

EFFECT OF THE SPRAYING WITH TDZ AND G-GANA IN SOME VEGETATIVE GROWTH CHARACTERISTICS OF STRAWBERRY

Sarab Samir Saleh* and Mohammed Khazaal Hameed

College of Agriculture, University of Anbar, Iraq.

*e-mail: alani2005ms@yahoo.com

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ABSTRACT : A factorial experiment was conducted in the Complete Randomized Blocks Design (CRBD) in the greenhouses of the Department of Horticulture, College of Agriculture, Anbar University, at the agricultural season 2018-2019 to determine the effect of spraying with TDZ and G-GANA growth regulators in some vegetative growth characteristics of Strawberry (*Fragaria ananassa* Duch.). The experiment included two factors, the first one was spraying with TDZ growth regulator in three concentrations (0, 3 and 6 mg L⁻¹) while the second factor was the spraying with G-GANA growth regulator in four concentrations (0, 500, 1000, and 1500 mg L⁻¹). The results showed that the spraying with TDZ at a concentration of 6 mg L⁻¹ (T₂) significantly increased the number of runners on the plant (3.55 runner plant⁻¹), number of daughter plants on the runner (1.40 plant runner⁻¹), number of total daughter plants per mother plant (5.06 plant), number of lateral branches (crowns) on the main stem of mother plant (4.83 crown plant⁻¹, leaves area (904.10 cm²) and number of leaves on the mother plant (32.67 leaf plant⁻¹) which all significantly differed with control treatment. On the other hand, the spraying with G-GANA at 1000 mg L⁻¹ (G₂) significantly increased the number of runner on the plant (3.60 runner plant⁻¹), number of daughter plants on the runner (1.37 plant runner⁻¹), number of total daughter plants per mother plant (5.11 plant), leaves area (771.90) and number of leaves on the mother plant (30.56 leaf plant⁻¹) Compared with the control treatment. The interaction between spraying with 6 mg L⁻¹ of TDZ and 1000 mg L⁻¹ of G-GANA (T₂G₂) significantly increased the number of runner on the plant (5.13 runner plant⁻¹), number of daughter plants on the runner (1.54 plant runner⁻¹), number of total daughter plants per mother plant (7.93 plant), number of lateral branches (crowns) on the main stem of mother plant (6.33 crown plant⁻¹), number of leaves on the mother plant (39.67 leaf plant⁻¹) and leaves area (1370.90 cm²) compared with the control treatment.

Key words : Strawberry (*Fragaria ananassa*), spraying, TDZ, G-GANA.

INTRODUCTION

Strawberry (*Fragaria ananassa* Duch.) is an important fruit plant, which belongs to the Rosaceae family and it is one of the most widespread and consumed berries crops in the world. It is economically and commercially important, with global production equals doubling of other berries production (Giampieri *et al*, 2014)) and it is the fourth most consumed fruit after apples, oranges and bananas (Virginie, 2010). Strawberry fruits discriminate with its high nutritional value because it contains important food compounds (Raab *et al*, 2006).

The plant spraying with growth regulators has an essential role in the growth and development as the necessary biological and physiological processes happened in the plant area result of the control and influence of these substances. Cytokinin plays an important role in reducing the apical dominance, it was observed that treating plants with cytokinines inhibit the role of auxin and it is also works as a sink to suck nutrient

substances to the treatment site causing stimulating lateral buds growth (Krishnamorthy, 1981). Thidiazuron (TDZ) is one of the industrial cytokinines and is highly effective due to its non-metabolism by the cytokinin oxidation enzyme, so its effect stay long time (Pai and Dessai, 2018). TDZ physiological effectiveness includes the inhibition of apical dominance resulting in the growth of lateral buds as well as the stimulation of cell division and elongation in addition to its effect on the movement, transition and metabolism of elements in the location of the treated tissues. It also plays an important role in delaying chlorophyll degradation as well as hormonal regulation of plant phenotypic and other physiological functions (Shudo, 1994). Growth regulators play a major role in many important physiological events in the regulation of plant growth. One of these growth regulators is gibberellins as (GA₃), which promotes cell elongation and increases the efficiency of plant absorption of nutrients which leads to increase plant growth. NAA is an industrial auxin that has an effect in many of