

## Intisari

Penelitian ini dilakukan untuk mengetahui peranan rhizobakteri osmotoleran AI-19 terhadap pertumbuhan dan hasil kangkung darat (*Ipomoea reptans* Poir) dalam cekaman kekeringan. Penelitian dilakukan menggunakan rancangan acak lengkap, terdiri atas 4 faktor yakni inokulasi rizobakteri osmotoleran AI-19, lama kekeringan, jenis tanah, dan sterilisasi tanah. Hasil penelitian menunjukkan rhizobakteri osmotoleran AI-19 meningkatkan pertumbuhan dan hasil tanaman kangkung darat dalam cekaman kekeringan. Rhizobakteri osmotoleran AI-19 meningkatkan berat kering akar (46,7%), berat kering daun (19,2%), berat kering batang (16,3%), tinggi tajuk (30,5%), jumlah daun (12,7%), luas daun (21,3%), panjang akar (12,6%), rasio akar/tajuk (21,1%), dan produktivitas (17,1%) kangkung darat dibandingkan kontrol. Populasi rhizobakteri osmotoleran AI-19 menunjukkan penurunan setelah inokulasi ( $2,96 \times 10^5$  CFU/gram tanah) tetapi kemudian mengalami peningkatan seiring puncak pertumbuhan vegetatif tanaman ( $7,41 \times 10^5$  CFU/gram tanah). Rhizobakteri osmotoleran AI-19 menunjukkan ketahanan terhadap berbagai periode kekeringan. Selain itu juga didapati tanah pasir pantai non-budidaya memberikan faktor lingkungan yang sesuai sehingga memberikan populasi mikroba lebih tinggi dibandingkan tanah pasir pantai budidaya.

Kata kunci : tanah pasir pantai, cekaman kekeringan, *Ipomoea reptans* Poir, rhizobakteri osmotoleran AI-19.

### *Abstract*

This study was conducted to determine the role of osmotolerant rhizobacteria AI-19 on the growth and yield of *Ipomoea reptans* Poir under drought stress. The study was conducted using a completely randomized design consisting of 4 factors, i.e. inoculation of osmotolerant rhizobakteri AI-19, drought periode, soil type, and soil sterilisation. The results showed that osmotolerant rhizobacteria AI-19 increased the growth and yield of *I. reptans* Poir under drought stress. Osmotolerant rhizobacteria AI-19 increased root dry weight (46,7%), leaf dry weight (19,2%), stem dry weight (16,3%), plant height (30,5%), leaf number (12,7 %), leaf area (21,3%), root length (12,6%), root/shoot ratio (21,1%), and productivity (17,1%) of *I. reptans* Poir compared to control. The population of osmotolerant rhizobacteria AI-19 decreased following inoculation ( $2,96 \times 10^5$  CFU/gram of soil) but increased accordingly following plant vegetative growth ( $7,41 \times 10^5$  CFU/gram of soil). Osmotolerant rhizobacteria AI-19 demonstrated resistance to various periods of drought. It was also observed that the uncultivated coastal sandy soil provides suitable environmental factors leading to higher microbial population than in the cultivated sandy soil.

Key words : coastal sandy soil, drought stress, *Ipomoea reptans* Poir, osmotolerant rhizobacteria AI-19.