

Effects of Different Organic Manures on the Antioxidant Activity, Vitamin C and Nitrate Concentrations of Broccoli (*Brassica oleracea L. var italica*)

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Abstract : The objective of this study was to evaluate the effects of different organic manures on antioxidant activity, vitamin C and nitrate concentrations of broccoli (*Brassica oleracea L. var italica*) plants. For this purpose, broccoli plants were grown on open field conditions in 2 successive years (2011-2013) including 4 different seasons [(Spring 1 (March-June, 2011), Autumn 1 (September 2011-January 2012), Spring 2 (March-June, 2012), Autumn 2 (September 2012-January 2013)]. Organic manures (Farm manure (FM), vermicompost (VC) and leonardite (L) and its mixture (50 % FM+50% L, 50 % VC+50% FM, 50% L+50% VC and 33% FM+33% VC+33% L), one chemical fertilizer and one control, collectively 9 applications was investigated. The results indicated that the vitamin C concentrations of broccoli plants ranged from 31.4-55.8 mg/100 g, 43-631 mg/kg in nitrate concentrations and 11.0-56.7 mg/ml as IC50 inhibition values in antioxidant activities of broccoli plants. Also, it was determined that the effective applications were at the 50 % VC+50% FM for vitamin C concentrations, at the chemical fertilizer for nitrate concentrations and at the 100 % FM for antioxidant activities.

Keywords : broccoli, chemical fertilizer, farm manure, leonardite, vermicompost

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