Title Effect of preliminary processing, method of drying and storage temperature on the level of antioxidants in kale (*Brassica oleracea* L. var. *acephala*) leaves

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Abstract

The levels of vitamin C, polyphenol constituents and Trolox equivalent antioxidant activity (TEAC) were analyzed in raw kale leaves, blanched leaves and dried leaves obtained using air and freeze-drying methods. 100 g of raw kale leaves contained 683 mg vitamin C and 2236 mg polyphenols (identified using the HPLC method); the level of antioxidative activity was 71 μM Trolox/1 g dry matter. Compared with the raw material, blanching before drying brought about significant decreases of 15% in vitamin C, 32% in polyphenols and13% in TEAC. After 12-month storage, air-dried material retained 30–37% polyphenols; 43–57% vitamin C; and 41–50% of the initial TEAC level; the corresponding values for freeze-dried material were 40–47%; 50–65% and 54–66% depending on the type of sample. Freeze-dried kale leaves contained higher levels of antioxidants than air-dried material: polyphenols, vitamin C and TEAC were respectively 36%, 15%and 33% higher.