

ABSTRACT

The present investigation was carried out on fruitful trees of orange Tanarif cv. budded on sour orange rootstock grown in Horticultural Research Station at El-Kanater El-Khairia, during 2002/2003 and 2003/2004 seasons. Two experiments were conducted in this work; whereas the complete randomized block design with 5 replications for each treatment. The main purpose of the present study was hope to through some light on cause/s or reason/s of the incidence of fruit creasing "albedo breakdown" and possibility for minimizing such phenomenon practically through the investigating the relationship between fruit qualities, nutritional status and occurrence of fruit creasing from one hand as related to either the some irrigation regime or the foliar spray with GA₃ solely or combined with P or K. The obtained results could be summarized as follows:

Obtained results pointed out that the highest values of creasing %, fresh weight, size, dimensions, fruit rind and adjacent leaf P; K; Ca and Mg contents significantly achieved by Tanarif trees subjected to irrigation regime after depletion of 25 % A.W. and decreased rind weight & thickness; all fruit chemical properties and fruit rind and adjacent leaf N, Fe, Mn, Zn and Cu contents significantly decreased with irrigation after depletion of 75 % A.W. while the reverse was true with the severest water stress (irrigation after depletion of 75 % A.W.).

On the other hand, GA₃ solely or combined with P or K or (P + K) increased all fruit physical & chemical properties except TSS %, and total acidity which was not affected. In addition, creasing %, peel and adjacent leaf of most nutrient element were decreased.

Northern half of the tree canopy induced fruits significantly higher in their average fresh weight, size, dimensions, creasing %, V.C content and rind & leaf N, P, K, Fe and Zn content. The trend took the other way around with the fruit juice (weight & volume), fruit peel (weight & thickness), TSS %, TSS/acid ratio, fruit peel & adjacent leaf Ca, Mg, Mn and Cu contents, whereas fruits of the southern limbs were higher values in this concern.

As for the specific relationship between fruit status (creased and sound), data displayed that all physical and chemical properties for sound fruits, fruit peel and adjacent leaf Ca, Fe, Mn and Zn had significantly increased, whereas the peel & leaf N, P, K, Mg and Cu contents were significantly decreased. In addition, the reverse was true with the creased peel fruits and adjacent leaf.

On the light of the obtained results it may be recommended that using foliar spray treatment with GA₃ at 40 ppm solely or combined with P at 200 ppm or K₂SO₄ at 3 % or (P + K) treatments may be recommended to improve Tanarif fruit physical & chemical, decreased creasing % and increasing fruit rind adjacent leaf mineral contents.

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