

Title           Antioxidant properties of cold-pressed black caraway, carrot, cranberry, and hemp seed oils  
Author         Liangli Lucy Yu, Kequan Kevin Zhou and John Parry  
Citation       Food Chemistry Volume 91, Issue 4, August 2005, Pages 723-729  
Keyword       Antioxidant; Free radical scavenging; LDL oxidation, Cold-pressed edible oil, Black caraway seed oil;  
                  Cranberry seed oil, Carrot seed oil, Hemp seed oil

### **Abstract**

Cold-pressed black caraway, carrot, cranberry, and hemp seed oils were extracted with methanol and evaluated for radical-scavenging activities against ABTS<sup>•+</sup> and DPPH<sup>•</sup>, chelating activity, oxygen radical absorbing capacity (ORAC), and total phenolic contents (TPC). All the oil extracts had significant antioxidant activities. The ORAC value ranged from 28 to 220  $\mu\text{mol TE/g}$  oil for the cold-pressed hemp, carrot, and black caraway seed oils, whereas the ABTS<sup>•+</sup> – scavenging capacity ranged 8.9–30.8  $\mu\text{mol TE/g}$  oil for the four cold-pressed edible seed oils. The greatest TPC, 3.53 mg gallic acid equivalent (GE) per gramme of oil, was detected in the cold-pressed black caraway seed oil extract, while the lowest TPC, 0.44 mg GE/g, was observed in the cold-pressed hemp seed oil extract. In addition, methanol extracts of the cold-pressed black caraway and cranberry seed oils were evaluated for their inhibitory capacities on human LDL oxidation by measuring the reduction of the thiobarbituric acid-reactive substance production (TBARS). Both oil extracts significantly suppressed the lipid peroxidation in human LDL, with TBARS reductions of 2.84 and 3.77 mg/g for cranberry and black caraway seed oil extracts, respectively. These results suggest that cold-pressed black caraway, cranberry, carrot and hemp seed oils may serve as dietary sources of natural antioxidants for health promotion and disease prevention, and the cold-pressed black caraway seed oil may be used as a natural antioxidative food additive for improving food quality and stability.