

EVALUASI METODE IRIGASI DAN DOSIS PEMUPUKAN NPK TERHADAP DINAMIKA SERAPAN HARA DAN KANDUNGAN FLAVONOID BAWANG MERAH (*Allium ascalonicum* L.)

INTISARI

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Serapan hara yang optimal berperan penting dalam menunjang pertumbuhan, hasil panen sekaligus memengaruhi kandungan flavonoid bawang merah sehingga dibutuhkan metode irigasi dan dosis pemupukan NPK yang tepat. Penelitian sebelumnya banyak menyoroiti pengaruh irigasi atau pemupukan NPK secara terpisah, tetapi penelitian integratif yang menghubungkan keduanya dengan kandungan flavonoid bawang merah masih terbatas. Penelitian ini bertujuan untuk mengukur serapan hara dan kandungan flavonoid bawang dengan variasi metode irigasi dan dosis pemupukan NPK. Penelitian menggunakan Rancangan Acak Kelompok (RAK) yang terdiri dari metode irigasi yaitu irigasi tetes (I1) dan irigasi kabut (I2) serta dosis NPK yaitu 0 kg/ha (N1), 500 kg/ha (N2), 1000 kg/ha (N3). Parameter yang diamati meliputi iklim mikro (suhu udara, RH, curah hujan), karakteristik tanah awal, kadar unsur tanah, kandungan NPK tanah, serapan NPK tanaman, flavonoid total, pertumbuhan (jumlah daun, tinggi tanaman), dan hasil panen bawang merah (berat basah umbi, berat kering umbi, diameter umbi). Irigasi kabut dengan dosis 1000 kg/ha secara signifikan meningkatkan kadar unsur tanah, kandungan NPK di tanah, serapan NPK di tanaman, pertumbuhan serta hasil panen. Kandungan nitrogen, fosfor, dan kalium tertinggi di tanah yaitu pada irigasi kabut dengan dosis 1000 kg/ha secara berurutan yaitu 0,36%, 89,20 ppm, dan 0,66 me%. Serapan fosfor dan kalium pada irigasi kabut lebih tinggi dibandingkan irigasi tetes yaitu 0,81% dan 0,89%. Pertumbuhan dan hasil panen pada irigasi kabut dengan dosis NPK 1000 kg/ha juga memberikan hasil terbaik dibandingkan irigasi tetes dengan dosis NPK 1000 kg/ha yaitu tinggi tanaman (30,69 dan 29,74 cm), jumlah daun (27,65 dan 25,77 helai), diameter umbi (30,07 dan 27,02 mm). Kandungan flavonoid total pada perlakuan irigasi tetes dengan dosis 500 kg/ha lebih tinggi dibandingkan dengan irigasi kabut dosis 500 kg/ha yaitu 78,83 dan 50,96 mg/kg. Secara keseluruhan, metode irigasi dengan dosis pemupukan NPK mampu meningkatkan serapan hara dan flavonoid bawang merah.

Kata Kunci: Bawang merah; flavonoid; irigasi kabut; irigasi tetes; NPK

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***EVALUATION OF IRRIGATION METHODS AND NPK FERTILIZER
DOSES ON THE DYNAMICS OF NUTRIENT ABSORPTION AND
FLAVONOID CONTENT IN SHALLOT (*Allium ascalonicum* L.)***

ABSTRACT

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Optimal nutrient uptake plays an important role in supporting growth and crop yield, as well as influencing the flavonoid content of shallots, thus requiring appropriate irrigation methods and NPK fertilizer doses. Previous studies have focused on the effects of irrigation or NPK fertilization separately, but integrative studies linking the two to the flavonoid content of shallots are still limited. This study aims to measure and evaluate nutrient uptake and red onion flavonoid content with variations in irrigation methods and NPK fertilization doses. The study used a Randomized Block Design (RBD) consisting of irrigation methods, namely drip irrigation (I1) and mist irrigation (I2), and NPK doses, namely 0 kg/ha (N1), 500 kg/ha (N2), and 1000 kg/ha (N3). The parameters observed included microclimate (air temperature, RH, rainfall), initial soil characteristics, soil moisture content, soil NPK content, plant NPK uptake, total flavonoids, growth (number of leaves, plant height), and onion yield (wet bulb weight, dry bulb weight, bulb diameter). Mist irrigation with a dose of 1000 kg/ha significantly increased soil moisture content, soil NPK content, plant NPK uptake, growth, and yield. The highest nitrogen, phosphorus, and potassium content in the soil was found in mist irrigation with a dose of 1000 kg/ha, which was 0.36%, 89.20 ppm, and 0.66 me%, respectively. Phosphorus and potassium uptake in mist irrigation was higher than in drip irrigation, which was 0.81% and 0.89%, respectively. Growth and yield in mist irrigation with an NPK dose of 1000 kg/ha also provided the best results compared to drip irrigation with an NPK dose of 1000 kg/ha, namely plant height (30.69 and 29.74 cm), number of leaves (27.65 and 25.77 leaves), and bulb diameter (30.07 and 27.02 mm). The total flavonoid content in the drip irrigation treatment with a dose of 500 kg/ha was higher than that in mist irrigation with a dose of 500 kg/ha, namely 78.83 and 50.96 mg/kg. Overall, the irrigation method with NPK fertilizer dosage was able to increase nutrient and flavonoid uptake in shallots.

Keywords: drip irrigation; flavonoids; mist irrigation; NPK; shallot

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