

- Int J Food Sci Nutr. 2005 Nov;56(7):473-81.

### **Antioxidant and free radical scavenging activities of some leafy vegetables.**

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Some leafy vegetables were studied for their nutritional composition, antioxidant and free radical scavenging activities. The aerial parts of *Coriandrum sativum*, *Spinacia oleracea*, *Trigonella corniculata* and *Trigonella foenum-graecum* showed lower inhibitory concentration values (4.1-7.9 mg/ml), efficiency concentration values (178-321 mg/mg DPPH) and higher values of anti-radical power (0.31-0.51) as compared with their seeds. Thermal treatment reduced the total phenolic contents, antioxidant and free radical scavenging activities. The leaves of *C. sativum* were found with good amounts of caffeic acid, ferulic acid, gallic acid and chlorogenic acid.

Publication Types: Research Support, Non-U.S. Gov't

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- J Herb Pharmacother. 2004;4(2):1-10.

### **Antioxidant activity of the aqueous extracts of spicy food additives—evaluation and comparison with ascorbic acid in in-vitro systems.**

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The antioxidant activity of the aqueous extracts of five umbelliferous fruits--caraway (*Carum carvi*), coriander (*Coriandrum sativum*), cumin (*Cuminum cyminum*), dill (*Anethum graveolens*) and fennel (*Foeniculum vulgare*)—were investigated in comparison with the known antioxidant ascorbic acid in in vitro studies. The amount of aqueous extract of these five umbelliferous fruits and ascorbic acid needed for 50% scavenging of superoxide radicals was found to be 105 microg (caraway), 370 microg (coriander), 220 microg (cumin), 190 microg (dill), 205 microg (fennel) and 260 microg (ascorbic acid). The amount needed for 50% inhibition of lipid peroxide was 2100 microg (caraway), 4500 microg (coriander), 4300 microg (cumin), 3100 microg (dill), 4600 microg (fennel) and 5000 microg (ascorbic acid). The quantity needed for 50% inhibition of hydroxyl radicals was 1150 microg (caraway), 1250 microg (coriander), 470 microg (cumin), 575 microg (dill), 700 microg (fennel) and 4500 microg (ascorbic acid). The daily use of the above fruits in various forms is very common in India and the present study revealed strong antioxidant activity of their extracts that was superior to known antioxidant ascorbic acid and indicate their intake may be beneficial as food additives.

Publication Types: Comparative Study, In Vitro, Research Support, Non-U.S. Gov't

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### **Radical scavenging activity of black cumin (*Nigella sativa* L.), coriander (*Coriandrum sativum* L.), and niger (*Guizotia abyssinica* Cass.) crude seed oils and oil fractions.**

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Crude vegetable oils are usually oxidatively more stable than the corresponding refined oils. Tocopherols, phospholipids (PL), phytosterols, and phenols are the most important natural antioxidants in crude oils. Processing of vegetable oils, moreover, could induce the formation of antioxidants. Black cumin (*Nigella sativa* L.), coriander (*Coriandrum sativum* L.), and niger (*Guizotia abyssinica* Cass.) crude seed oils were extracted with n-hexane and the oils were further fractionated into neutral lipids (NL), glycolipids (GL), and

PL. Crude oils and their fractions were investigated for their radical scavenging activity (RSA) toward the stable galvinoxyl radical by electron spin resonance (ESR) spectrometry and toward 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical by spectrophotometric method. Coriander seed oil and its fractions exhibited the strongest RSA compared to black cumin and niger seed oils. The data correlated well with the total content of polyunsaturated fatty acids, unsaponifiables, and PL, as well as the initial peroxide values of crude oils. In overall ranking, RSA of oil fractions showed similar patterns wherein the PL exhibited greater activity to scavenge both free radicals followed by GL and NL, respectively. The positive relationship observed between the RSA of crude oils and their color intensity suggests the Maillard reaction products may have contributed to the RSA of seed oils and their polar fractions. The results demonstrate the importance of minor components in crude seed oils on their oxidative stability, which will reflect on their food value and shelf life. As part of the effort to assess the potential of these seed oils, the information is also of importance in processing and utilizing the crude oils and their byproducts.

Publication Types: Comparative Study

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- Indian J Biochem Biophys. 1999 Feb;36(1):59-61.

**Coriandrum sativum changes the levels of lipid peroxides and activity of antioxidant enzymes in experimental animals.**

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The antiperoxidative effect of coriander seeds (*Coriandrum sativum*) was studied in rats administered high fat diet. Significant decrease in the levels of lipid peroxides, free fatty acids and glutathione was observed when compared to control group whereas the activity of antioxidant enzymes showed increase.

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