

INTISARI

Irigasi defisit dengan mulsa organik, seperti jerami padi dan brangkas kacang, berpotensi meningkatkan hasil panen melalui efisiensi air dan konservasi kelembaban tanah. Penelitian ini dilaksanakan di screen house Kebun Tridharma UGM, Daerah Istimewa Yogyakarta, dan laboratorium di Fakultas Pertanian UGM, meliputi Laboratorium Manajemen Produksi Tanaman, Ekologi Tanaman, Ilmu Tanaman, Hortikultura, dan *Agrotropica Learning Center* (AGLC). Tujuan penelitian adalah (1) mempelajari interaksi antara interval penyiraman dan jenis mulsa organik terhadap pertumbuhan dan kualitas hasil tanaman kumis kucing, serta (2) menentukan kombinasi terbaik dari interval penyiraman dan jenis mulsa organik untuk pertumbuhan dan kualitas tanaman. Percobaan menggunakan rancangan petak terbagi (*split plot*) dengan interval penyiraman (2, 4, dan 6 hari sekali) sebagai petak utama dan jenis mulsa organik (tanpa mulsa, jerami padi, brangkas kacang) sebagai anak petak. Setiap kombinasi diulang tiga kali. Hasil penelitian menunjukkan: (1) Penyiraman dengan interval 2 hari sekali memberikan respon fisiologis, pertumbuhan, dan hasil tanaman kumis kucing yang lebih tinggi dibandingkan dengan penyiraman 4 dan 6 hari sekali. Namun demikian, kandungan metabolit sekundernya justru lebih tinggi pada interval penyiraman 4 dan 6 hari sekali. Penggunaan mulsa organik terbukti mendukung pertumbuhan dan produksi metabolit sekunder, baik pada kondisi penyiraman optimal maupun pada interval penyiraman yang lebih jarang. (2) Tidak terdapat interaksi yang signifikan antara interval penyiraman dan jenis mulsa terhadap pertumbuhan tanaman, namun interaksi terdeteksi pada kandungan total flavonoid. Kombinasi perlakuan yang direkomendasikan untuk budidaya kumis kucing adalah penyiraman setiap 2 hari sekali dengan penggunaan mulsa jerami padi, karena menghasilkan akumulasi metabolit sekunder per hektar yang lebih tinggi dibandingkan perlakuan lainnya. Meskipun kandungan metabolit sekunder per gram bobot kering daun lebih tinggi pada interval penyiraman 4 dan 6 hari sekali, namun produktivitas metabolit sekunder per hektar tetap tertinggi pada interval penyiraman 2 hari sekali.

Kata kunci: kelembaban tanah, efisiensi penggunaan air, metabolit sekunder

ABSTRACT

Deficit irrigation with organic mulch, such as rice straw and bean straw, has the potential to increase crop yields through water efficiency and soil moisture conservation. This research was conducted in the screen house of UGM's Tridharma Garden, Special Region of Yogyakarta, and in laboratories at the UGM Faculty of Agriculture, including the Crop Production Management Laboratory, Plant Ecology Laboratory, Plant Science Laboratory, Horticulture Laboratory, and Agrotropica Learning Center (AGLC). The objectives of this study were (1) to examine the interaction between watering intervals and types of organic mulch on the growth and quality of Java tea plants, and (2) to determine the optimal combination of watering intervals and organic mulch types for plant growth and quality. The experiment used a split-plot design with watering intervals (every 2, 4, and 6 days) as main plots and organic mulch types (no mulch, rice straw, bean straw) as subplots. Each treatment combination was replicated three times. The results showed that: (1) Watering at an interval of once every 2 days resulted in higher physiological response, growth, and yield of Java tea compared to watering every 4 and 6 days. However, the secondary metabolite content was higher at watering intervals of 4 and 6 days. The use of organic mulch was proven to support plant growth and secondary metabolite production, both under optimal watering conditions and less frequent watering intervals. (2) There was no significant interaction between watering intervals and organic mulch on plant growth, but an interaction was detected in total flavonoid content. The recommended treatment combination for Java tea cultivation is watering once every 2 days with rice straw mulch, as it produces higher secondary metabolite accumulation per hectare compared to other treatments. Although the secondary metabolite content per gram of dry leaf weight was higher at watering intervals of 4 and 6 days, the secondary metabolite productivity per hectare remained highest at the 2-day watering interval.

Keywords: soil moisture, water use efficiency, secondary metabolites