

## **PENGARUH VARIASI VOLUME AIR DAN FREKUENSI PENYIRAMAN TERHADAP PERTUMBUHAN, KADAR KLOORFIL DAN KAROTENOID TANAMAN BAYAM MERAH (*Amaranthus tricolor* L.)**

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### **INTISARI**

Bayam merah (*Amaranthus tricolor* L.) adalah sayuran yang banyak dikonsumsi di Indonesia karena banyak mengandung gizi dan antioksidan sehingga banyak ditemukan baik di pasar tradisional maupun supermarket. Bayam merah merupakan tanaman C4 sehingga mudah ditanam dan beradaptasi pada berbagai lingkungan. Namun, adanya perubahan cuaca ekstrem membuat pertumbuhan bayam merah ikut terpengaruh. Stres air adalah salah satu efek yang ditimbulkan. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian variasi volume air dan frekuensi penyiraman sehingga diketahui efeknya terhadap pertumbuhan dan kadar pigmen fotosintesis pada bayam merah. Analisis secara statistik dengan SPSS menggunakan *analysis of variance* (ANOVA) dilanjutkan uji *Duncan Multiple Range test* (DMRT) dengan taraf signifikansi 0,05. Penanaman bayam merah dimulai dari biji, perlakuan dilakukan dua minggu setelah perkecambahan. Perlakuan yang diberikan berupa variasi volume air (50 ml, 25 ml, 12,5 ml) dan frekuensi penyiraman (setiap hari, tiap 2 hari sekali, dan tiap 3 hari sekali). Hasil menunjukkan bahwa stres air akibat kekeringan menyebabkan penurunan pertumbuhan batang, jumlah daun, berat basah, dan berat kering. Namun, meningkatkan pertumbuhan panjang akar, kadar klorofil, dan karotenoid. Perlakuan volume air 12,5 ml dan penyiraman dua hari sekali memberikan dampak stres air akibat kekeringan dan perlakuan volume air 50 ml dan penyiraman setiap hari memberikan dampak kelebihan air.

**Kata kunci:** *Amaranthus tricolor*, frekuensi penyiraman, karotenoid, klorofil, volume air

**THE EFFECTS OF VARIATION OF WATER VOLUME AND  
FREQUENCY OF WATERING ON GROWTH, CHLOROPHYL AND  
CAROTENOID LEVELS OF RED SPINACH (*Amaranthus tricolor* L.)**

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**ABSTRACT**

Red spinach (*Amaranthus tricolor* L.) is an annual vegetable that is widely consumed in Indonesia because it contains lots of nutrients and antioxidants, so it can be found in both tradisional markets and supermarkets. Red spinach is a C4 plant, so it is easy to grow and adapt to various environments. However, extreme weather changes make the growth of red spinach also affected. Water stress is one of the effects. This study aims to determine the effect of varying water volume and watering frequency so that it is known its effect on the growth and levels of photosynthetic pigments. Red spinach planting started from seeds, the treatment was carried out two weeks after germination. Statistical analysis with SPSS using *analysis of variance* (ANOVA) followed by *Duncan Multiple Range test* (DMRT) with significance level 0,05. The treatment given were variation in water volume (50 ml, 25 ml, 12,5 ml) and watering frequency ( watering every day, every 2 days, and every 3 days). The results showed that water stress decreased in stem growth, number of leaves, fresh weight, and dry weight. However, water stress increased the growth of root length, chlorophyll and carotenoid content. In the treatment of 12,5 ml water volume and watering every other day gives the impact of water stress due to drought and the treatment of 50 ml water volume and watering every day gives impact of water stress due to inundation.

**Keywords:** *Amaranthus tricolor*, carotenoid, chlorophyll, water volume, watering frequency