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The Effects of Ultraviolet Radiation on Some Antioxidant Compounds and Enzymes in *Capsicum annuum* L.

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 [Keywords](#)  
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**Abstract:** Plants have evolved mechanisms to avoid and repair UV radiation damage; it is not surprising that photomorphogenic responses to UV-B and UV-C are often assumed to be adaptations to harmful radiation. Free radicals generated by UV are likely to be involved in the induction of antioxidant defence system. In this study plants were grown for 5 weeks in controlled conditions. Plants were grown in vermiculite medium before applying the UV treatments, and irrigated daily by Hoagland solution for 5 weeks. After 5 weeks, plants were exposed to UV-A (320-390 nm), UV-B (312 nm), and UV-C (254 nm) irradiation with a density of 6.1 (Wm<sup>-2</sup>), 5.8 (Wm<sup>-2</sup>) and 5.7 (Wm<sup>-2</sup>) for 2 weeks. Each plant was exposed to UV in their light period for 27 min per day for 14 days. In each experiment 4 replicates were used. Data were analyzed using SPSS software, and averages were compared by Duncan's test. Activity of antioxidant enzymes could be found in the plant antioxidant defence system. The activity of antioxidant enzymes (namely, peroxidase, polyphenol oxidase, ascorbate peroxidase, catalase, and glutathione reductase) enhanced in leaves and roots of pepper plants in response to UV-B and UV-C radiation. The increase in the activity of antioxidant enzymes could minimise the effects of ultraviolet radiation. UV treatments induced significant increase in ascorbic acid in leaf and root of exposed plants. The present study was conducted to determine the role of antioxidant defence mechanism in UV-A, UV-B and UV-C treated plants of *Capsicum annuum* L.

**Key Words:** UV radiation, Antioxidant enzyme, *Capsicum annuum*

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