

**First Article (common- Published).**

<b>Article title</b>	<b>Ameliorative Effects of Some Antioxidants on Water-Stressed Tomato (<i>Lycopersicon esculentum</i> Mill.) Plants</b>
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<b>Article status</b>	common- Published
<b>The Journal</b>	Journal of Applied Sciences Research, 7(12): 2470-2478, 2011
<b>Impact Factor</b>	None

**Abstract**

A 2-year pot experiment was conducted to investigate the effects of paclobutrazol (PBZ) and Ascorbic acid (AA) on leaf chlorophyll, osmolyte contents; proline and soluble sugars, nutrient contents; N, P, K, Fe, Mn and Zn, the activities of antioxidant enzymes; superoxide dismutase (SOD), catalase (CAT) and peroxidase (POD), fruit yield and its quality, and water use efficiency (WUE) in tomato 'Hybrid Alex 63' plants subjected to water stress. Plants were treated with two regimes of irrigation water, i.e., 100% (control) and 60% of field capacity (FC) and two levels of both paclobutrazol (PBZ) (0.0 and 50 mg l<sup>-1</sup>) and ascorbic acid (AA) (0.0 and 250 mg l<sup>-1</sup>). The contents of leaf chlorophyll, osmolytes and nutrients, the activities of antioxidant enzymes, fruit yield and its quality, and WUE were significantly altered by both water stress and antioxidant treatments. Results indicated that both PBZ and AA mitigated the water stress and significantly increased all tested parameters, except total soluble solids (TSS %), as compared to non-antioxidant-treated water-stressed plants. Our results showed that, PBZ or AA application removes suffering tomato plants grown under water stress by the increase in osmolyte contents and enhancing the activity of the antioxidant enzymes. PBZ was more efficient than AA in this concern.