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**Fifth Article: Sharing with another inside the specialization (From PhD - Thesis) - Published**

<b>Article title</b>	<b>Changes in Histological Characters and Biochemical Attributes in the Tomato Hybrids Infested with <i>Tetranychus urticae</i> Koch (Acari: Tetranychidae)</b>
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**Abstract**

Our study was conducted to determine how red spider mite infection affected tomato leaves' histological characters and biochemical attributes. *Tetranychus urticae* infection impacts four tomato hybrids, 09, Supper-gekal, Super strain B, and Blatenium on particular histological traits and biochemical elements. Thirty leaf samples of each infested and uninfested plant were collected, transported to the lab, and prepared for histological and biochemical analysis. As a result of infestation, the thickness  $\mu\text{m}$  of epidermis and parenchyma cells of tomato leaves in all examined hybrids was influenced, it decreased for upper and lower epidermis cells and conversely, it increased in the case of parenchyma cells compared with uninfested tomato leaves as a control. In all tested hybrids, mite infestation lowered photosynthetic pigments such as chlorophyll a, b, and total carotenoids in addition to the indicators of photosynthetic activity. The percentage loss of photosynthetic pigments of the 09 hybrid was affected more than the other three hybrids recording 37.47, 23.99, and 34.27% of chlorophyll a, b, and total carotenoids. Some organic substances were evaluated in 09 hybrids including lipids, carbohydrates, proteins, flavonoids, phenols, and alkaloids plus, nutrients such as total nitrogen, potassium, and phosphorus. Results revealed that mite infestation affected all tested biochemical components. Lipids, proteins, phenols, and alkaloids were generally higher in infested leaves (1.69, 18.84, 1.211, and 0.94 g/100g), respectively than in uninfested leaves (1.53, 18.66, 0.963, and 0.68 g/100g). Flavonoids and carbohydrates were significantly reduced in infested leaves, measuring 19.38 and 0.042 (g/100 g), respectively as opposed to 21.78 and 0.084 (g/100g) in uninfested leaves.