

ABSTRAK

Muhammad Adrian Maulana Salim. Pengaruh Biomatriconditioning Benih Dengan Bakteri Indigenous pada Berbagai Media Matrik Terhadap Pertumbuhan dan Hasil Tanaman Kedelai (*Glycine max* (L.) Merr.) di bawah bimbingan Tri Endrawati.

Kedelai adalah tanaman pangan golongan palawija yang memiliki nilai ekonomis tinggi dan permintaan pasar yang stabil dan cenderung terus meningkat setiap tahunnya. Namun di Indonesia sendiri masih mengandalkan impor kedelai dalam memenuhi kebutuhannya dalam negeri akibat rendahnya produksi disebabkan oleh banyak faktor salah satunya kemunduran mutu benih. Penelitian ini bertujuan untuk mengetahui pengaruh Biomatriconditioning benih dengan bakteri Indigenous pada berbagai media matrik terhadap pertumbuhan dan hasil tanaman kedelai.

Penelitian dilaksanakan di Desa Rejowinangun, Kecamatan Kademangan Kabupaten Blitar pada Juni- Oktober 2025, menggunakan Rancangan Acak Kelompok (RAK) factorial dengan dua faktor. Faktor pertama adalah Biomatriconditioning dengan bakteri Indigenous yang terdiri dari tiga taraf (*Bacillus* sp, *Pseudomonas* sp dan *Azotobacter* sp), sedangkan faktor kedua yaitu media matrik terdiri dari tiga taraf (Arang sekam, Serbuk bata dan cocopeat). Setiap kombinasi terdapat dua sampel diulang sebanyak tiga kali sehingga diperoleh 54 tanaman. Parameter yang diamati meliputi tinggi tanaman, jumlah daun, diameter batang, jumlah polong, berat polong, jumlah biji dan berat biji per tanaman. Data hasil pengamatan dianalisis menggunakan analisis sidik ragam (ANOVA) pada taraf 5% dan jika terdapat pengaruh nyata dilanjutkan dengan uji Beda Nyata Terkecil (BNT) atau Uji Jarak Berganda Duncan pada taraf 5%.

Hasil penelitian menunjukkan bahwa kombinasi perlakuan terbaik adalah S2B1 (*Pseudomonas* sp dan arang sekam), yang menghasilkan tinggi tanaman tertinggi sebesar 56,5 cm, jumlah daun sebanyak 26 helai, diameter batang sebesar 69,3 mm, jumlah polong sebanyak 192,5 polong, berat polong sebesar 254,5 gram, jumlah biji sebanyak 411,2 biji dan berat biji sebesar 89,3 gram. Kombinasi perlakuan Biomatriconditioning benih dengan bakteri Indigenous pada berbagai media matrik memberikan pengaruh nyata terhadap pertumbuhan dan hasil tanaman kedelai.

Kata kunci: Kedelai, Biomatriconditioning Benih, Pertumbuhan Tanaman, Hasil Produksi

ABSTRACT

Muhammad Adrian Maulana Salim. The Effect of Biomatriconditioning of Seeds with Indigenous Bacteria in Various Matrix Media on the Growth and Yield of Soybean Plants (*Glycine max* (L.) Merr.) under the guidance of Tri Endrawati.

Soybean is a food crop belonging to the secondary crops group that has high economic value and stable market demand that tends to increase every year. However, Indonesia still relies on soybean imports to meet its domestic needs due to low production caused by many factors, one of which is the decline in seed quality. This study aims to determine the effect of seed Biomatriconditioning with indigenous bacteria in various matrix media on the growth and yield of soybean plants.

The study was conducted in Rejowinangun Village, Kademangan District, Blitar Regency from June to October 2025, using a factorial randomized block design (RCBD) with two factors. The first factor is Biomatriconditioning with indigenous bacteria consisting of three levels (*Bacillus* sp, *Pseudomonas* sp and *Azotobacter* sp), while the second factor is the matrix media consisting of three levels (Husk charcoal, Brick dust and cocopeat). Each combination of two samples was repeated three times to obtain 54 plants. The parameters observed included plant height, number of leaves, stem diameter, number of pods, pod weight, number of seeds and seed weight per plant. The observation data were analyzed using analysis of variance (ANOVA) at the 5% level and if there was a significant effect, it was continued with the Least Significant Difference (LSD) test or Duncan's Multiple Range Test at the 5% level.

The results showed that the best treatment combination was S2B1 (*Pseudomonas* sp and rice husk charcoal), which produced the highest plant height of 56.5 cm, the number of leaves was 26 pieces, the stem diameter was 69.3 mm, the number of pods was 192.5 pods, the pod weight was 254.5 grams, the number of seeds was 411.2 seeds and the seed weight was 89.3 grams. The combination of seed Biomatriconditioning treatment with Indigenous bacteria in various matrix media had a significant effect on the growth and yield of soybean plants.

Keywords: Soybeans, Seed Biomatriconditioning, Plant Growth, Production Yield