

INTISARI

TSS (*True Seed of Shallot*) banyak digunakan sebagai bahan perbanyakan untuk peningkatan produktivitas bawang merah. Tanaman bawang merah dari perbanyakan TSS mempunyai karakteristik sukar mengalami *senescence* dan umur panen yang lama. Tajuk yang belum *senescence* tersebut mengindikasikan bahwa masih terdapat potensial asimilat yang terakumulasi didaun. Penggunaan paklobutrazol dapat meningkatkan translokasi asimilat dari daun ke umbi sehingga diharapkan dapat mempercepat *senescence* dan secara tidak langsung meningkatkan produksi umbi. Penelitian ini bertujuan untuk menentukan dosis optimum aplikasi paklobutrazol yang dapat mempercepat *senescence* tanaman bawang merah dari perbanyakan biji. Penelitian dilaksanakan di Kebun Percobaan UGM, Banguntapan, Bantul, Yogyakarta, dari bulan Agustus 2017 sampai dengan Januari 2018. Penelitian faktorial 3x4 disusun berdasarkan Rancangan Acak Kelompok Lengkap (RAKL) dengan 3 ulangan. Faktor pertama adalah varietas TSS (Tuk Tuk, Sanren dan Lokananta). Faktor kedua adalah konsentrasi paklobutrazol (0, 15, 30 dan 45 mg L⁻¹). Paklobutrazol diaplikasikan pada 20 HST dan 35 HST dengan cara disemprotkan pada tajuk tanaman sebanyak 1200 mL per petak percobaan di pagi hari. Data yang diperoleh dianalisis varians (ANOVA) α 5%, jika terdapat beda nyata antar rerata perlakuan dilanjutkan uji DMRT α 5%. Penentuan dosis optimum dengan analisa regresi. Hasil penelitian menunjukkan bahwa terdapat interaksi antara varietas dan konsentrasi paklobutrazol terhadap luas permukaan akar 30 HST, persentase pembentukan umbi (*single, double, multiple*), jumlah umbi, susut bobot umbi, tingkat kekerasan, dan warna *lightness* umbi. Tidak terdapat interaksi antara varietas dan konsentrasi paklobutrazol terhadap tinggi tanaman, jumlah daun, aktivitas nitrat reduktase, kandungan klorofil, bobot basah dan kering umbi, bobot kering total tanaman, panjang akar dan bobot akar, luas daun, indeks luas daun, durasi luas daun, durasi biomassa tajuk, rasio umbi tajuk, bobot umbi per lubang tanam, padatan total terlarut, indeks panen, laju asimilasi bersih, laju pertumbuhan tanaman, produktivitas umbi, *redness* dan *yellowness* umbi. Terdapat perbedaan karakter pertumbuhan dan hasil dari ketiga varietas. Varietas Sanren memiliki potensi hasil umbi lebih tinggi bila dilihat dari rerata jumlah umbi per lubang tanam (5,50 siung) daripada varietas Lokananta (3,17 siung) dan varietas Tuk Tuk (2,49 siung). Aplikasi dosis paklobutrazol yang diberikan tidak dapat mempercepat waktu *senescence* tanaman bawang merah dari perbanyakan biji. Hal ini terlihat dari nilai luas daun yang tidak berbeda nyata pada 70 HST, kandungan klorofil tanaman yang stabil hingga waktu panen, dan durasi biomassa tajuk yang meningkat akibat pemberian paklobutrazol. Namun aplikasi paklobutrazol berdampak pada meningkatnya produktivitas tanaman. Aplikasi dosis paklobutrazol 15-30 mg L⁻¹ menghambat tinggi tanaman pada 40-50 HST dan jumlah daun pada 30-40 HST, namun meningkatkan luas permukaan akar 30 HST, panjang akar 30 HST, ANR 30 HST, laju pertumbuhan tanaman, bobot segar umbi dan bobot kering umbi panen, bobot kering total, persentase pembentukan umbi pecah, jumlah umbi bobot umbi per lubang tanam sehingga berdampak pada meningkatnya produktivitas. Dosis optimum aplikasi paklobutrazol adalah 22,75 mg L⁻¹ dengan nilai produktivitas sebesar 41,83 ton ha⁻¹. Pada aplikasi dosis paklobutrazol yang lebih tinggi yaitu 45 mg L⁻¹ tidak berbeda secara nyata dibandingkan dengan tanaman tanpa aplikasi dan cenderung menurunkan *redness* dan *yellowness* umbi.

