

PENGARUH METIL JASMONAT TERHADAP PERTUMBUHAN VEGETATIF DAN PEMBENTUKAN UMBI TANAMAN KENTANG (*Solanum tuberosum* L. 'GRANOLA')

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INTISARI

Kentang (*Solanum tuberosum* L.) merupakan salah satu komoditas utama tanaman pangan di Indonesia yang mengandung vitamin C, zat besi, seng dan kalsium serta sebagai sumber karbohidrat dan protein. Varietas Granola adalah varietas kentang sayur yang sangat populer dan menjadi varietas unggulan petani produsen. Metil jasmonat merupakan hormon yang diketahui dapat memodulasi peristiwa fisiologis pada tumbuhan seperti mendorong pembentukan umbi, berfungsi dalam perkembangan vegetatif dan penuaan daun. Penelitian ini bertujuan untuk mengevaluasi pengaruh metil jasmonat terhadap pertumbuhan vegetatif dan pembentukan umbi kentang serta mengetahui peningkatan kadar protein dan kandungan Fe (zat besi) dalam umbi kentang. Penelitian ini dilaksanakan pada bulan September 2017-Februari 2018 di Lahan Kentang Daerah Kledung, Temanggung, Jawa Tengah. Sebanyak 36 bibit kentang var. Granola (G4) dengan panjang tunas 1-2 cm ditanam pada lahan guludan. Pada umur 4 minggu dilakukan penyemprotan metil jasmonat dengan konsentrasi : 0 ppm (kontrol), 12,5 ppm, 25 ppm, 50 ppm, 75 ppm dan 100 ppm. Pengukuran tinggi tanaman, jumlah daun dilakukan pada umur 4 minggu sampai umur 7 minggu. Luas daun diukur pada umur 7 minggu dengan metode gravimetri. Dilakukan pula analisis kadar klorofil dan nitrat reduktase dengan metode spektrofotometri UV-Vis dan kerapatan stomata daun kentang dengan mikroskop obtilab. Setelah panen dilakukan pengukuran jumlah dan bobot umbi serta dilakukan analisis kadar protein dengan metode kjeldhal serta kandungan Fe (zat besi) umbi kentang dengan AAS (*Atomic Absorbtion Spectrophotometry*). Data dianalisis menggunakan ANOVA *One way* dan dilanjutkan dengan uji DMRT pada taraf uji 5%. Hasil yang didapat menunjukkan bahwa pemberian metil jasmonat secara umum tidak berpengaruh pada pertumbuhan vegetatif (tinggi tanaman dan luas daun), tetapi mengurangi jumlah daun majemuk tanaman kentang. Aplikasi metil jasmonat cenderung menurunkan jumlah umbi yang terbentuk namun meningkatkan ukuran dan bobot umbi. Pemberian metil jasmonat 25 ppm dapat meningkatkan kadar protein umbi kentang dibanding kontrol namun metil jasmonat 25 ppm tidak berpengaruh pada kandungan Fe (zat besi) dalam umbi kentang. Aplikasi metil jasmonat yang lebih tinggi dari 25 ppm cenderung menurunkan kadar protein maupun kadar Fe dalam umbi.

Kata Kunci : Kentang (*Solanum tuberosum* L. 'Granola'), metil jasmonat, pembentukan umbi, protein dan Fe (zat besi).

**THE EFFECTS OF METHYL JASMONATE ON VEGETATIVE
GROWTH AND TUBER FORMATION OF POTATOES
(*Solanum tuberosum* L. 'GRANOLA')**

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ABSTRACT

Potato (*Solanum tuberosum* L.) is one of the main food crops in Indonesia that contain vitamin C, iron, zinc, calcium and as a source of carbohydrate and protein. Granola variety is popular variety of vegetable potatoes and become the leading variety of producer farmers. Methyl jasmonat is a hormone to modulate physiological events in plants such as encouraging tuber formation, functioning in vegetative development, and leaf aging. This study aimed to evaluate the effect of methyl jasmonate on vegetative growth and potato tuber formation, also increasing of protein and iron content in potato tuber. This research was conducted in September 2017-February 2018 in Kledung Potato Area Land, Temanggung, Central Java. A total of 36 tubers of potato var. Granola (G4) tuber which already sprouting 1-2 cm were planted on the planting of beds. Follows 4 weeks after planting, they were treated with methyl jasmonate in concentration of 0 ppm (control); 12,5 ppm; 25 ppm; 50 ppm; 75 ppm and 100 ppm. Measurement of plant height and number of leaves were performed at 4 weeks until 7 weeks after planting. The leaf area was measured at 7 weeks with gravimetric method. Chlorophyll and nitrate reductase were analyzed by UV-Vis spectrophotometry, while stomatal potato leaf density was analyzed by obtilab microscope. After harvesting, number and weight of tubers were measured, protein content was analyzed by kjeldhal method, and iron content of potato tuber was analyzed by AAS (Atomic Absorbtion Spectrophotometry). Data were analyzed using One Way ANOVA and continued with DMRT test at 5% test level. The results showed that methyl jasmonat acid in general has no effect on vegetative growth (plant height and leaf area), but can reduce the number of leaves of potato plant. The application of methyl jasmonate tends to decrease the number of tubers that are formed, but increased the size and weight of the tuber. Giving methyl jasmonate 25 ppm increased protein level of potato tuber compared to control, but had no effect on iron content of potato tuber. Applications of methyl jasmonate higher than 25 ppm tend to lower protein and Fe content in the tuber.

Keywords : Potato (*Solanum tuberosum* L. 'Granola'), methyl jasmonat, tuber formation, protein and Fe (iron).