

RINGKASAN

Bawang merah (*Allium ascalonicum* L.) merupakan salah satu komoditas sayuran yang mempunyai arti penting bagi masyarakat, baik dilihat dari nilai ekonomi maupun kandungan gizinya. Peningkatan permintaan bawang merah mendorong terjadinya peningkatan produksi. Upaya peningkatan produktivitas bawang merah dapat dilakukan melalui peningkatan ketersediaan hara. Salah satu pengembangan dalam optimalisasi dengan penerapan pupuk yang berasal dari bahan alami. Silika (Si) dikenal dengan *beneficial element* yaitu unsur hara bermanfaat, meskipun syarat sebagai unsur hara esensial tidak terpenuhi, namun unsur Si telah lama diketahui sebagai unsur penting bagi beberapa tanaman. Pupuk Si alami merupakan pupuk yang dibuat menggunakan bahan alami mengandung silika dari bahan utama zeolit, arang ampas tebu (SCB) dan arang sekam padi. Pupuk Si alami dinilai mampu meningkatkan kadar silika yang dibutuhkan bawang merah secara non esensial.

Penelitian dilaksanakan pada bulan April 2021 hingga Januari 2022. Penelitian ini dilakukan di Fakultas Pertanian, Universitas Jenderal Soedirman. Penanaman bawang merah berada di *screenhouse* Fakultas Pertanian. Analisis kimia tanah dilakukan di Laboratorium Tanah dan Sumberdaya Lahan. Penelitian menggunakan rancangan acak kelompok lengkap (RAKL) 2 faktor dengan 3 ulangan. Faktor pertama terdiri atas 6 macam yaitu 1 kontrol dan 5 formula pupuk. Faktor kedua adalah ukuran granul yaitu 1-3 mm dan 3-5 mm. Hasil dianalisis menggunakan sidik ragam dengan derajat ketepatan 95%. Apabila hasil berbeda nyata maka dilanjutkan dengan uji lanjut DMRT (*Duncan Multiple Range Test*) derajat ketepatan 95%. Variabel yang diamati pada penelitian ini adalah sifat kimia tanah (pH H₂O, pH KCl, DHL, N total, N tersedia, dan Si tersedia), serta Si serapan tanaman dan variabel hasil panen (bobot segar umbi).

Hasil penelitian menunjukkan pemberian pupuk Si alami dapat berpengaruh terhadap pH KCl dan Si serapan tanaman bawang merah di tanah Entisol. Pemberian pupuk Si alami granul tidak dapat meningkatkan hasil panen bawang merah. Hasil penelitian juga menunjukkan interaksi faktor jenis pupuk dengan faktor ukuran granul tidak dapat memberikan hasil signifikan terhadap analisis kimia dan hasil panen bawang merah.

SUMMARY

*Shallots (*Allium ascalonicum* L.) are a vegetable commodity that has important meaning for society, both in terms of economic value and nutritional content. The increase in demand for shallots encourages an increase in production. Efforts to increase shallot productivity can be done by increasing nutrient availability. One of the developments in optimization is by applying fertilizers derived from natural materials. Silica (Si) is known as a beneficial element, namely a beneficial nutrient element, although the requirements as an essential nutrient element are not met, the Si element has long been known as an important element for several plants. Natural Si fertilizer is a fertilizer made using natural ingredients containing silica from the main ingredients of zeolite, bagasse charcoal (SCB) and rice husk charcoal. Natural Si fertilizer is considered capable of increasing the level of silica needed by shallots in a non-essential manner.*

The research had been conducted since April 2021 to January 2022. This research was conducted at the Faculty of Agriculture, Jenderal Soedirman University. The shallot planting was located in the screenhouse of the Faculty of Agriculture. Soil chemical analysis was conducted at the Soil and Land Resources Laboratory. The study used a randomized complete block design (RCBD) with 2 factors with 3 replications. The first factor consisted of 6 type, namely 1 control and 5 fertilizer formulas. The second factor is the size of fertilizer granules, namely 1-3 mm and 3-5 mm. The results of the analysis and observations were then analyzed by variance with a degree of accuracy of 95%. If the results are significantly different, it is continued with the DMRT (Duncan Multiple Range Test) with a degree of accuracy of 95%. The variables observed in this study were soil chemical characteristics (pH H₂O, pH KCl, EC, total Nitrogen, the available Nitrogen, and the available Silica), as well the Si uptake by plants and yield variables (tuber fresh weight).

The results showed that the application of natural Silica fertilizer can influential the pH KCl, and Si uptake by plants. The application of granular natural Silica fertilizer cannot increase the yield of shallots. The results also showed the interaction of the fertilizer application factor with the granule size factor provide significant results on chemical analysis and yield of shallots.