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Liaison of phenolic acids and biological activity of *Daucus carota* cultivars indigenous to Pakistan

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The aim of the present study was to investigate the phenolic compounds from seven different cultivars of *Daucus carota* and their antioxidant properties. High performance liquid chromatography (HPLC) with diode array detector was used, for the determination of phenolic compounds. HPLC analysis revealed the presence of hydroxycinnamic acids and derivatives in *Daucus carota* extracts. 5-caffeolquinic acid was a major hydroxycinnamic acid (From 30.26 mg/100 g to 65.39 mg/100 g) detected in different *Daucus carota* cultivars. The detectable phenolic contents in different cultivars decreased in the following order: DC-Purple > DC3-Red > T29-Red > D90-Red > DCW-Red > DC-White > DC-Yellow i.e., 54.62, 20.29, 19.71, 18.72, 17.07, 16.15 and 12.80 mg/100 g, respectively. Antioxidant activity was measured using three *in vitro* assays viz. Hydroxyl radical averting capacity (HORAC), Hydroxyl radical scavenging activity (HORSA), and 2,2-diphenyl-1-picrylhydrazyl (DPPH). Among *Daucus carota* cultivars, significant differences ($P<0.05$) were obtained with respect to antioxidant composition and antioxidant activity. Total phenolics and total Total ascorbic acid varied from 30.26 to 65.39 mg/100 g fresh weight (fw) and 41.12 to 58.36 mg/100 g fw respectively. DC-purple cultivar was found to be rich source of phenolics and ascorbic acid with very high antioxidant activity.

Biography

Shahzad Ali Shahid Chatha is a regular Assistant Professor of Chemistry at Government College University Faisalabad, Pakistan and presently working/contributing his skills and expertise in waste water treatment research project as Post-doctoral Fellow in the Department of Chemical and Biochemical Engineering, The University of Western Ontario, London, Canada.

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