VARIATION IN ANTIOXIDANT PROPERTIES AND PHENOLICS CONCENTRATION IN DIFFERENT ORGANS OF WILD GROWING AND GREENHOUSE CULTIVATED *CASTILLEJA TENUIFLORA* BENTH.

ABSTRACT

The content of total phenolic compounds and flavonoids was determined in methanol extracts of root, stem, leaves, and inflorescences from wild growing and greenhouse cultivated plants of *Castilleja tenuiflora*. The antioxidant activity in each extract was evaluated using three in vitro models: scavenging of free radicals with 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2′-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) diammonium salt (ABTS), and reducing power by the phosphomolybdenum assay. Both, antioxidant activity and phytochemicals content were influenced significantly ($P < 0.05$) by the source of the plant material and the organ. Cultivated plants had the highest content of phenolic compounds (37.95 mg gallic acid equiv. g^{-1} dry weight, $P < 0.05$) and the strongest antioxidant activity. Total phenolic compounds content correlated significantly with the antioxidant activity for all studied plant material and organs ($P < 0.05$). TLC profile using DPPH as a detection reagent indicated that the phenylethanoids verbascoside and isoverbascoside are the main contributors to the free-radical scavenging of *C. tenuiflora*. Cultivated plants of *C. tenuiflora* are an alternative source of natural antioxidants to wild growing plants. The antioxidant properties of *C. tenuiflora* may be associated with its traditional use to treat conditions consistent with radical-related diseases (e.g. inflammation, tumors).

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