

RINGKASAN

Kedelai merupakan salah satu produk pertanian utama di Indonesia selain padi dan jagung. Kedelai dapat dimanfaatkan sebagai bahan baku industri pangan maupun industri non pangan. Kebutuhan kedelai terus meningkat, namun produksi kedelai mengalami kendala akibat adanya cekaman salinitas. Salah satu cara untuk mengatasi kendala tersebut diperlukan adanya kultivar yang toleran terhadap salinitas. Penelitian ini bertujuan untuk mengetahui respons karakter anatomis dan fisiologis daun kedelai [*Glycine max* (L.) Merr.] kultivar Grobogan terhadap cekaman salinitas.

Penelitian ini dilakukan menggunakan metode eksperimental dengan Rancangan Acak Lengkap (RAL). Perlakuan terdiri dari 5 taraf yaitu konsentrasi garam yang berbeda (0 mM, 30 mM, 60 mM, 90 mM, dan 120 mM) dengan 5 kali ulangan sehingga diperoleh 25 unit percobaan. Parameter yang diamati adalah karakter anatomis daun meliputi kerapatan trikoma dan stomata pada permukaan adaksial dan abaksial daun, panjang dan lebar stomata, tebal kutikula dan jaringan mesofil, serta rasio palisade. Parameter karakter fisiologis daun meliputi kadar klorofil. Data hasil pengamatan karakter anatomi dan kadar klorofil daun kedelai dianalisis secara kuantitatif menggunakan uji ragam (ANOVA) dengan tingkat kesalahan 5% dan 1%, dilanjutkan uji BNJ dengan tingkat kesalahan 5%.

Hasil penelitian menunjukkan bahwa terjadi perubahan karakter anatomis dan fisiologis daun kedelai akibat cekaman salinitas. Pemberian konsentrasi garam 120 mM meningkatkan tebal kutikula, rasio palisade, dan kerapatan trikoma. Namun pemberian konsentrasi garam 120 mM menurunkan panjang dan lebar stomata, kerapatan stomata, dan tebal jaringan mesofil. Pemberian konsentrasi garam tidak memberikan pengaruh yang bermakna terhadap kadar klorofil daun kedelai kultivar Grobogan. Tetapi pada konsentrasi garam 30 mM terjadi penurunan kadar klorofil dan pada konsentrasi garam 90 mM terjadi peningkatan kadar klorofil.

Kata kunci: anatomis, fisiologis, Grobogan, kedelai, salinitas

SUMMARY

Soybean is one of the main agricultural products in Indonesia besides rice and corn. Soybeans can be used as raw materials for the food and non-food industries. Soybean demand is increasing, but soybean production is experiencing problems due to salinity stress. One way to overcome this problem is to have cultivars that are tolerant of salinity. This study at to determine the response of anatomical and physiological characters of soybean [*Glycine max* (L.) Merr.] cultivar Grobogan to salinity stress.

This research was conducted using an experimental method with a completely randomized design (CRD). The treatment consisted of 5 levels, namely different salt concentrations (0 mM, 30 mM, 60 mM, 90 mM, and 120 mM) with 5 replications to obtain 25 experimental units. Parameters observed were anatomical characters of leaves including density of trichomes and stomata on the adaxial and abaxial surfaces of leaves, length and width of stomata, thickness of cuticle and mesophyll tissue, and palisade ratio. Leaf physiological character parameters include chlorophyll content. Data from observations of anatomical characters and test chlorophyll levels were analyzed quantitatively using the variance test (ANOVA) with an error rate of 5% and 1%, followed by BNJ with an error rate of 5%.

The results showed that there was a change in the anatomical and physiological characters of soybean leaves due to salinity stress. Administration of 120 mM salt concentration increased cuticle, palisade ratio, and trichome density. However, presenting a salt concentration of 120 mM decreased stomata length and width, stomata density, and mesophyll tissue thicknes. Giving salt concentration did not have a significant effect on the chlorophyll content of soybean leaves of Grobogan cultivar. But at a salt concentration of 30 mM there was a decrease in chlorophyll levels and at a salt concentration of 90 mM an increase in chlorophyll levels.

Keywords: anatomical, physiological, Grobogan, soybean, salinity