

P-78 (72)**EFFECT OF DIFFERENT WATER DEFICIENCY LEVELS ON SOME ENZYMATIC ACTIVITIES OF WATERMELONS ACCESSIONS**

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Water deficiency is known as an important factor that exerts a negative impact on crops yield especially in arid and semiarid regions such as Iran. Therefore, there is a dire need of finding some plants with high water requirement such as watermelon that have a special tolerance against water deficiency. Different types of watermelon have been cultivated in various parts of Iran. Thus, the present study aimed to investigate the effect of water deficiency on some enzymatic activities of five watermelon accessions. For this purpose, five edible accessions ('TN-94-766', 'TN-94-769', 'TN-94-545', 'TN-94-485' and 'Crimson Sweet') compared under four water deficiency levels including 100%, 80%, 60% and 40% available water (AW). Our results indicated that with increasing the level of water deficiency, the Guaiacol Peroxidase (GPX) activity and H₂O₂ content was increased significantly. The Catalase (CAT) and Ascorbate peroxidase (APX) activity increased from 100% AW to 60% AW, but at 40% AW, the activity of these enzymes decreased. Although the highest CAT, APX, and GPX activity after the first and second harvesting time were belonged to TN-94-485, at the final harvesting the highest CAT and APX activity was observed in Crimson Sweet Cultivar and TN-94-485 accession at 60% and 40% AW, respectively. Also, the lowest CAT activity at the first harvesting time was obtained in Crimson Sweet Cultivar at the 100% AW. The H₂O₂ content was high at 40% AW, and the highest one belonged to TN-94-766 accession at the first harvesting time, Crimson Sweet Cultivar at the second harvesting time, and TN-94-485 at the final harvesting time. Based on our results it seems that TN-94-485 accession had the best performance and Crimson Sweet Cultivar had the lowest performance under water deficiency. Thus, TN-94-485 accession can be introduced as a tolerant accession among those accessions under water deficiency.

Keywords: catalase, guaiacol peroxidase, ascorbate peroxidase, H₂O₂ content, available water, harvesting time