

INTISARI

Spirodela polyrhiza merupakan jenis tanaman yang memiliki banyak peranan dan manfaat sehingga perlu dimaksimalkan dengan meningkatkan biomasanya. Bakteri diketahui mampu mendukung pertumbuhan dan peningkatan jumlah biomassa *duckweed*. Penelitian ini bertujuan untuk mengetahui pengaruh 10 isolat bakteri tanah yang sebelumnya diisolasi dari berbagai jenis tanah terhadap *Spirodela polyrhiza*. Akar tanaman *S. polyrhiza* direndam pada cawan petri berisi suspensi isolat bakteri tanah selama 24 jam kemudian dipindahkan ke tabung erlenmeyer berisi 50mL medium Hoagland, masing-masing tabung berisi empat *frond* dengan empat ulangan per isolat dan diinkubasi selama 14 hari di *growth chamber* dengan intensitas cahaya 3000 lux dan durasi penyinaran 16 jam terang dan 8 jam gelap dan di rumah kaca. Pengujian dilanjutkan uji patogenisitas dengan menyuntikkan isolat bakteri tanah ke daun tembakau. Data yang diperoleh kemudian dianalisis secara statistik dengan uji ANOVA ($p\text{-value} < 0,05$) dengan uji lanjut Tukey. Hasil yang diperoleh tidak menunjukkan adanya perbedaan yang signifikan antara kontrol dan yang diinokulasi isolat bakteri tanah. Berdasarkan EPG yang diperoleh, isolat bakteri tanah G berpotensi mendukung pertumbuhan *S. polyrhiza*, baik di rumah kaca maupun di *growth chamber* berturut-turut 24,14% dan 4,55% (jumlah *frond*), 18,30% dan 84,10% (bobot basah), dan 112,68% dan 54,90% (bobot kering). Hasil yang diperoleh menunjukkan bahwa seluruh isolat bakteri tanah berpotensi sebagai patogen tanaman.

Kata Kunci: *Spirodela polyrhiza*, bakteri tanah, biomassa, patogen

ABSTRACT

Spirodela polyrhiza is a type of plant that has many roles and benefits, so it needs to be maximized by increasing its biomass. Bacteria are known to support the growth and increase the amount of duckweed biomass called Plant Growth-Promoting Bacteria (PGPB). This study aims to determine the effect of 10 isolates of soil bacteria previously isolated from various types of soil on *Spirodela polyrhiza*. The roots of *S. polyrhiza* plants were soaked in a petri dish containing a suspension of each soil bacterial isolate for 24 hours then transferred to an Erlenmeyer flask containing 50 mL of Hoagland medium, each tube containing four fronds with four replications per isolate and incubated for 14 days in a growth chamber with a light intensity of 3000 lux with a duration of 16 hours of light and 8 hours of dark and in a greenhouse. The test was continued with a pathogenicity test by injecting soil bacterial isolates into tobacco leaves. The data obtained were then analyzed statistically by ANOVA test (p -value < 0.05) and Tukey test. The results obtained did not show any significant difference between the control and the inoculated treatment. Based on the EPG obtained, isolate G has the potential to support the growth of *S. polyrhiza*, both in the greenhouse and in the growth chamber, respectively 24.14% and 4.55% (number of fronds), 18.30% and 84.10% (wet weight), and 112.68% and 54.90% (dry weight). The results obtained indicate that all soil bacterial isolates have potential to be plant pathogens.

Keywords: *Spirodela polyrhiza*, soil bacteria, biomass, pathogen