

Intisari

Kekeringan merupakan salah satu faktor pembatas yang dapat memengaruhi pertumbuhan dan produksi tanaman tomat. Rhizobakteri osmotoleran memiliki kemampuan untuk menyintesis betaine yang diketahui memberikan perlindungan pada sel dalam kondisi cekaman kekeringan. Penelitian ini bertujuan untuk mengetahui sumbangan rhizobakteri osmotoleran, *Enterobacter flavescens*, terhadap pertumbuhan dan produksi tomat (*Solanum lycopersicum*) pada frekuensi penyiraman berbeda di tanah pasir pantai. Tanah pasir pantai digunakan sebagai media pertumbuhan tanaman tomat dalam *polybag*, diinokulasi *E. flavescens*, diberi pupuk organik, dan frekuensi penyiraman berbeda, yaitu 2 kali sehari; 1 kali sehari; dan 1 kali per 2 hari. Tanaman tomat dibudidayakan hingga 100 hari dan dilakukan pengukuran berupa tinggi tajuk, jumlah daun, panjang akar, berat kering tajuk serta akar, jumlah serta berat buah. Sampel tanah diambil secara berkala pada interval 15 hari untuk analisis dinamika populasi mikrobial. Hasil penelitian menunjukkan bahwa penggunaan inokulan *E. flavescens* pada frekuensi penyiraman berbeda di tanah pasir pantai memberikan sumbangan terhadap aspek agronomis dan produksi tanaman tomat. Pemberian inokulum mendukung pertumbuhan tinggi tajuk tanaman sebesar 13,17%, panjang akar tanaman sebesar 14,06%, serta berat buah tomat sebesar 32,12% (penyiraman 2 kali sehari) dan 154,24% (penyiraman 1 kali dalam 2 hari).

Kata kunci: rhizobakteri osmotoleran, *Enterobacter flavescens*, tomat, frekuensi penyiraman, pasir pantai

Abstract

Drought is one of the limiting factors affecting the growth and production of tomato plants. Osmotolerant rhizobacteria have the capability to synthesise betaine which is known to provide protection to the cells under drought stress conditions. This study was conducted to determine the contribution of osmotolerant rhizobacteria, *Enterobacter flavescens*, on the growth and production of tomato (*Solanum lycopersicum*) at different watering frequency in coastal sandy soils. Beach sand soil was used in this study as a growth medium for tomato plants in polybags, inoculated with *E. flavescens*, and supplemented with organic fertiliser at different watering frequency, i.e. twice a day; once a day; and once per two days. Tomato plants were cultivated for up to 100 days and measurements were made of plant height, number of leaves, root length, wet and dry weight of the plant, number and weight of fruit. Soil samples were taken periodically at 15 day intervals for microbial population dynamic analysis. The results of this study showed that the use of *E. flavescens* as an inoculant for tomato cultivation under the conditions water shortage in coastal sandy soil contributed to the agronomic aspects and production of tomato plants. Inoculum contributed to the growth of plant height by 13,17%, root length by 14,06%, and tomato weight by 32,12% (at the frequency of watering twice a day) and 154,24% (at the frequency of watering once per two days).

Keyword: osmotolerant rhizobacteria, *Enterobacter flavescens*, tomato, watering frequency, beach sand