

RINGKASAN

Kedelai [*Glycine max* (L.) Merr] merupakan salah satu tanaman yang berperan penting dalam memenuhi kebutuhan pangan dalam rangka perbaikan gizi masyarakat serta memiliki nilai ekonomi yang tinggi serta berbagai manfaat lainnya seperti produksi susu soya, kecap dan pembuatan tempe. Pemanfaatan kedelai yang beragam menyebabkan permintaan terhadap kedelai terus mengalami peningkatan. Salah satu masalah yang perlu diperhatikan bagi pertumbuhan ketedelai yaitu kadar salinitas, karena kadar salinitas yang tinggi dapat berdampak negatif terhadap produktivitas tanaman kedelai. Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh kadar garam yang berbeda terhadap karakter anatomi dan fisiologi daun pada tanaman kedelai.

Penelitian ini dilakukan pada bulan Februari 2022 sampai bulan April 2022 menggunakan metode Rancangan Acak Lengkap (RAL) yang terdiri dari 5 taraf perlakuan kadar garam 0 mM, 30 mM, 60 mM, 90 mM, dan 120 mM dengan 5 kali pengulangan, sehingga terdapat 25 unit percobaan. Variabel yang diamati yaitu variabel bebas berupa kadar garam yang berbeda dan variabel terikat berupa respon anatomi dan fisiologi daun kedelai. Parameter yang diamati yaitu respon anatomi daun meliputi tebal epidermis adaksial dan abaksial, tebal kutikula, tebal mesofil, panjang dan lebar stomata, kerapatan stomata dan trikoma per 1 mm² luas daun serta respon fisiologi daun meliputi kadar klorofil (a, b, dan total) serta kadar karoten. Data hasil penelitian dianalisis menggunakan uji ragam (ANOVA) dengan standar kesalahan 5%. Perlakuan yang memberikan pengaruh nyata dilanjutkan dengan uji Beda Nyata Jujur (BNJ) dengan standar kesalahan 5%.

Hasil penelitian menunjukkan bahwa terjadi perubahan karakter anatomi dan fisiologi daun kedelai akibat konsentrasi garam. Pemberian konsentrasi garam 120 mM (P4) meningkatkan kerapatan trikoma, tebal epidermis, dan tebal kutikula. Pemberian konsentrasi garam 120 mM (P4) menurunkan kerapatan stomata, lebar dan panjang stomata, dan tebal mesofil. Hasil kadar klorofil dan karoten daun kedelai tidak menunjukkan perubahan yang nyata. Namun terjadi penurunan pada perlakuan 60 mM (P2) terhadap kadar klorofil dan terjadi peningkatan pada kadar karoten.

Kata kunci : *karoten, kedelai, klorofil, mesofil, stomata, trikoma*

SUMMARY

Soybean [*Glycine max* (L.) Merr] is one of the plants that plays an important role in staple food protein in order to nutrition. One of the problem that need to be considered for soybean growth is salinity levels, because the high salinity levels have a negative impact on soybean crop productivity. The use of various soybeans causes the demand for soybeans to continue to increase. The purpose of this study was to determine the effect of different salt levels on the anatomical and physiological characters of leave of soybean plants.

This research was conducted from February 2022 to April 2022 using a completely randomized design (CRD) method which consisted of 5 treatment levels of salt content 0 mM, 30 mM, 60 mM, 90 mM, and 120 mM with 5 repetitions, so there were 25 trial unit. The experiments was replication so that there are 25 unit experiments. The observed variable was the independent variable in the form of different salt levels, while the dependent variable was the anatomical and physiological response of soybean leaves. Parameters observed were anatomical responses of leaves including cuticle thickness and upper, lower epidermis thickness, mesophyll thickness, stomata length and width, stomatal, and trichomatal density per 1 mm² leaf area. The physiological responses including chlorophyll content (a, b, and total chlorophyll) and carotene. The data was observation of the anatomical and physiological characters of soybean leaves were analyzed with the variance test (ANOVA) with a standard error of 5%. The treatment was significantly effect followed by the Least Significant Difference (LSD) test with a standard error of 5%.

The results showed that there was a change in the anatomical and physiological characters of soybean leaves due to salt concentration. Giving a salt concentration of 120 mM (P4) increased trichome density, epidermal thickness, and cuticle thickness. Giving a salt concentration of 120 mM (P4) decreased the results of stomatal density, stomata width and length, and mesophyll thickness. The results of the levels of chlorophyll and carotene in soybean leaves did not show significant changes. However, there was a decrease in the 60 mM (P2) treatment on chlorophyll levels and an increase in carotene levels.

Keywords: *carotene, chlorophyll, mesophyll, stomata, soybean, trichomes*