Kata kunci: zat pengatur tumbuh, dosis paklobutrazol, produktivitas, *true seed shallot*

ABSTRACT

TSS (True Seed Shallot) is extensively used as a propagation material for shallots to increase its productivity. The characteristics of shallot from TSS propagation include difficulty in experiencing senescence in addition to its long harvest life. The shoot that has not been senescence indicates that there is still an assimilate potential that accumulates in the leaf. Paclobutrazol can increase the assimilate translocation from leaves to bulbs that it can accelerate the senescence and indirectly increase the bulb production. The objective of this study was to determine the optimum paclobutrazol dosage to increase shallots senescence from TSS propagation. The research was conducted at the UGM Experimental Field, Banguntapan, Bantul, Yogyakarta, from August 2017 to January 2018. The 3x4 factorial study was compiled based on a Randomized Complete Block Design (RCBD) with 3 replications. The first factor was TSS varieties (Tuk Tuk, Sanren and Lokananta) and the second was the dosages of paclobutrazol (0, 15, 30 and 45 mg L⁻¹). Paclobutrazol was applied at 20 DAP and 35 DAP by spraying 1200 mL per plant plot in the morning. Data obtained were analyzed for α 5% variance (ANOVA), if there were significant differences between treatments; it was followed by DMRT α 5% test. The optimum dosage was determined by regression analysis. The results showed that there were interaction between varieties and paclobutrazol dosage on root surface area 30 DAP, percentage of bulb formation (*single*, *double*, *multiple*), number of bulb, bulb weight loss, bulb hardness, and bulb lightness. There were no interaction between varieties and paclobutrazol dosage on plant height, number of leaf, nitrate reductase activity, chlorophyll content, fresh weight and dry weight of bulb, total dry weight, root length, root weight, leaf area, leaf area duration, shoot biomass duration, leaf area index, bulb-shoot ratio, bulb weight per hole planting, total soluble solid, harvest index, net assimilation rate, plant growth rate, productivity, redness and yellowness of bulb. There were differences in the character of growth and yields of the three varieties. Var. Sanren showed potential higher yield of bulb based on the average number of bulbs per planting hole (5.50 cloves) than var. Lokananta (3.17 cloves) and var. Tuk Tuk (2.49 cloves). The paclobutrazol application could not accelerate the senescence of shallot plants derived from seed propagation. This could be seen from the value of leaf area which was not significantly different at 70 DAP, the stable chlorophyll content of plants until harvest time, and duration of shoot biomass increased due to application of paclobutrazol. Nevertheless, the application of paclobutrazol had an impact on increasing plant productivity. The application of paclobutrazol at 15-30 mg L⁻¹ inhibited the plant height at 40-50 dap and the number of leaves at 30-40 dap, but increased root surface area at 30 dap, root length at 30 dap, nitrate reductase activity at 30 dap, percentage of double and multiple bulbs formation, number of bulb, bulbs weight per hole planting, so that it had an impact on increasing the productivity. The optimum paclobutrazol dosage was 22.75 mg L⁻¹ with a productivity value of 41.83 tons ha⁻¹. In the application of high concentrations of paclobutrazol (45 mg L⁻¹), showed no significant different compare to untreated plants and it tends to reduce the redness and yellowness of the bulbs.

Keywords: Growth regulator, paclobutrazol dosage, productivity, TSS (True Seed Shallot)