLE OF OSMOTOLERANT RHIZOBACTERIA ON SHALLOT
(*Allium ascalonicum* L.) GROWTH AND YIELD UNDER
DROUGHT STRESS IN COASTAL SANDY SOIL

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The aim of this study was to investigate the role of osmotolerant rhizobacteria on shallot growth and yield, as well as to determine the population stability of osmotolerant rhizobacteria under drought stress. Shallot was grown on a coastal sandy soil in polybag for 65 days and inoculated with osmotolerant rhizobacteria isolates Al-19, in which the water level was adjusted to 60% of field capacity. Growth and yield of shallot was observed by measuring the shoot height, root length, shoot dry weight, root dry weight, number of bulbs, and bulbs dry weight. Population stability of osmotolerant rhizobacteria during the cultivation period was observed by plate count method. It was observed that inoculation of osmotolerant rhizobacteria on shallot resulted in the increase of shoot height, shoot dry weight, number of bulbs, and bulbs dry weight of 2.50–20.33%, 12.23–80.36%, 0–85.71%, and 0–60.06%, respectively. It was also noted that the use of rhizobacterial inoculation in coastal sandy soil resulted in the improved growth and yield of shallot as compared to the pure coastal sandy soil under drought stress. The results of this study also demonstrated that osmotolerant rhizobacteria showed growth stability in coastal sandy soil.

Keywords: shallot, osmotolerant rhizobacteria, drought stress, coastal sandy soil.