

## **RESPONS ANATOMIS DAUN DAN PERTUMBUHAN TANAMAN TOMAT (*Solanum lycopersicum* L.) TERHADAP HERBISIDA BERBAHAN AKTIF AMONIUM GLUFOSINAT**

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### **INTISARI**

Tomat (*Solanum lycopersicum* L.) merupakan salah satu tanaman sayur bernilai gizi tinggi dan mudah tumbuh di daerah beriklim tropis seperti Indonesia. Permintaan pasar yang tinggi harus didukung oleh produksi budidaya tomat yang tinggi pula. Budidaya tomat memiliki risiko kegagalan produksi karena beberapa faktor, salah satunya keberadaan gulma. Penanggulangan gulma secara efektif dan cepat dapat dilakukan menggunakan herbisida tetapi juga berisiko terhadap tanaman itu sendiri. Penelitian ini bertujuan untuk mempelajari pengaruh herbisida amonium glufosinat terhadap struktur anatomi daun dan batang serta pertumbuhan tanaman tomat. Tanaman tomat diperlakukan dengan herbisida berbahan aktif amonium glufosinat dengan konsentrasi 0 mL/L (kontrol), 0,5 mL/L, dan 1 mL/L dan masing-masing perlakuan dengan tiga ulangan. Pemberian perlakuan dilakukan satu kali saat tanaman berumur 5 minggu setelah tanam. Parameter yang diamati adalah karakter morfologis, pertumbuhan, anatomi batang dan daun, serta densitas stomata dan trikoma. Hasil penelitian menunjukkan bahwa peningkatan konsentrasi herbisida dapat menurunkan jumlah daun segar. Perlakuan herbisida 0,5 mL/L dan 1 mL/L menyebabkan klorosis dan nekrosis pada daun. Tinggi tanaman meningkat hingga konsentrasi 1 mL/L. Perlakuan herbisida dapat menurunkan diameter, ketebalan epidermis, ketebalan korteks, dan diameter trakea batang, sementara ketebalan berkas pengangkut dan jumlah trakea meningkat seiring peningkatan konsentrasi. Peningkatan konsentrasi herbisida menyebabkan penurunan tebal epidermis dan berkas pengangkut ibu tulang daun (costa). Tebal ibu tulang daun (costa), helaian daun (lamina), epidermis lamina, palisade, dan spons meningkat seiring peningkatan konsentrasi herbisida. Densitas stomata abaksial dan trikoma daun tertinggi diperoleh pada perlakuan 0,5 mL/L, sementara densitas stomata adaksial tertinggi diperoleh pada perlakuan 1 mL/L. Data kuantitatif dianalisis menggunakan One Way ANOVA dilanjutkan dengan Uji Duncan pada taraf kepercayaan 95%.

Kata kunci: amonium glufosinat, anatomi batang, anatomi daun, *Solanum lycopersicum* L.

## LEAF ANATOMY AND GROWTH RESPONSE OF TOMATO PLANTS (*Solanum lycopersicum* L.) TREATED WITH HERBICIDES WITH ACTIVE INGREDIENTS GLUFOSINATE AMMONIUM

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### ABSTRACT

Tomato (*Solanum lycopersicum* L.) is a vegetable plant with high nutritional value and easy to grow in tropical areas such as Indonesia. high market demand must be supported by high production of tomato cultivation as well. Tomato cultivation has a risk of production failure due to several factors, one of which is the presence of weeds. Effective and fast weed control can be done using herbicides, but it also carries risks to the plants themselves. This study aims to study the effect of glufosinate ammonium herbicide on the anatomical structure of leaves and stems and growth of tomato plants. Tomato plants were treated with glufosinate ammonium herbicide with a concentration of 0 mL/L (control), 0.5 mL/L, and 1 mL/L and each treatment with three replications. Treatment was given once when the plants were 5 weeks after planting. Parameters observed were morphological characters, growth, stem and leaf anatomy, and density of stomata and trichomes. The results showed that increasing the concentration of herbicides could reduce the number of fresh leaves. The herbicide treatment of 0.5 mL/L and 1 mL/L caused chlorosis and necrosis of the leaves. Plant height increased to a concentration of 1 mL/L. Herbicide treatment reduced stem diameter, stem epidermis thickness, stem cortex thickness, and tracheal diameter, while the vascular bundles thickness and number of trachea increased with increasing concentrations. The increase in herbicide concentration was in line with the decrease in the thickness of the epidermis of the mother leaf bones (costa) and the leaf bundles, while the thickness of the mother veins (costa) increased with the increase in herbicide concentration. The thickness of the leaf blade (lamina), epidermis, palisade, and spongy increases with increasing herbicide concentration. The highest densities of abaxial stomata and leaf trichomes were obtained in the 0.5 mL/L treatment, while the highest densities of adaxial stomata were obtained in the 1 mL/L treatment. Quantitative data were analyzed using One Way ANOVA followed by Duncan's test at 95% confidence level.

Keyword: glufosinate ammonium, leaf anatomy, stem anatomy, *Solanum lycopersicum* L.