

**TIGMOMORFOGENESIS TANAMAN BAYAM
(*Amaranthus tricolor L.*) SEBAGAI AKIBAT PEMBERIAN
IRIGASI TETES DAN KABUT**

INTISARI

Oleh:

Ahmad Rifai

15/379189/TP/11145

Tigmomorfo genesis merupakan respon tanaman terhadap pemberian rangsangan dari luar berupa sentuhan secara langsung kepada tanaman. Pada penelitian ini rangsangan tersebut berupa cara tetesan air irigasi. Tujuan penelitian ini adalah mengukur fisiologis tanaman pada kasus tigmomorfo genesis bayam cabut (*Amaranthus tricolor L.*) sebagai akibat irigasi tetes dan kabut. Penelitian juga bertujuan untuk memprediksi pertumbuhan tanaman sawi dengan menggunakan model matematik *logistic equation*. Penelitian dilakukan di *screenhouse* dengan pemberian pupuk dan volume air yang sama pada setiap perlakuan di 4 bedengan (2 irigasi tetes dan 2 irigasi kabut). Parameter yang diamati adalah tinggi tanaman, jumlah daun, luas daun, diameter batang, panjang akar dan berat tanaman. Pengamatan dilakukan setiap 3 hari selama 30 hari. Analisis yang digunakan adalah uji anova satu arah, regresi linear, analisis deskriptif dan model *logistic equation* untuk mengetahui laju pertumbuhan tanaman. Hasil penelitian menunjukkan bahwa perlakuan irigasi kabut memberikan pengaruh yang lebih baik terhadap pertumbuhan tanaman bayam dibandingkan irigasi tetes. Nilai rerata pertumbuhan tanaman pada irigasi kabut yaitu tinggi tanaman: 18,70 cm; jumlah daun: 12,30 helai daun; diameter batang: 0,40 cm; luas daun: 811,10 cm²; berat tanaman: 44,10 gr; panjang akar: 17,02 cm. Sedangkan pada irigasi tetes yaitu tinggi tanaman: 17,56 cm; jumlah daun: 10,60 helai daun; diameter batang: 0,36 cm; luas daun: 632,28 cm²; berat tanaman: 39,80 gr; panjang akar: 14,60 cm. Hasil uji anova satu arah menunjukkan bahwa perlakuan irigasi tidak berpengaruh signifikan terhadap pertumbuhan tanaman (sign. > 0,05). Hasil pemodelan matematika dengan *logistic equation* menunjukkan bahwa model ini dapat digunakan untuk mendeskripsikan pertumbuhan tanaman bayam (R = 77%).

Kata Kunci: bayam (*Amaranthus tricolor L.*), tigmomorfo genesis, fisiologi tanaman, irigasi tetes, irigasi kabut, persamaan logistik

**THIGMOMORPHOGENESIS OF SPINACH
(*Amaranthus tricolor L.*) AS EFFECT OF DRIP AND MIST
IRRIGATION TREATMENT**

ABSTRACT

By:

Ahmad Rifai

15/379189/TP/11145

Thigmomorphogenesis is the response of plants to the provision of external stimuli in the form of touch to plants. In this study the stimulation was given by different irrigation to plants. The purpose of this study was to observe plant physiology in the case of thigmomorphogenesis of spinach (*Amaranthus tricolor L.*) as an effect of drip and mist irrigation treatment. Moreover, this study aimed to predict plant growth by using logistic equation model. The study was conducted in a greenhouse with the same fertilizer and water volume for each treatment in 4 beds (2 drip irrigation and 2 mist irrigation). The observed parameters were plant height, number of leaves, leaf area, stem diameter, root length and plant weight. Observations were carried out every 3 days for 30 days. One-way ANOVA, linear regression, descriptive analysis were used to analyze plant growth parameter; while logistic equation model was applied to predict plant growth rate. This study resulted that physiological plant parameters under mist irrigation treatment was higher than drip irrigation. The mean value of plant parameters under mist irrigation were 18.70 cm; 12.30 leaves; 0.40 cm; 811.10 cm²; 44.10 gr; 17.02 cm for plant height, number of leaves, stem diameter, leaf area, plant weight and root length, respectively. Meanwhile, the mean value of plant parameters under drip irrigation were 17.56 cm; 10.60; 0.36 cm; 632.28 cm²; 39.80 gr; 14.60 cm for plant height, number of leaves, stem diameter, leaf area, plant weight and root length, respectively. Statistically, irrigation treatments had no significant effect on plant growth (sign. > 0.05). Furthermore, logistic equation was accepted as prediction model to describe plant growth of spinach ($R_{\text{average}} = 77\%$).

Keywords: spinach (*Amaranthus tricolor L.*), thigmomorphogenesis, plant physiology, mist irrigation, drip irrigation, logistic equation