Effect Of Foliar Spraying of Zeatein on Growth, Physiological Characteristics and Storage Duration of Lycopersicon Esculentium L. Tomato Fruits Post-Harvest.

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- **Abstract:** The experiment was conducted during the summer season 2020-2021 in the desert farms in Al-Haidariya district - Najaf governorate in order to study the effect of zeatin hormone with different concentrations as foliar spray on the physiological characteristics of tomato fruits stored at different temperatures, where the seeds of the tomato plant L were sown. Lycopersicon esculentum, a hybrid variety Rawaa F1 on 7/20/2020, and the study included two field experiments, where plants were sprayed with four concentrations of zeatin hormone (0 compared, 25, 50 and 75) mg / liter in three periods, the first when (10-15 appeared)) Real leaves, followed by other sprays for ten days between one spraying and another. In this experiment, the growth curve of the fruit was measured in terms of its diameter, as it was measured starting from a week after the last spray and for a period of five weeks. The experiment was carried out using the Complete Random Design CRD in a simple experiment with three replications, and it was compared The averages according to the LSD test were the Least Significant Difference at a probability level of 5%. As for the laboratory experiment, the fruits of the experiment were harvested after (120) days from the date of sowing the seeds when the surface of the fruit was colored in a pink color while it was in the light red stage of maturity. Some physiological characteristics of a section of the fruits before storing for comparison, and the other section of the fruits were divided into groups in 3 kg bags, according to the experimental parameters (Zeatin concentrations) mentioned above, and stored at different temperatures (5,10 and 25) °C for a period of (21) days and then the physiological characteristics were measured for fruits after storage, The results of the study showed that for the field experiment, it was noted that the increase in Zeatin concentrations led to an increase in the growth and development of the size of the fruit by measuring its diameter compared to the comparison treatment (distilled water), (46.83) mm, as for the storage experiment, it was noted that the physiological characteristics of tomato fruits before storing were the best when using Zeatein at a concentration of 75 mg / liter, which gave the highest percentages of (fruit hardness, total soluble solids T.S.S), which was (8.08). kg/cm2, 8.03% respectively, while the lowest percentage of respiratory rate was

recorded, which amounted to (4.81) mg/CO2 kg fruits / hour. As for the storage temperature, the storage temperature of 5 °C gave the best results for the studied trait (fruit hardness), which amounted to (6.17 kg / cm2), while the characteristic decreased (respiration rate), which reached (8.20) mg / CO2 kg of fruits / hour, while the (respiratory rate, total dissolved solids (T.S.S) percentage) increased, which reached (10.11) mg/CO2 kg fruits / hour, (5.17%) respectively at storage temperature of 25 ° C, the interaction of the concentration of Zeatein 75 mg / liter and the storage temperature of 5 ° C preserved the studied characteristics such as (total soluble solids T.S.S (6.58)%, fruit hardness (7.52) kg\cm2, while the Zeatein interaction treatment of 75 mg/liter with temperature of 25°C gave the highest values for respiratory rate (7.15) mg/CO2 kg fruits/hour.
- **Keywords:** Desert farms, Zeatin hormone, Foliar spray, Seeds